Time Electronics
Calibration, Test and Measurement

Multifunction Calibrator Control Software

User Manual

Revision 2403-1

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To ensure correct operation and safety, please follow the instructions in the product user manual.

Time Electronics reserves the right to change the contents, specifications and other information contained in this manual without notice.

Contents

1 Introduction

The Time Electronics multifunction calibrator control software application provides an advanced user interface for series 2 models. Connect a PC or laptop to the calibrator and the application will communicate with the instrument for control, configuration, and information display and readback.

It is an intuitive control application that enables a fast method of function selecting, setting and output. Quickly adjust and deviate values in real time, and easily select function ranges and units required.

The control software is designed to work with keyboard and mouse, or via touch screen operation. It is ideal for a bench setup performing testing work and calibration applications.

2 Setup

2.1 Operating System Requirements

Windows 10 or 11 (64-bit only).

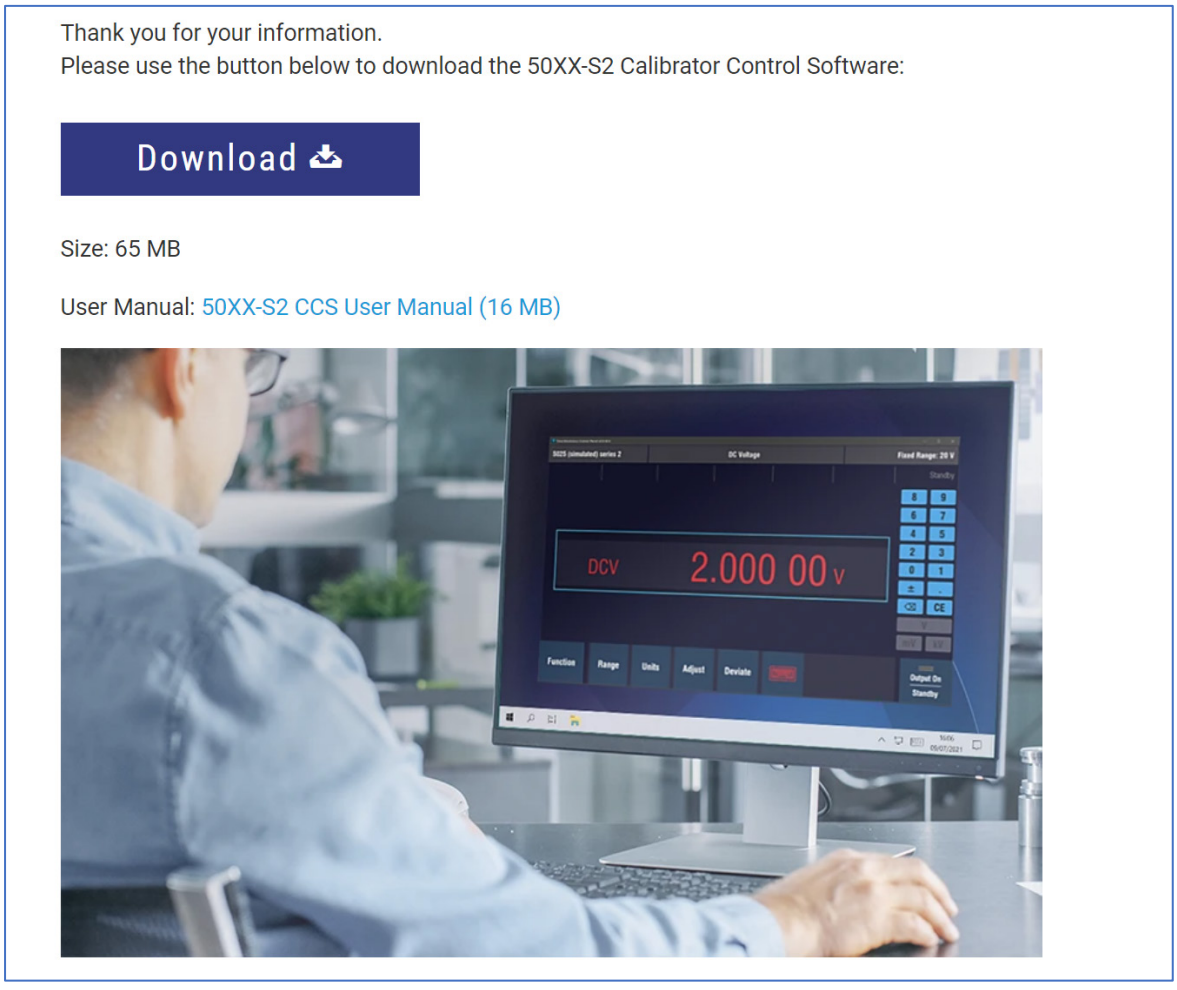
2.2 Downloading the Software

The software is available for download from the Time Electronics website.

Please visit: www.timeelectronics.com/contact/50xx-s2-ccs-download-registration

Fill out the contact form.

Once submitted you will be taken to the download page:

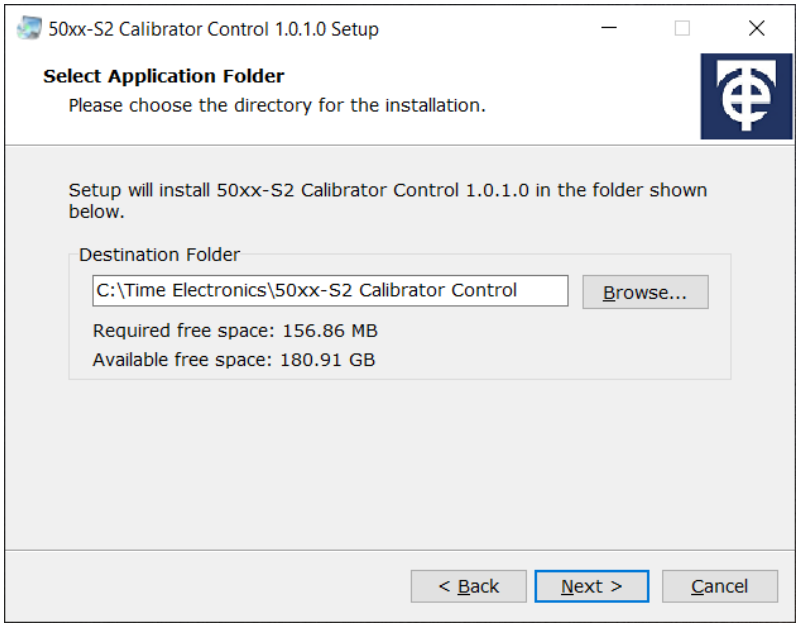


Click on the download button.

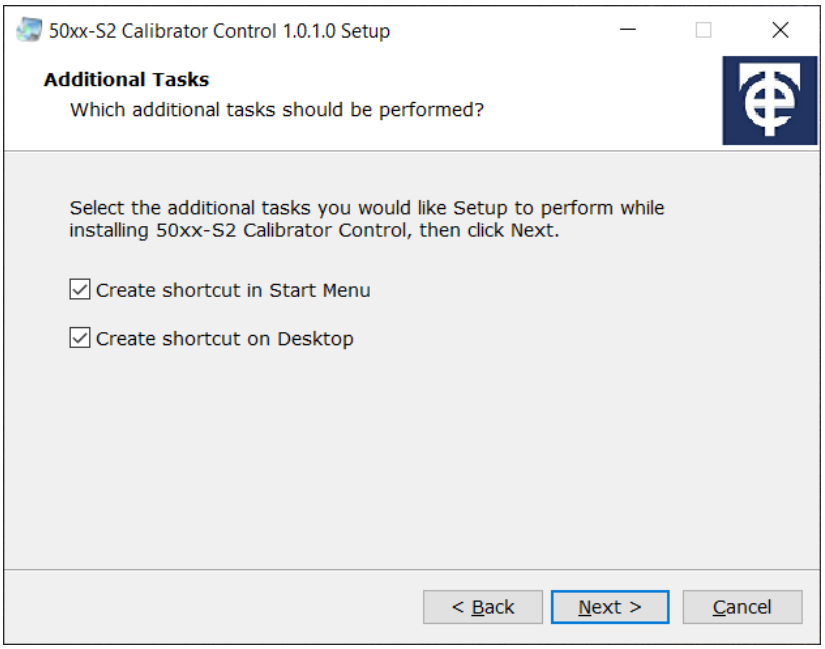
2.3 Installation

To install the application on a PC, run the setup app (e.g. 50xx-s2-ccs-1.0.1.0-setup.exe). The setup app will appear. Click Next to continue setup.

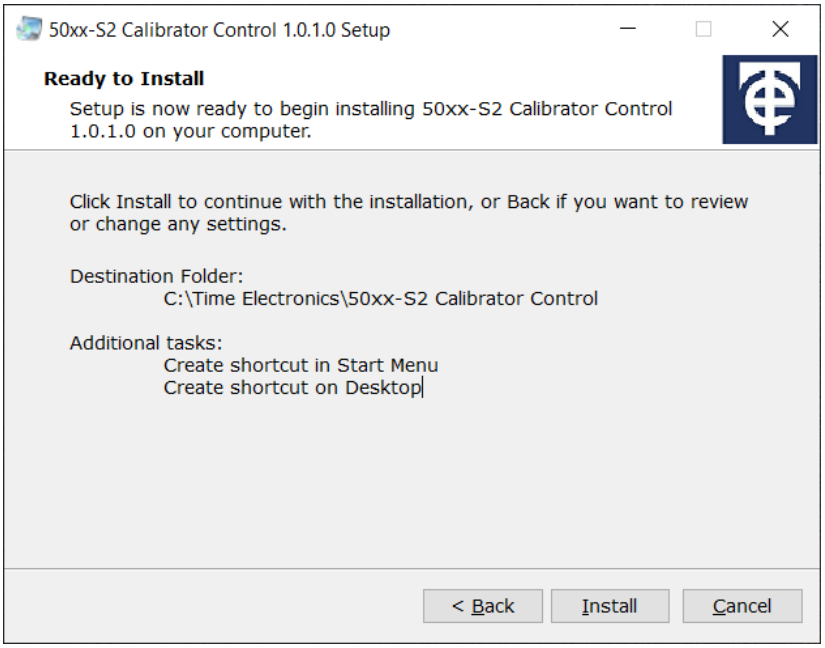
The destination folder will contain the application files. Use the default folder suggested by the setup app or select your own. Then click Next.



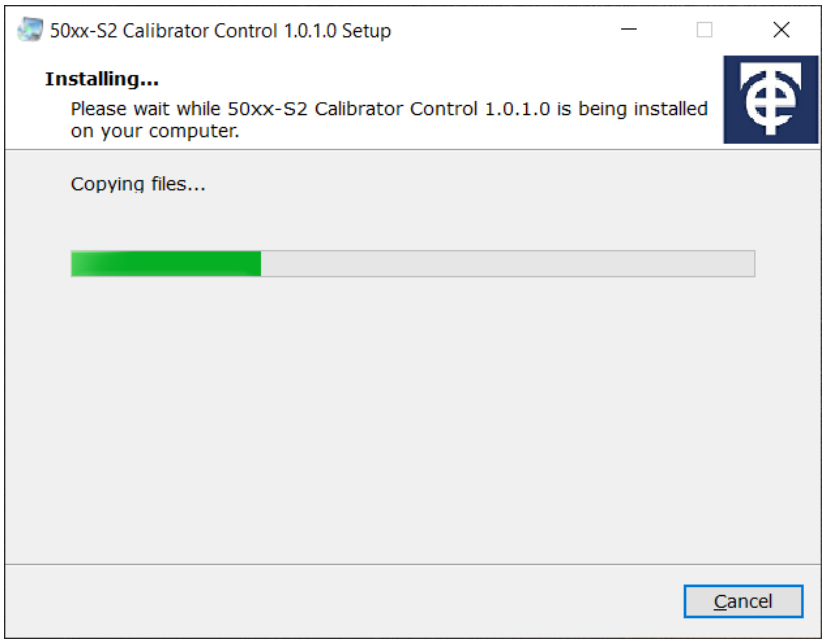
Shortcuts to the application will be created on the desktop and in the Start Menu (within a new group called “Time Electronics”). Uncheck either of these boxes if you do not want that shortcut created.



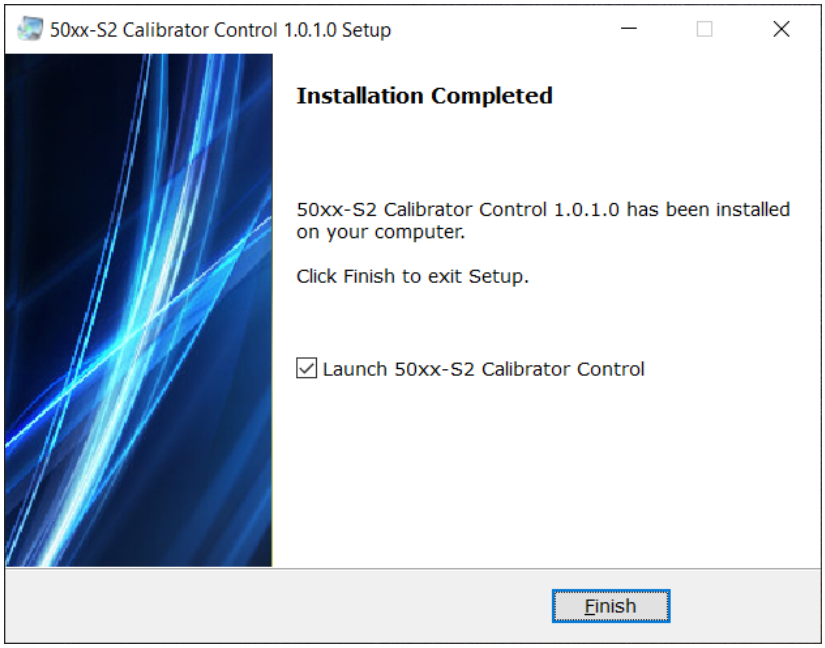
Now check your selections are correct and click Install to install the application. Alternatively, click Back to change your selections. Or click Cancel to cancel the installation completely.



During installation, a progress bar will be shown. Installation will take between a few seconds and a minute.

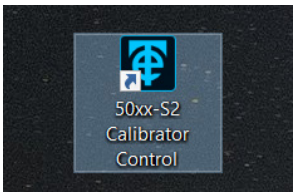


When installation is complete, you can choose to launch the application immediately. Uncheck the box to prevent it launching.

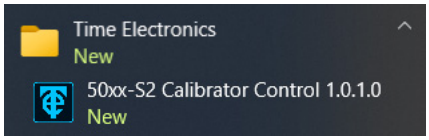


Click Finish to close the setup application.

Following installation, if the “Create shortcut on Desktop” option was checked, then you will see this shortcut on your desktop:



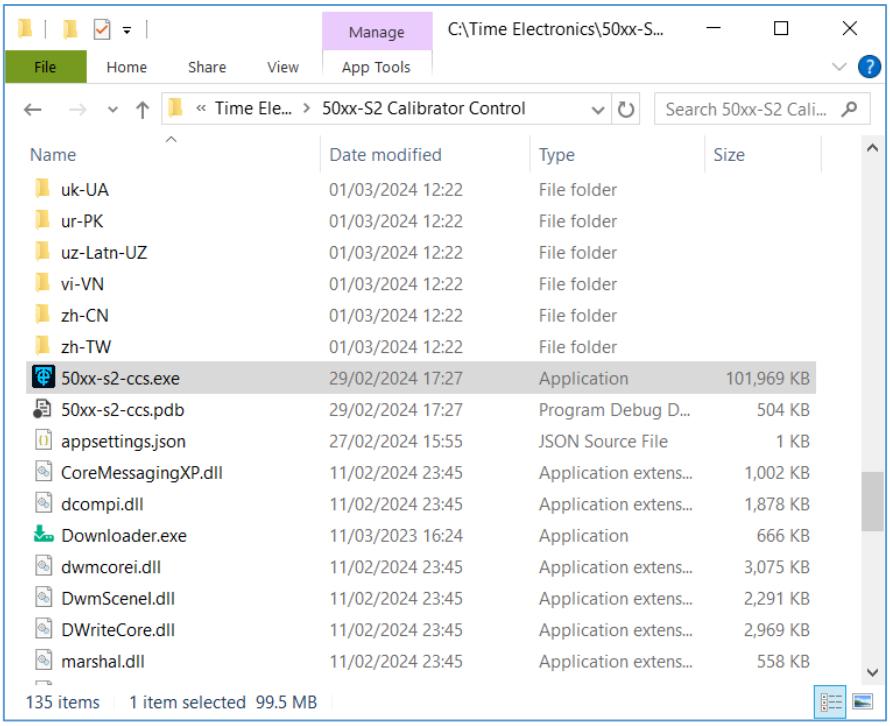
If the “Create shortcut on Start Menu” option was checked, then you will see a new group “Time Electronics” in your Start Menu with a link to the application inside:



2.4 Starting the Application

Start the application using either the shortcut on the desktop or the shortcut in the Start Menu (see Installation section for more details).

Alternatively, open the application’s install folder (e.g. C:\Time Electronics\50xx-S2 Calibrator Control).



To start the application, double-click on the file named “50xx-s2-ccs.exe” (it may display as “50xx-s2-ccs” on your PC). To help identify the file, it has a Time Electronics logo beside it.

2.5 License Registration

The calibrator control software is a subscription based licensed software, meaning that a key code is required to use it. There are two ways to obtain a license key code:

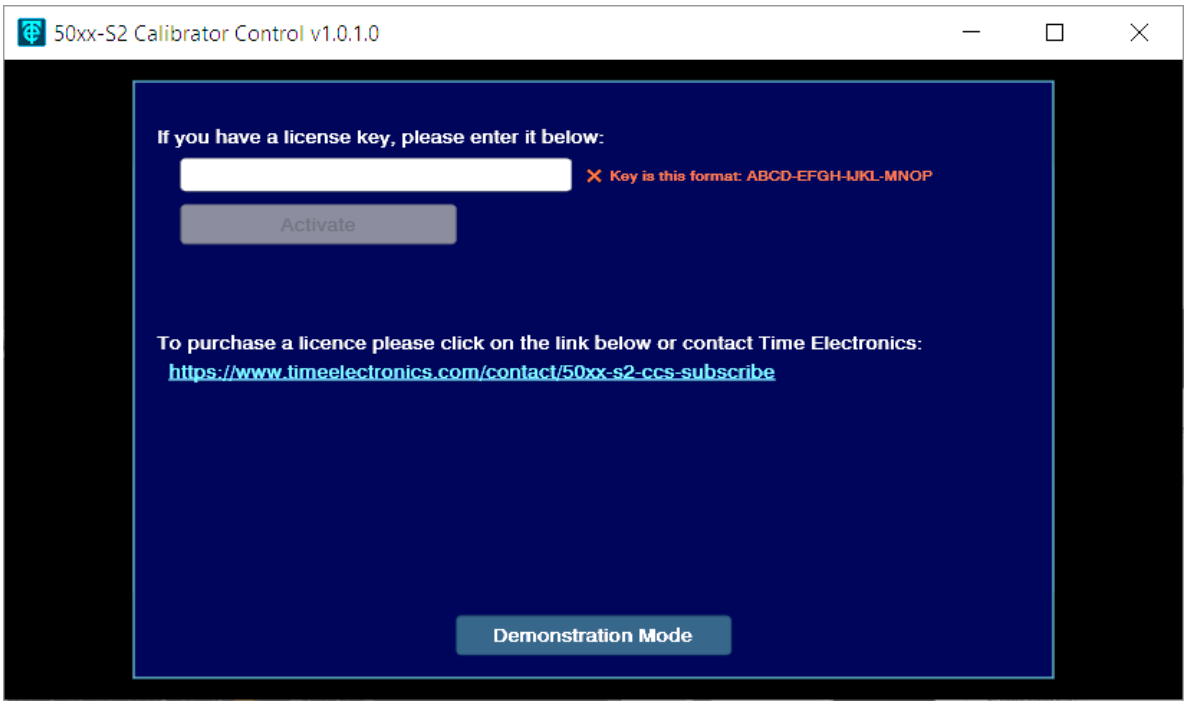
1. When a Series 2 calibrator is purchased, a 1-year license is supplied as standard. The key code will be issued at the time of purchase.

2. You can purchase a license from Time Electronics at: www.timeelectronics.com/contact/50xx-s2-ccs-subscribe

2.5.1 Registration (internet connection required)

*Note: If your computer does not have an active internet connection, please see **section 8** of this manual for detailed steps on how to register.*

When you first open the application will display this screen at startup:



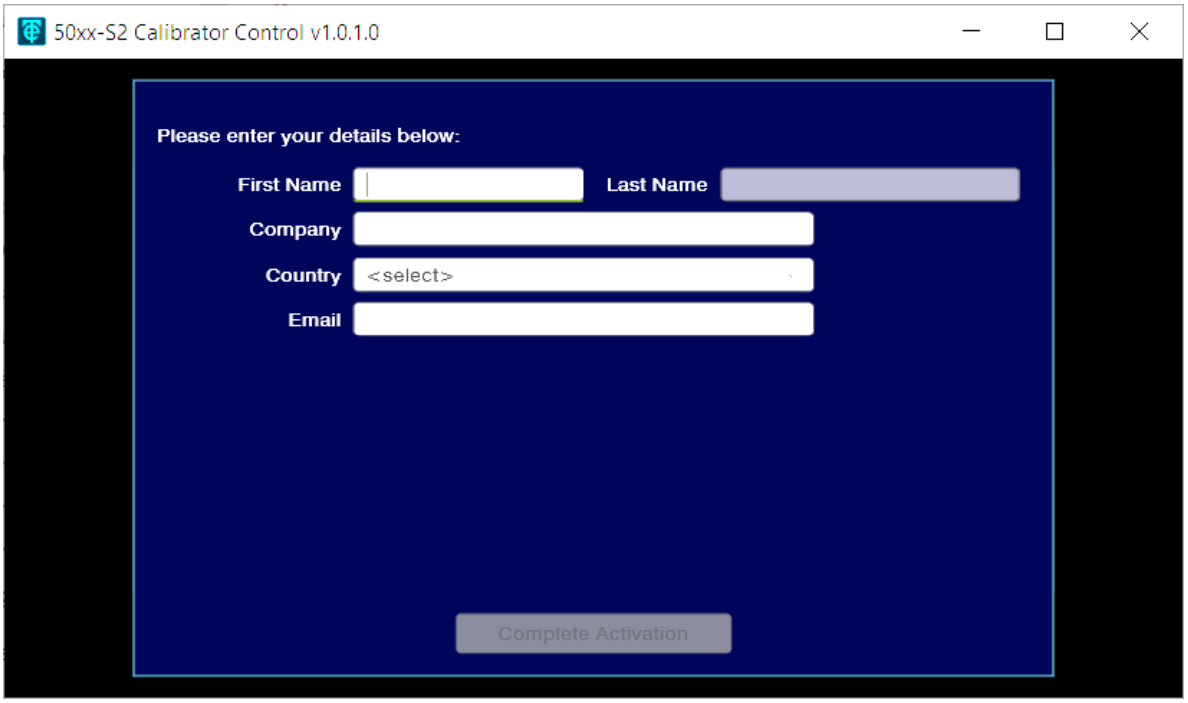
If you have a license key, enter it into the box. If you do not have a license key, you can purchase via the link shown on screen, or contact Time Electronics.

Note that your license key will comprise of 4 groups of 4 letters and numbers, with the groups separated by hyphens.

When you have entered your license key, click the **Activate** button.

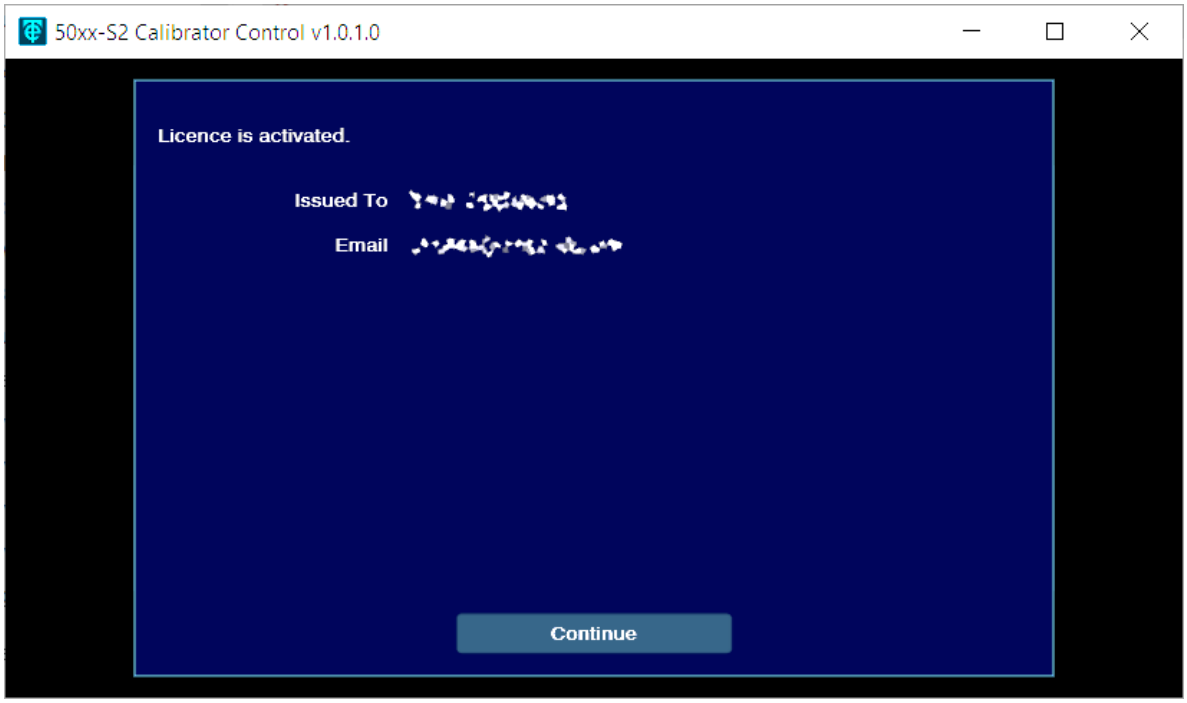
If you do not have a license key and do not want to purchase one, click the Demonstration Mode button. In Demonstration mode, the application can only control a simulated 5025 calibrator, so you can see the application in action. The application will not control a real 5025 calibrator.

On the following screen you will be required to enter some user information.
Note that if you purchased a subscription license via our website then this screen will not appear and the activation will complete, as details have been taken at the purchase stage.



Once the details are entered, click the **Complete Activation** button.

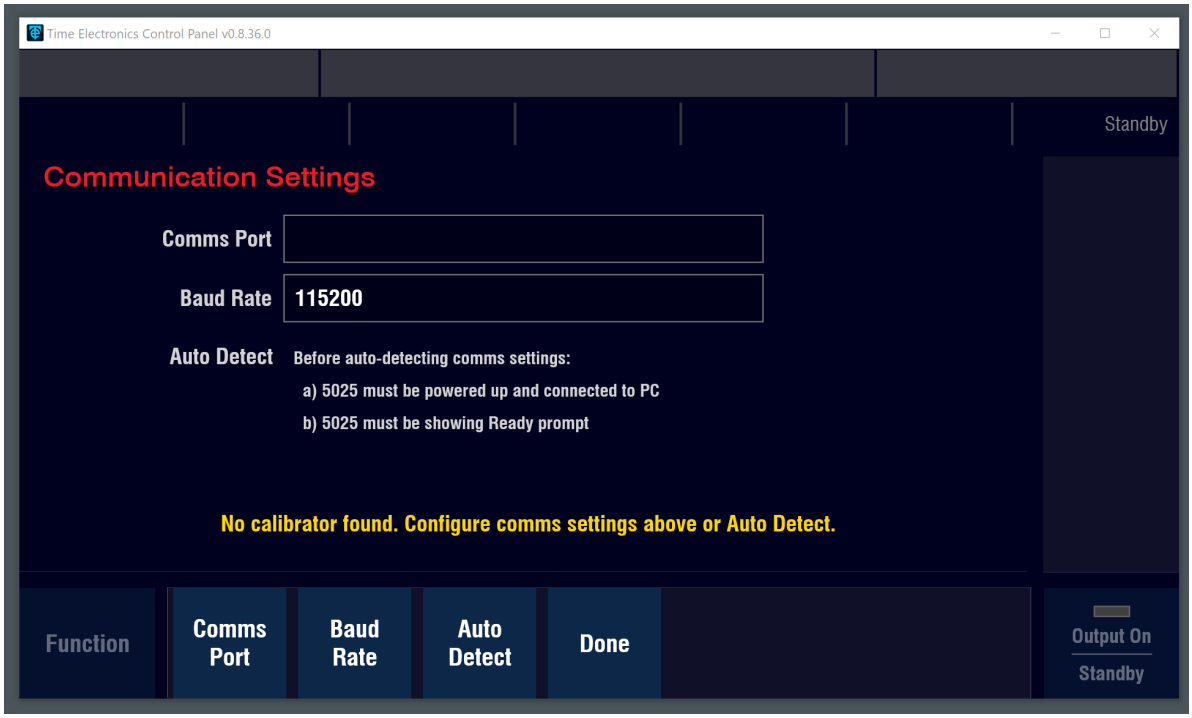
After a few seconds, this screen will appear to show activation has completed successfully:



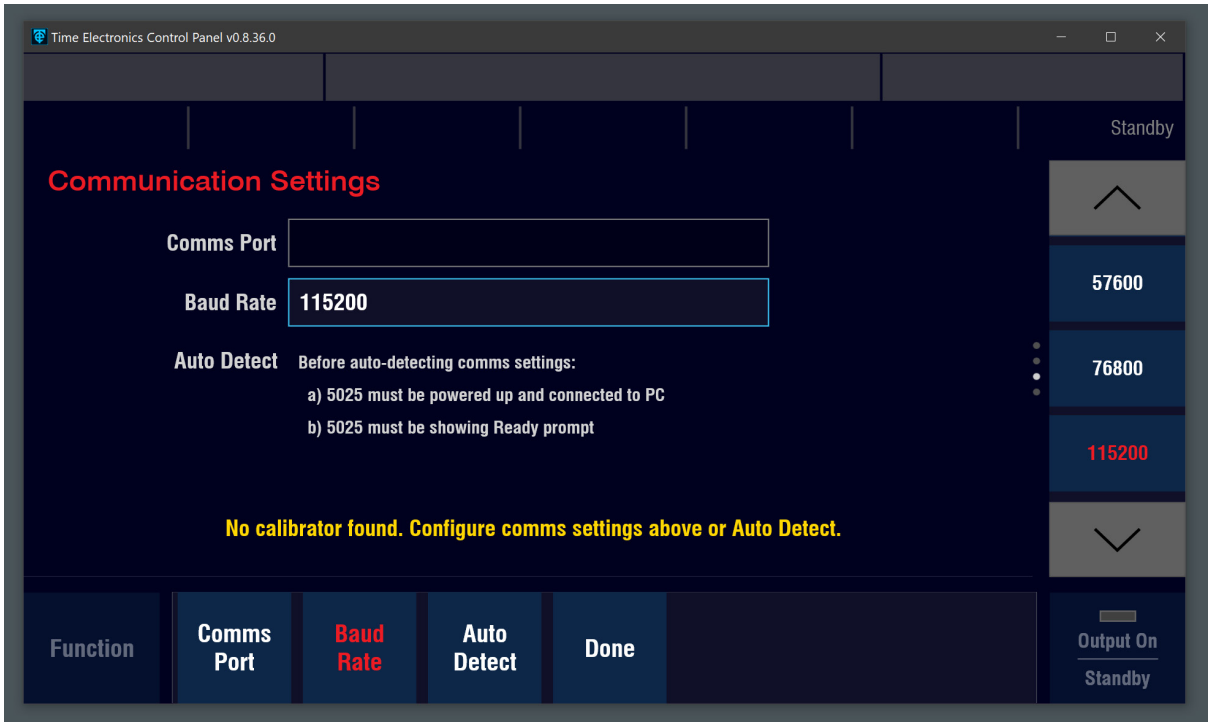
Click on the **Continue** button to start using the application.

2.6 Communication Settings

When the application is first launched, the communication setting screen will appear:



To utilise the auto-detect setting, connect the calibrator to the computer.
You can also manually configure the communication using the buttons in the bottom of the screen. These will allow you to enter the comms port and baud rate. A side menu will show the available baud rates when the button is selected.

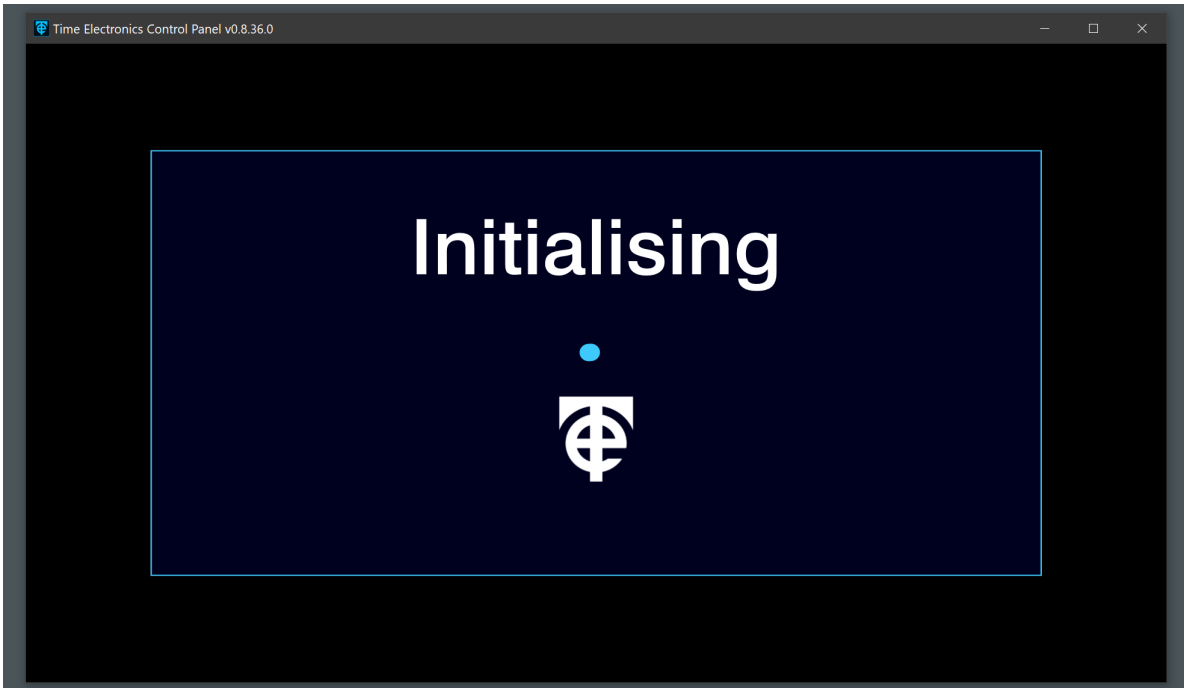


Once connection is established, you must close the application and restart.

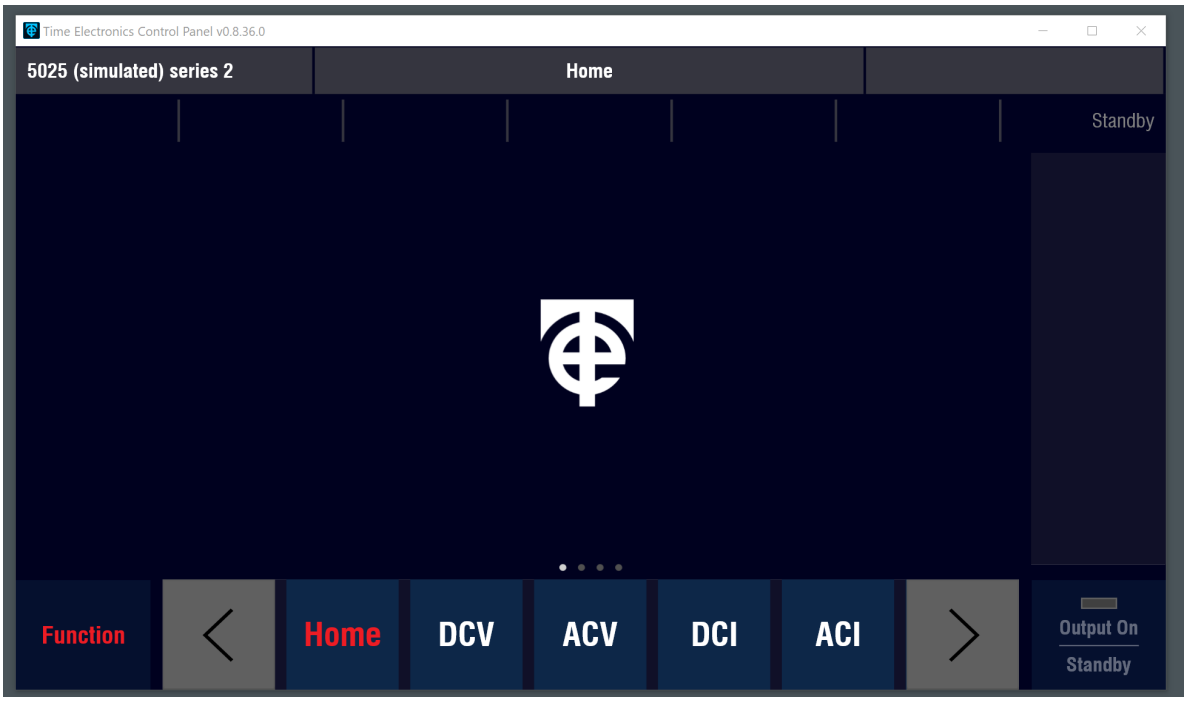
3 Operation

Important Note: *This application should be used alongside the calibrator user manual and all safety warnings and guidelines in that document should be followed.*

After setup the control panel application can be started. An initialising screen will briefly display as the application loads:

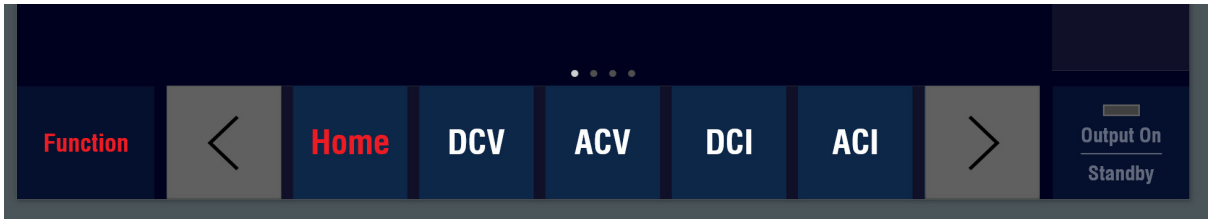


Once loaded the application home screen will display:



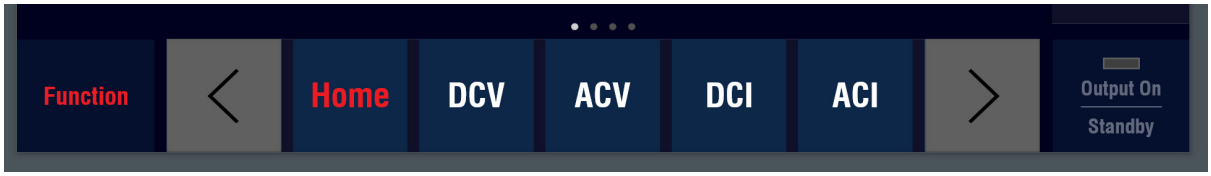
3.1 Functions

On the home screen, the function menu buttons are displayed in the bottom section. The buttons listed will depend on the calibrator functions. The following examples will be based on the 5025C-S2 multifunction calibrator.

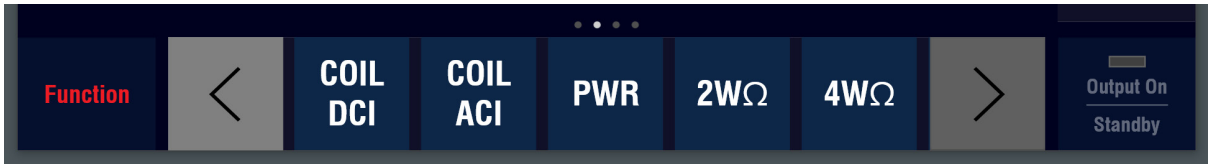


The menu has right and left arrow buttons to view the selection of functions. The dots above the menu indicate the page of the menu:

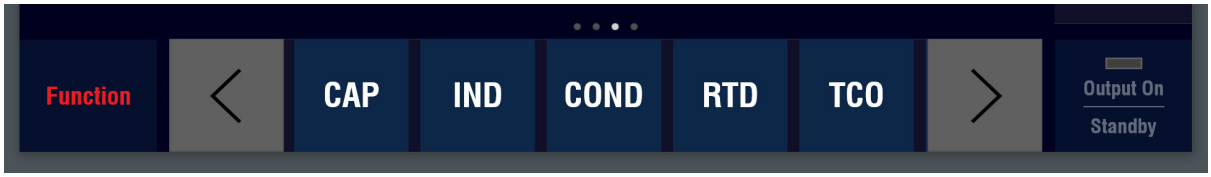
Function Menu Page 1:



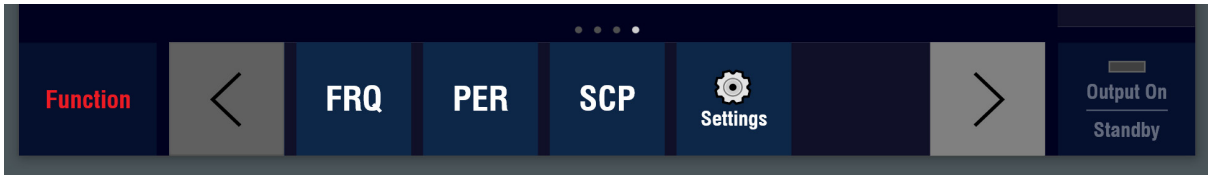
Function Menu Page 2:



Function Menu Page 3:



Function Menu Page 4:



The function buttons are active from the home screen and can be selected.

The buttons in red (Function and Home) are inactive, and are used once a function is selected to return to the home screen. The output button is also inactive at this time because no function is selected for use.

3.2 DC Voltage or Current **DCV | DCI**

DC Voltage and DC Current have common operation steps. Shown here is DC V.

Press the **DC V** button. The DC Voltage function screen will display:

By default the application will set to auto-range. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:

To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Note: *DC Voltage has a selectable high drive mode that provides a higher output current to power more demanding instruments such as analogue meters or voltage detectors. This can be set in the Settings Menu – Options. See the Settings Section later in this guide for details.*

To exit the function, press the **Function** button.

The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.

3.2.1 Setting an Output Value

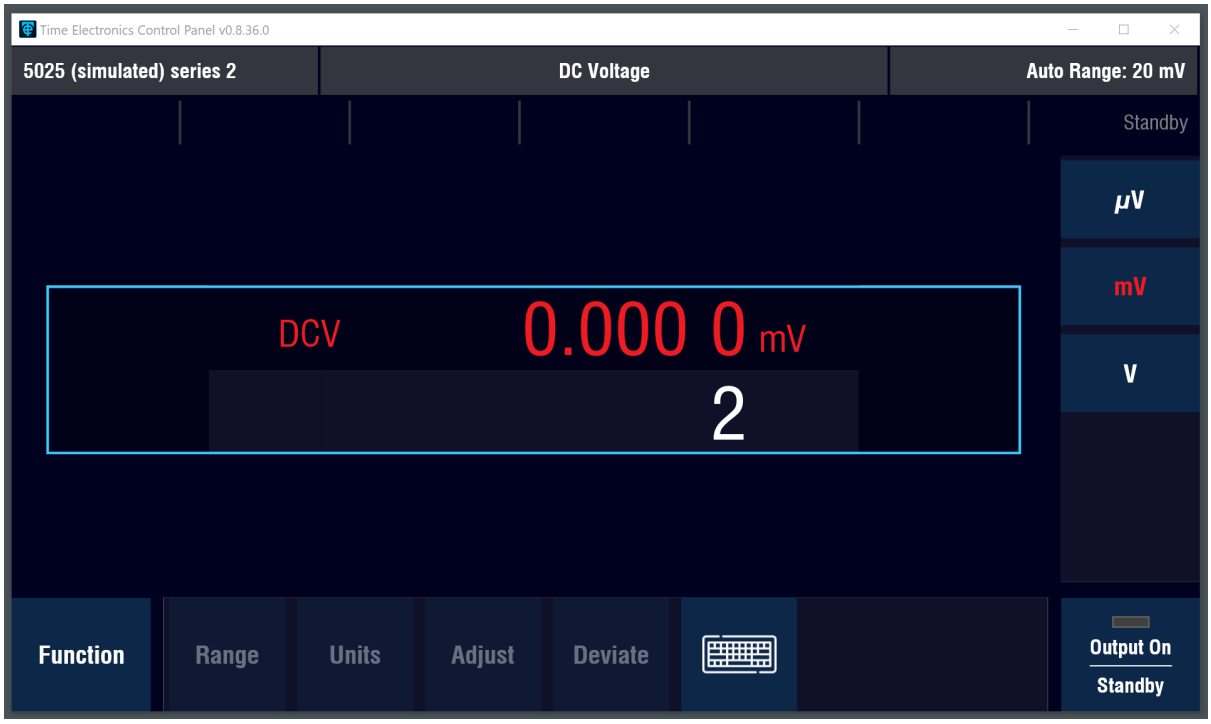
The application has convenient methods of setting the output, that can be used depending on the user preference, or if a touchscreen interface is available.

These methods are:

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

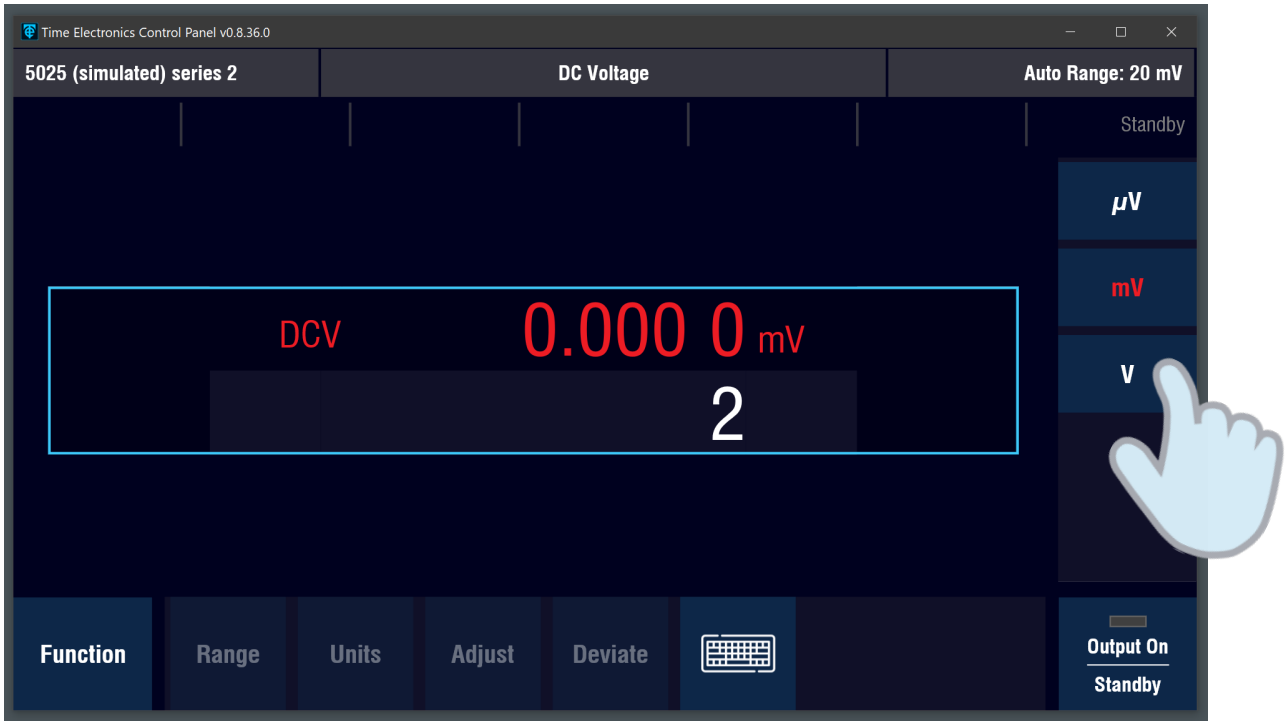
Keyboard Entry

With the function selected, you can use your computer's keyboard (or numeric keypad) to enter a value. Once a value is entered it will display below the output display. For example, here the keyboard entry "2":



The units sidebar menu will display to provide the option to change the unit.
If you are in the correct unit, you can press "enter" on the keyboard to finalise the value.

Or you can press one of the unit buttons and the value entered + unit will be applied to the display:



The value will display, ready for output.

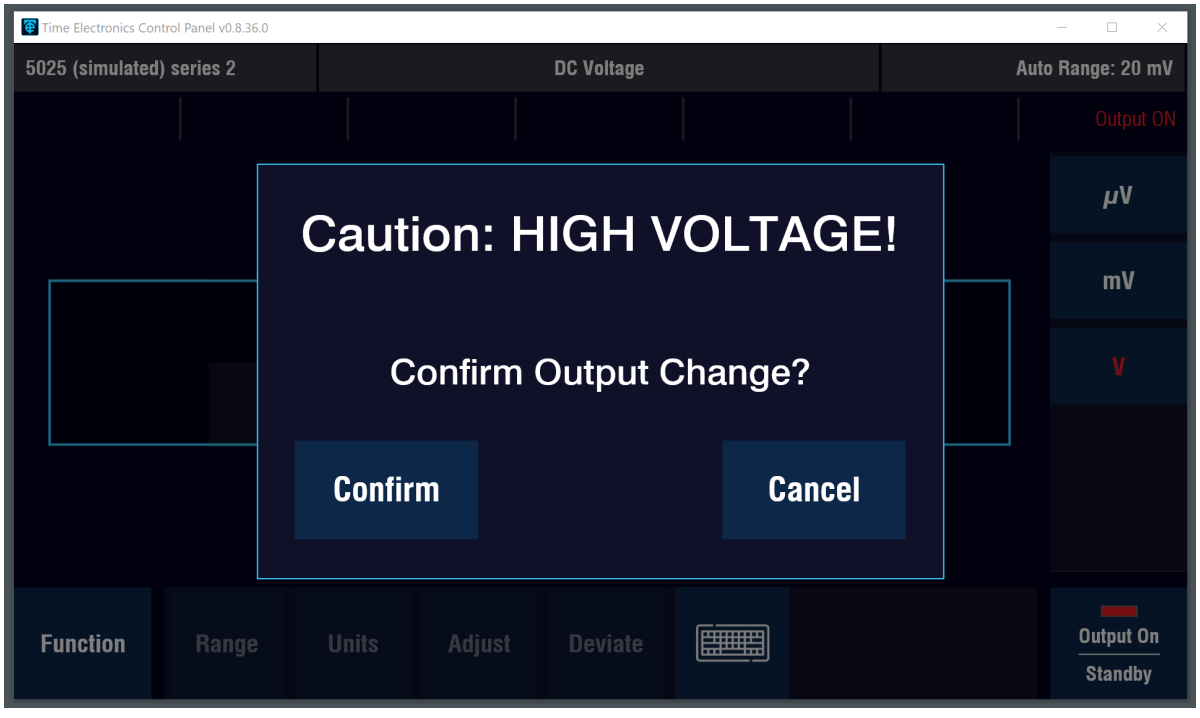
Note that the function units will default to the previously unit currently in use. So if you are entering 3 V after 2 V the unit will remain the same, for speed of operation.

To output the value, press and hold the **Output On** button for 3 seconds.

The red indicator will illuminate on the output button, and the Output On status will display:

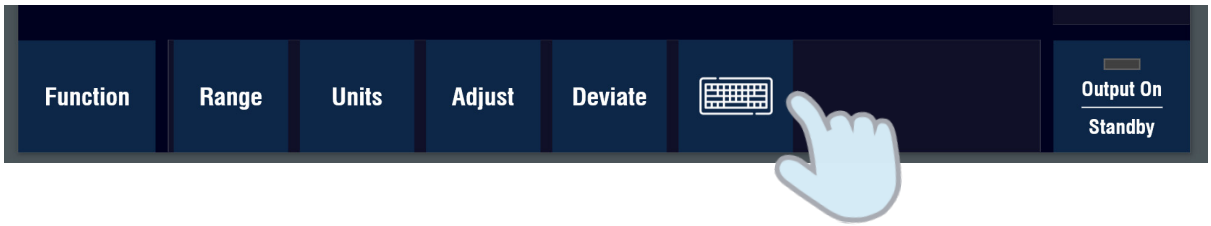
Important Note: *Before outputting, ensure the calibrator is properly connected and the output value is suitable for the unit under test.*

When the output is on, you can change the value as required and this will be applied to the calibrators terminals. If you enter a high output value, a pop-up safety screen will display to request you confirm the output.

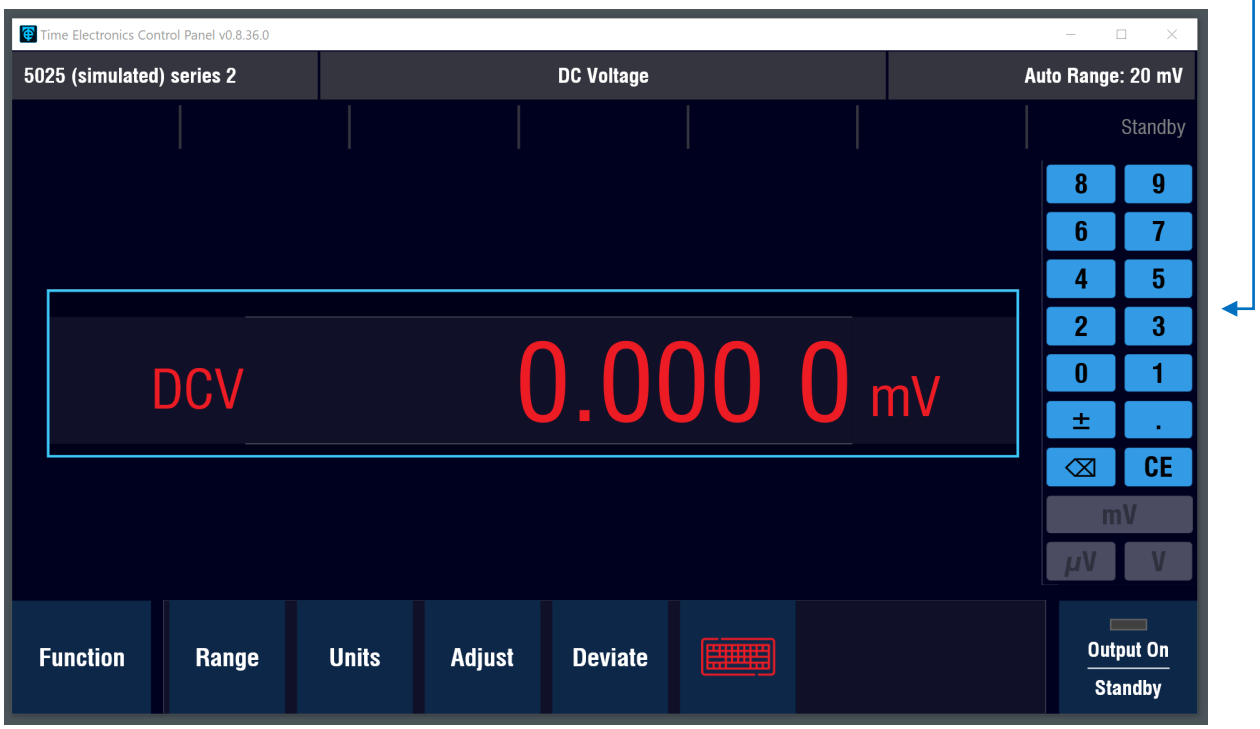


On-screen Keyboard Entry

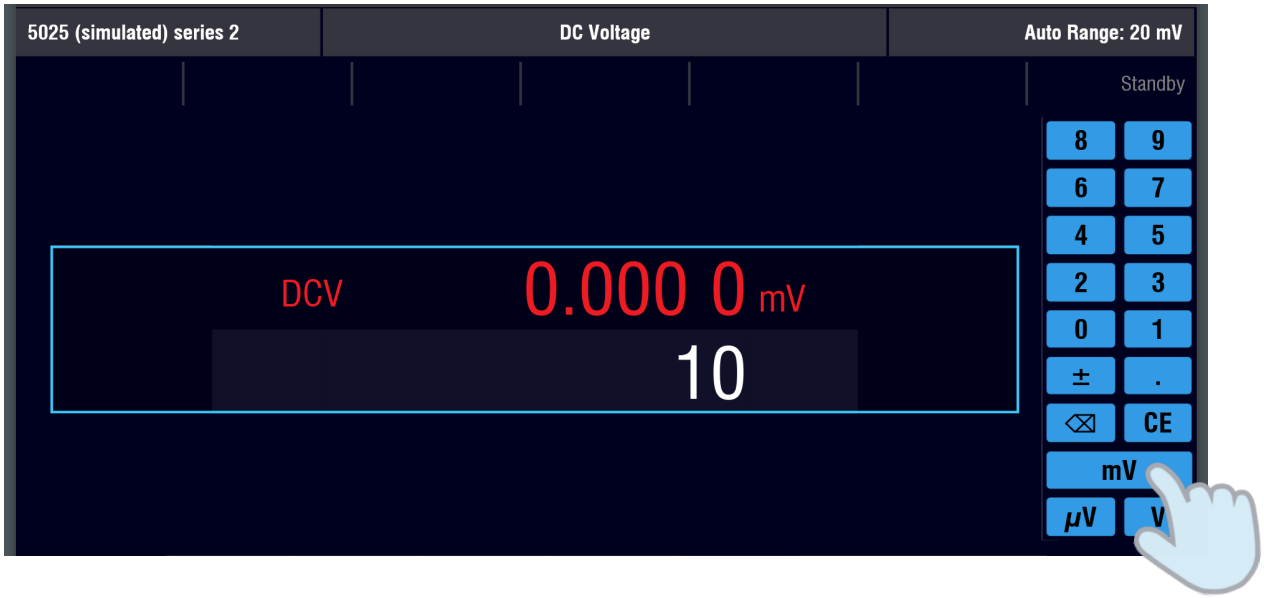
This method is suitable for touchscreen users With the function selected, press the Keyboard button:



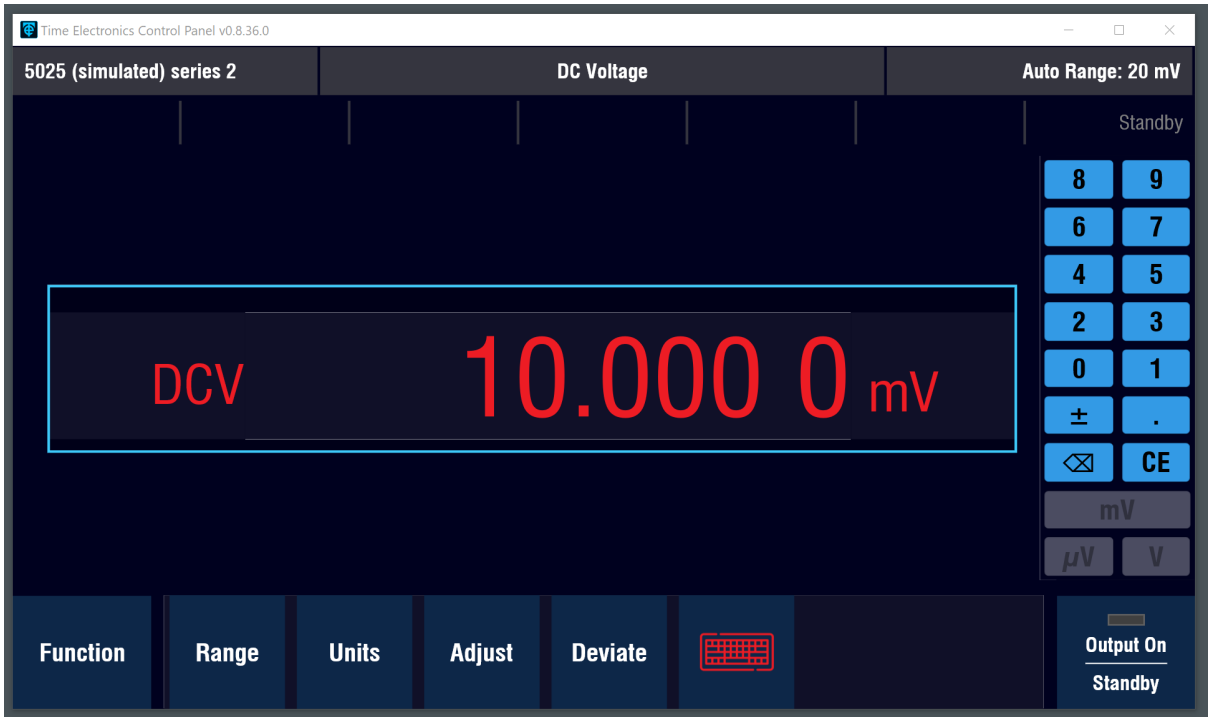
The on-screen keyboard will display on the sidebar:



You can enter the value required by pressing the number buttons, then the unit required.



The entered value will display, ready for output.



To close the on-screen keyboard, press the red keyboard button.

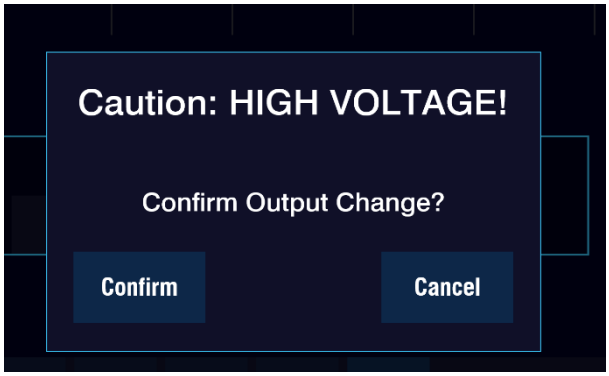
To output the value, press and hold the **Output On** button for 2 seconds.

The red indicator will illuminate on the output button, and the Output On status will display.

Important Note: *Before outputting, ensure the calibrator is properly connected and the output value is suitable for the unit under test.*

When the output is on, you can change the value as required and this will be applied to the calibrators terminals.

If you enter a high output value, a pop-up safety screen will display to request you confirm the output.



Adjust Method

This method allows you to adjust the value incrementally. It can be used from a zero starting value or once the initial set value has been entered. You will need to be in the required units.

Press the **Adjust** button:

The adjust control buttons will display on the sidebar:

The lowest decimal point of the function and range will be highlighted. This is the finest adjustment. You can increment by using the up/down arrow buttons.

You can move the adjustment to the next decimal point using the right/left arrow buttons.

This operation can also be used with the up/down and right/left buttons on your computer's keyboard.

A mouse scroll wheel can also be used to adjust the value up and down.

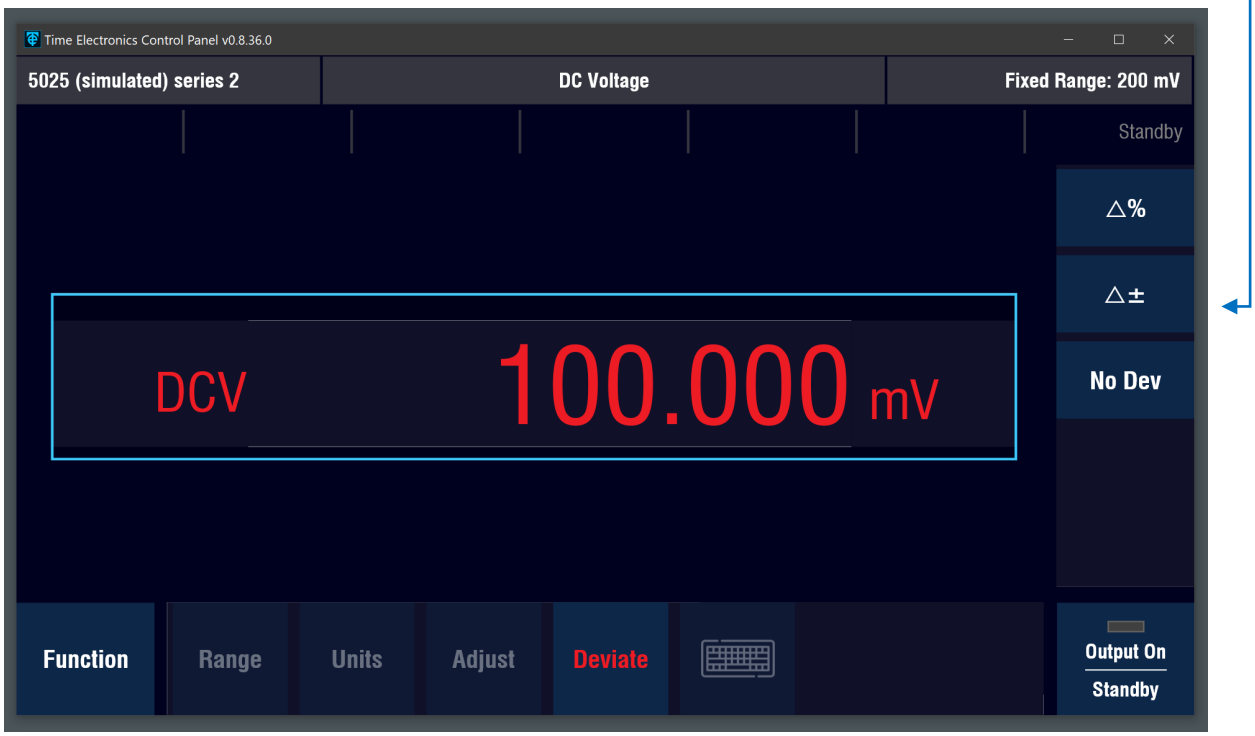
To close the adjust function, press the **Adjust** button.
To output the value, follow the steps on the previous page.

3.3 Deviation Mode

Certain functions can be used with deviation mode to vary the output as required.

When a function is selected, press the **Deviate** button:

The deviation control buttons will display on the sidebar:



You can choose to deviate by a percentage (%), or value.

When deviation mode is used, the display is dual line with the preset output value shown above the deviation value.

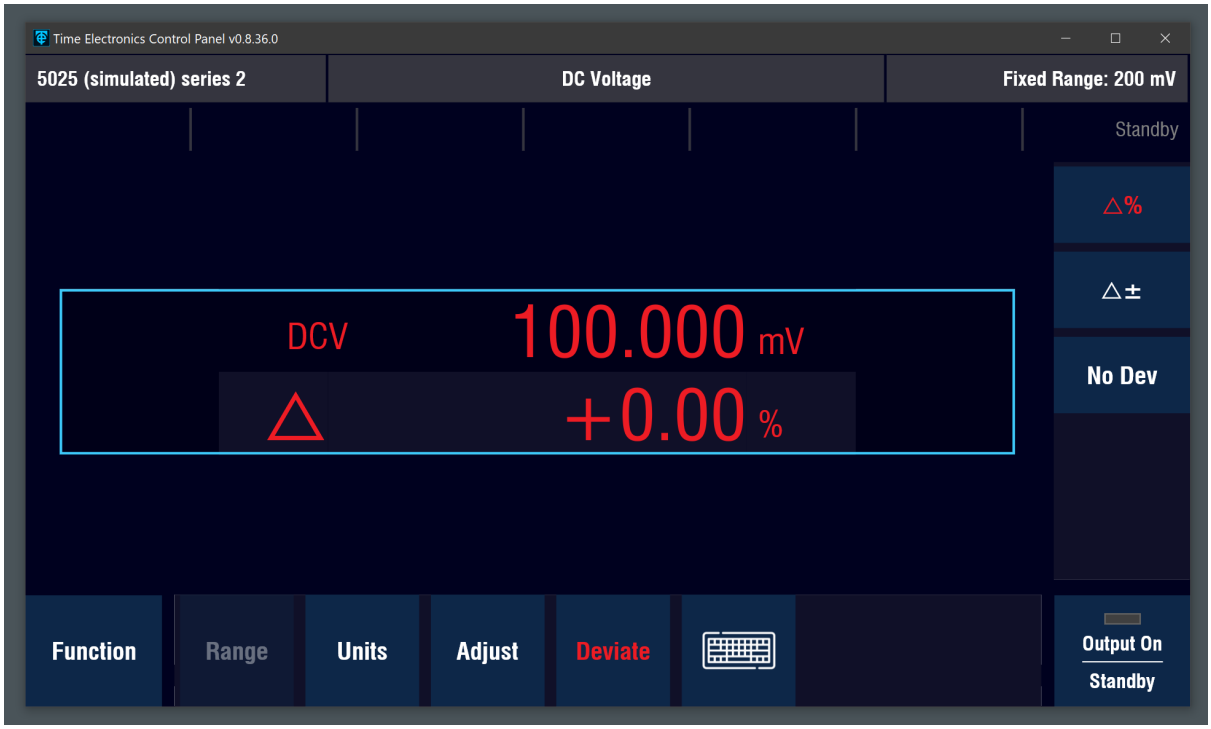
The method is commonly used with a measuring UUT to display and check the deviation between the calibrator's output value and UUT's specific set point.

***Note**: Your set output value will be within a range, so the deviation will only be allowable within the range limits. The calibrator will not auto-range when deviation is being applied.*

Percentage Deviation

To use percentage deviation press the △% button:

The deviation row will appear under the output display:



You can now enter a deviation value by:

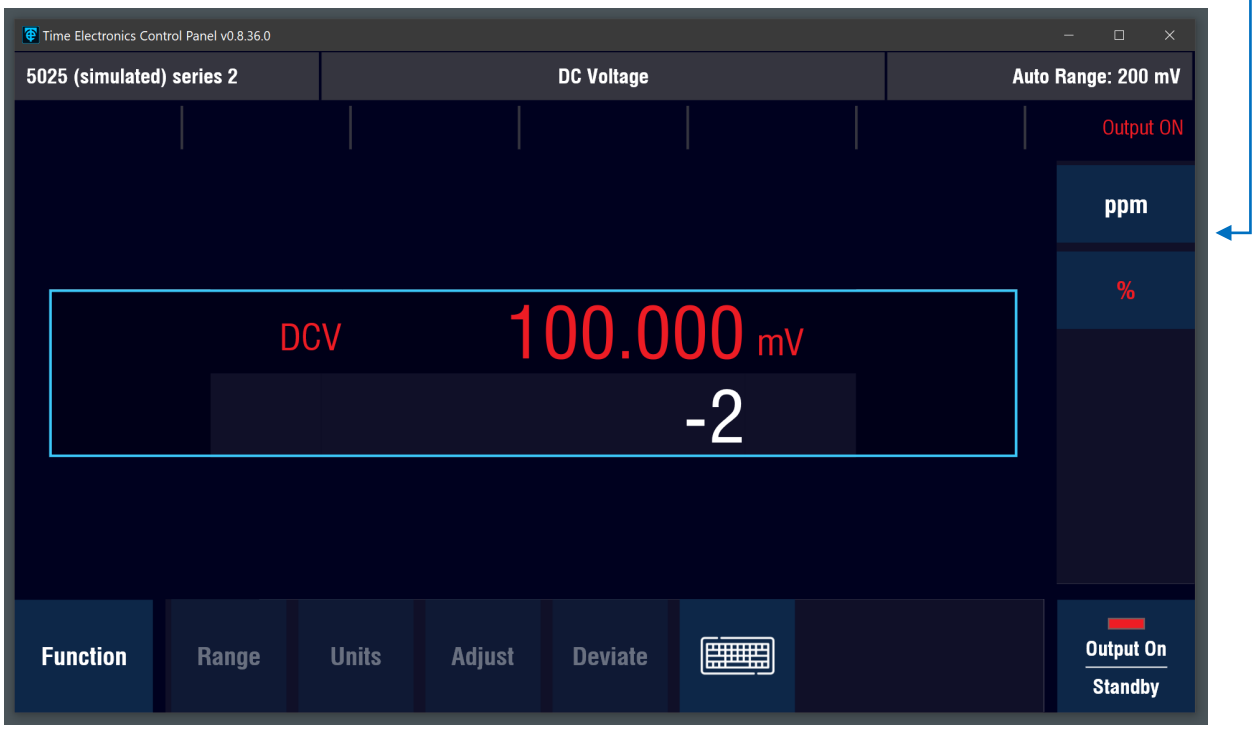
1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

*To exit the deviation mode, press the **No Dev** button.*

Keyboard Entry

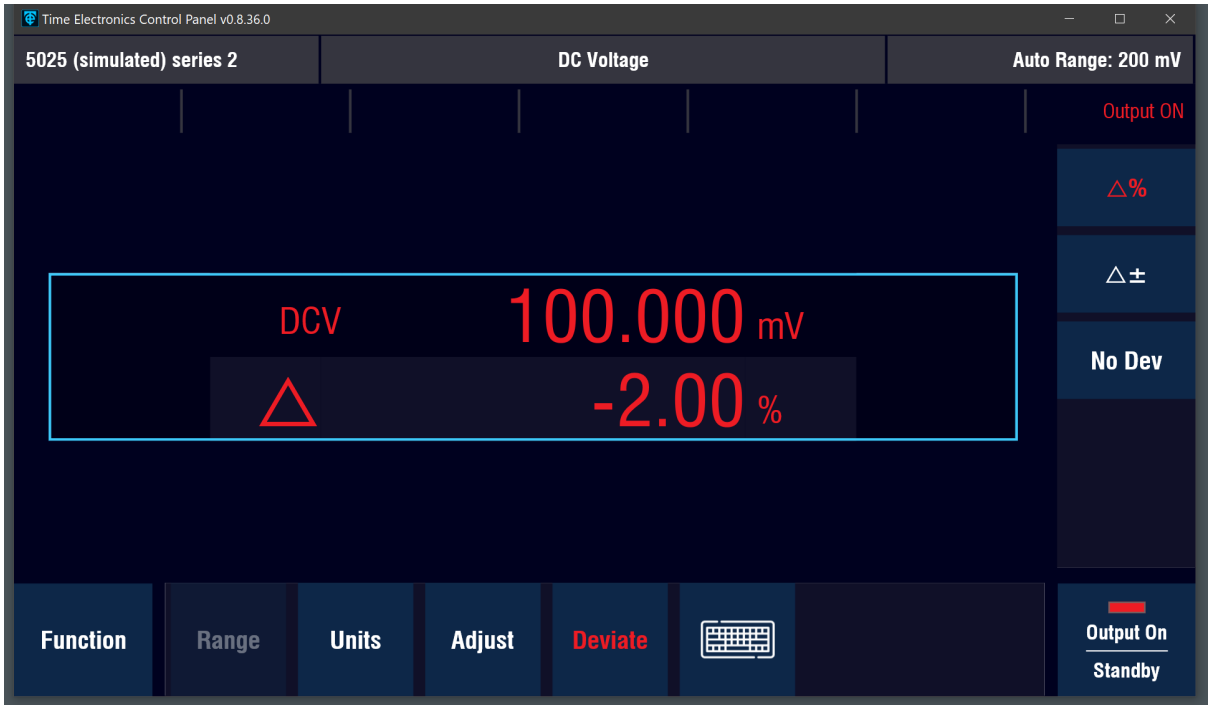
Using your computer's keyboard (or numeric keypad), you can enter a deviation value.

The deviation menu will give you the option to choose PPM or %.



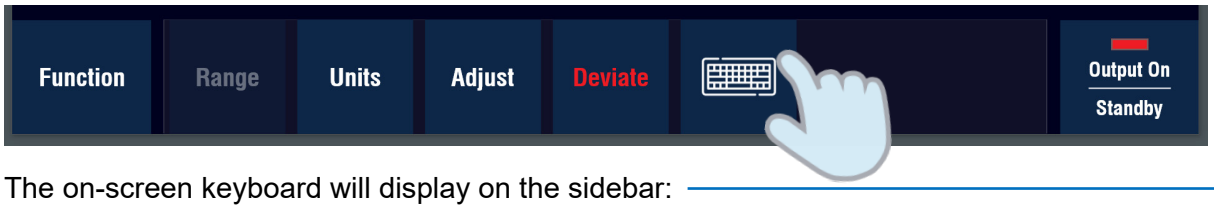
You can use the "enter key" on keyboard to continue with % deviation, or press the % button on screen. Or press PPM to select PPM deviation. Note that the +/- keys are pressed after the number to apply positive or negative.

Once entered, the deviation value will display below the output value. If the calibrator output is on, the deviated output value will be applied to the unit under test (ie 100 mV - 2%):

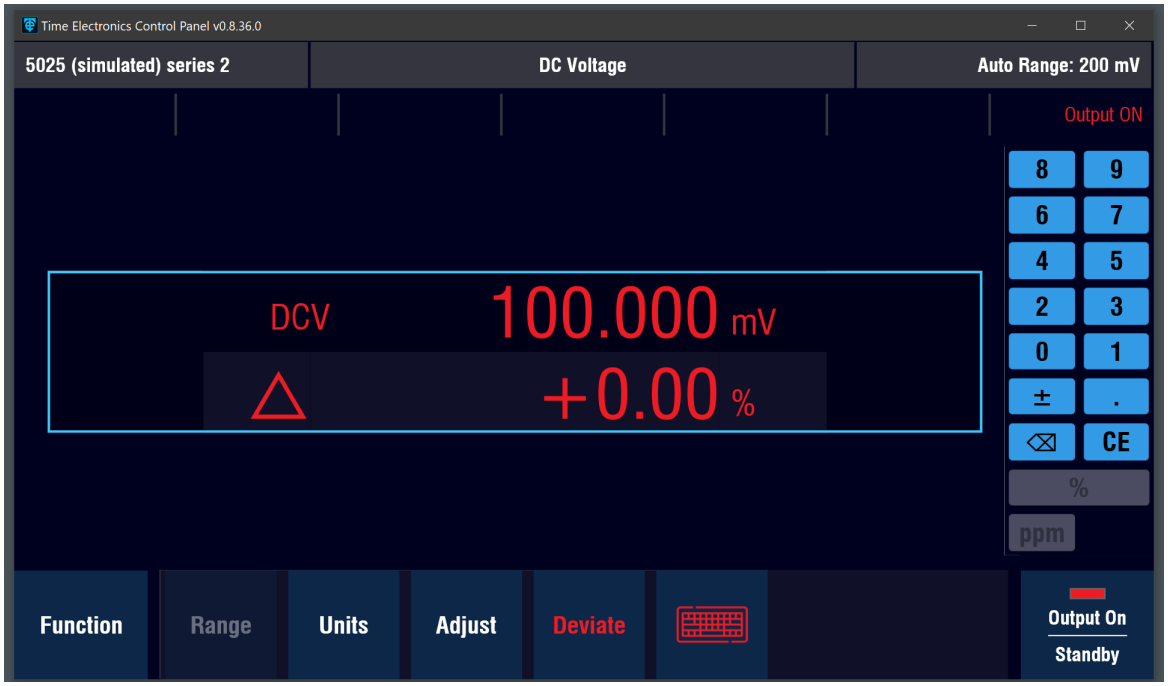


On-screen Keyboard Entry

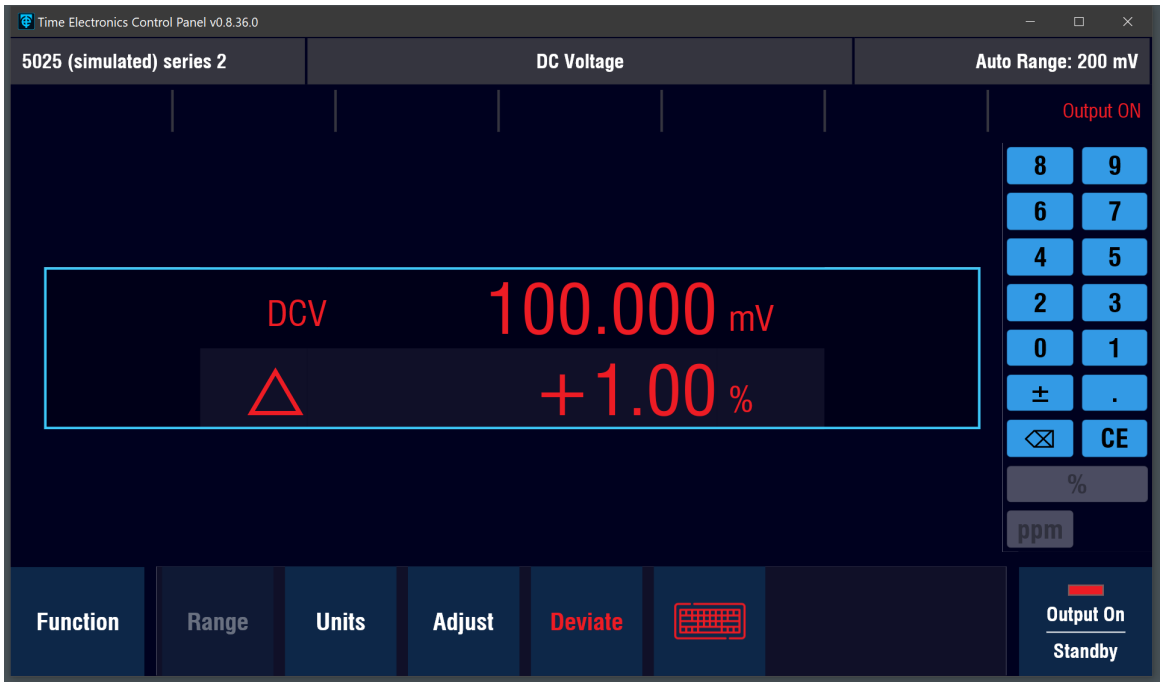
To use the on-screen keyboard, press the keyboard button:



The on-screen keyboard will display on the sidebar:



You can now enter the required value and press % or PPM to apply.
Once entered, the deviation value will display below the output value. If the calibrator output is on, the deviated output value will be applied to the unit under test (ie 100 mV + 1%):

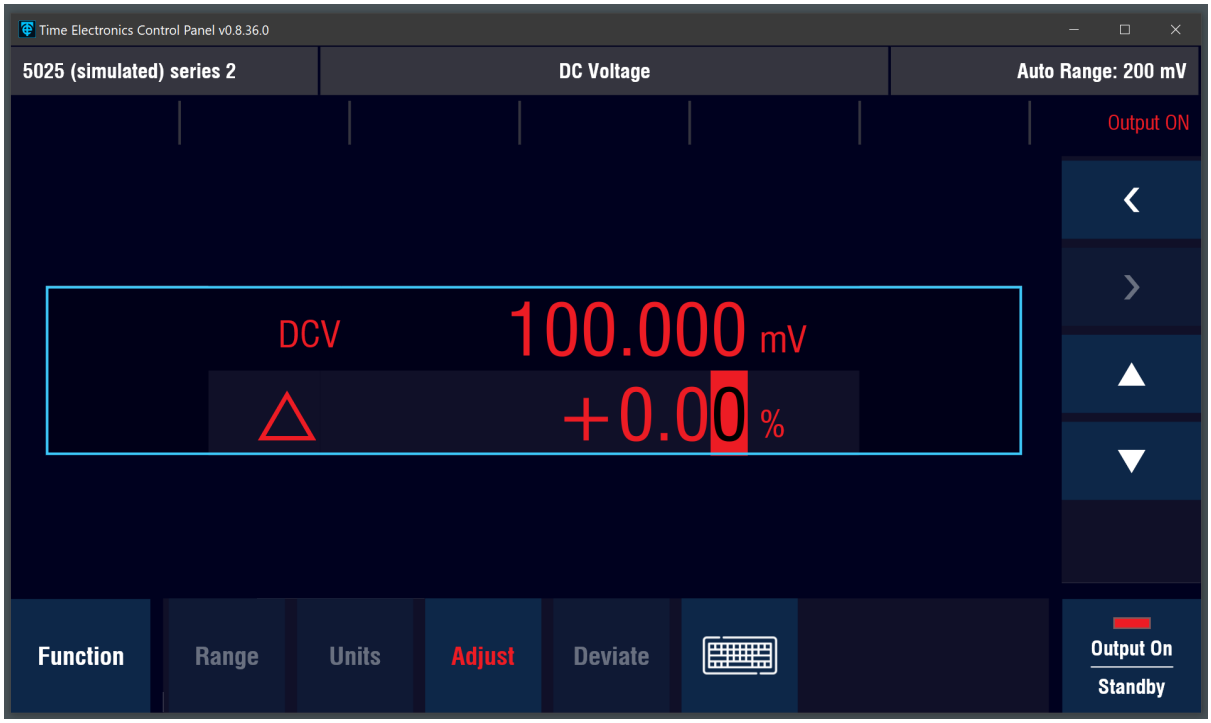


Adjust Method

This method allows you to adjust the % deviation incrementally.

Press the **Adjust** button:

The adjust control buttons will display on the sidebar:



The lowest decimal point of the % will be highlighted. This is the finest adjustment. You can increment by using the up/down arrow buttons.

You can move the adjustment to the next decimal point using the right/left arrow buttons.

This operation can also be used with the up/down and right/left buttons on your computer's keyboard.

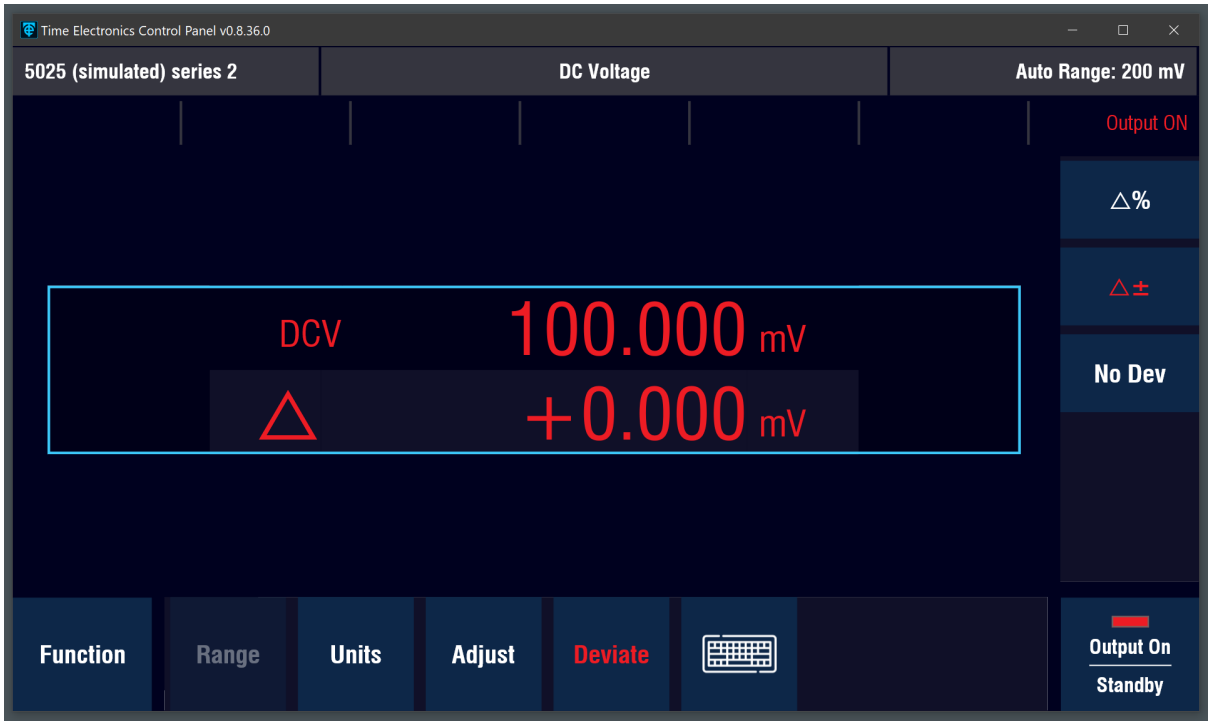
A mouse scroll wheel can also be used to adjust the value up and down.

To close the adjust function, press the **Adjust** button.

Value Deviation

To use value deviation press the △± button:

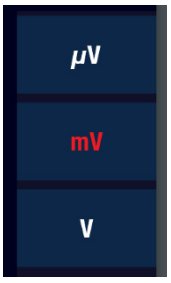
The deviation row will appear under the output display:



You can now enter values using the same methods as % deviation:

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Instead of selecting % or PPM, units are displayed in the sidebar for selection:

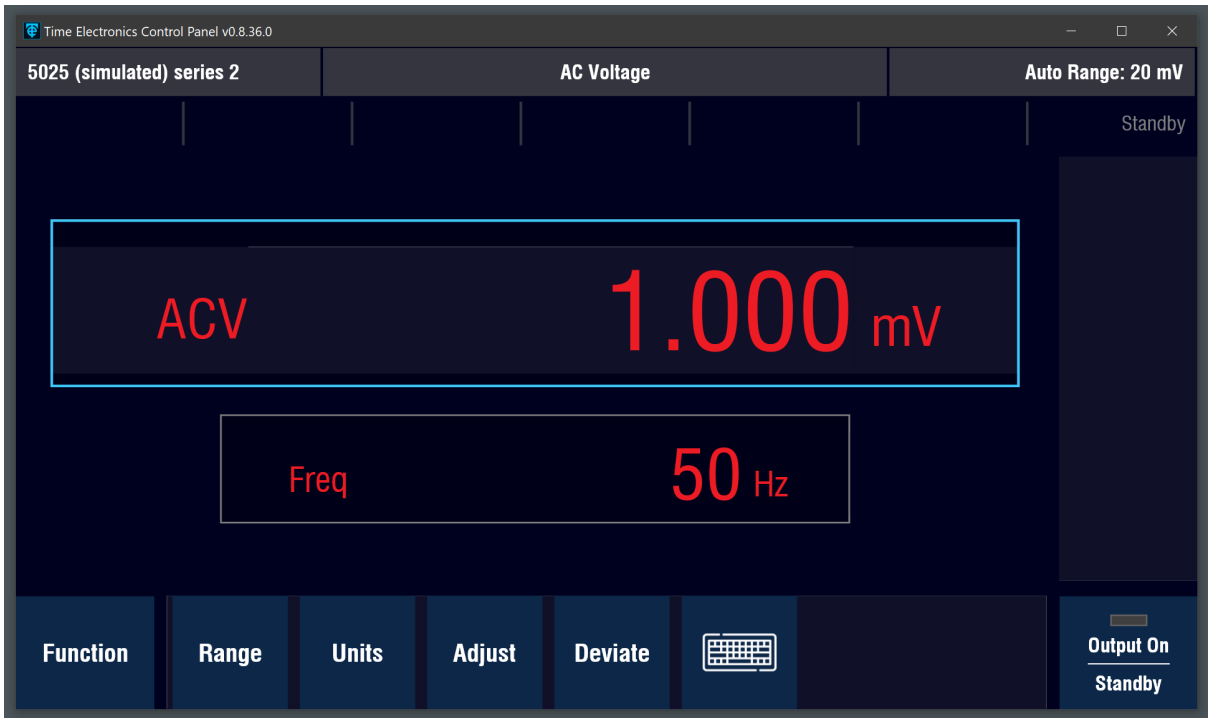


To exit the deviation mode, press the **No Dev** button.

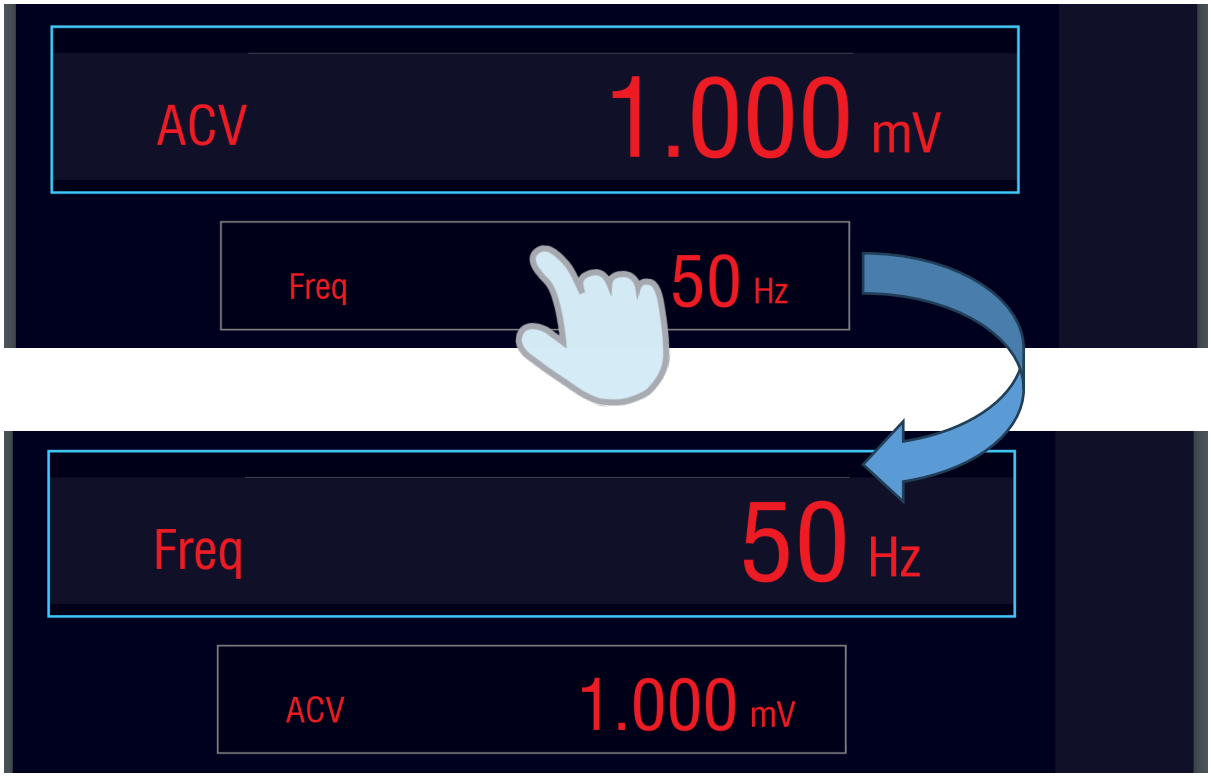
3.4 AC Voltage or Current **ACV | ACI**

AC Voltage and AC Current have common operation steps. Shown here is AC V.

Press the **AC V** button. The function screen will display:



Two displays will show for AC voltage and frequency. The main display is situated at the top, and is the active settable function. The displays can be quickly switched by pressing the lower display, making the frequency active for setting:



By default the application will set to auto-range. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:

To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

3.4.1 Setting an Output Value

Setting the output on AC functions is the same as shown in the DC functions.

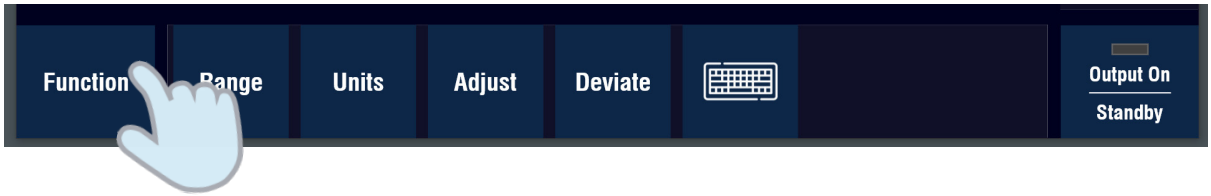
The methods are:

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

See section 3.2 for detailed instructions of these setting methods.

With AC functions the frequency can also be set and adjusted as required. Deviation mode is not available for frequency.

To exit the function, press the **Function** button.



The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.

3.5 Turn Coil Current Functions **Coil DCI | Coil ACI**

The DCI and ACI functions have extra ranges to complement the 9780 clamp coil.
The control panel application features separate function buttons for these operations.
When using Turn Coil ranges, the current displayed is a multiplication according to the range selected, as per the current that will be present at the coils of the 9780.

These ranges are:

- 2 A x 1
- 20 A x 1
- 2 A x 5
- 20 A x 5
- 2 A x 50
- 20 A x 50

The inductance loading for DCI is higher when using the Turn Coil ranges.
The frequency for ACI is limited to 100 Hz.

To use, press the **Coil DC** button. The function screen will display:

By default the application will set to lowest range (2A x 1). This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:

To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Setting the output value is the same method as the DCI and ACI functions.
See section 3.2 and 3.4 for detailed instructions of these setting methods.

3.6 Power **PWR**

Power calibration is available by selecting the **PWR** button.
The option of DC or AC power will display:

3.6.1 DC Power

DC power displays DCV, DCI, and DCW. The voltage and current can be entered, deviated and adjusted as per DCV and DCI functions. The power is a calculated value based on the V and I inputs, you can change the units (mW, W, kW, VA).

Voltage will display as default at first. To enter a current value, press the DCI box and it will swap to being the active settable function.

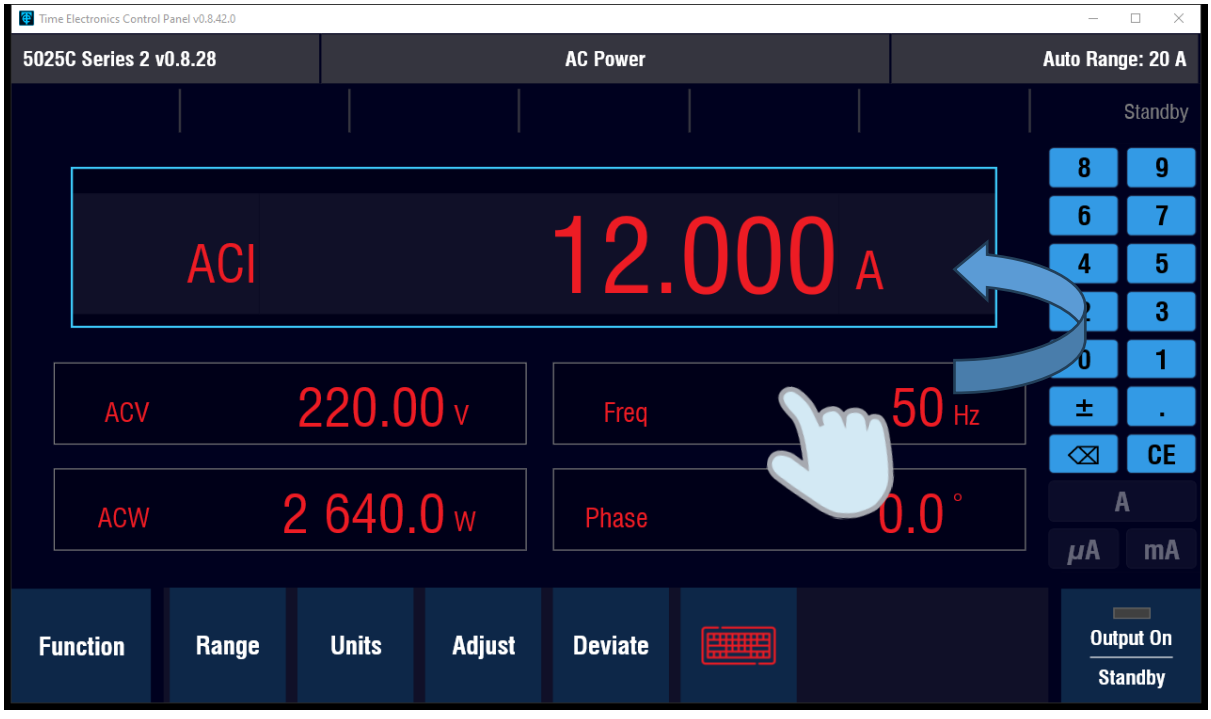
3.6.2 AC Power

AC power will display the functions required for the required output.

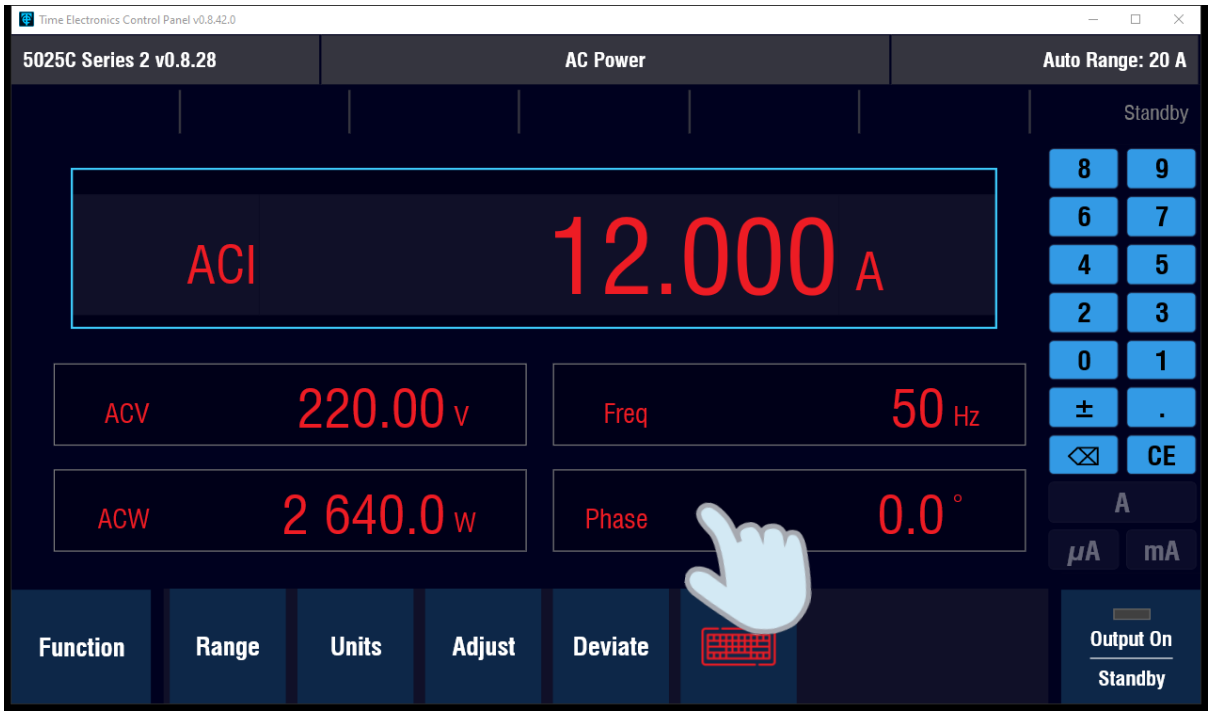
These will be AC voltage (ACV), AC current (ACI), Frequency (Freq), Power (ACW).
The additional display is for Phase or Power Factor.

The power (ACW) is a calculated value based on the function inputs, you can change the units (mW, W, kW, VA).

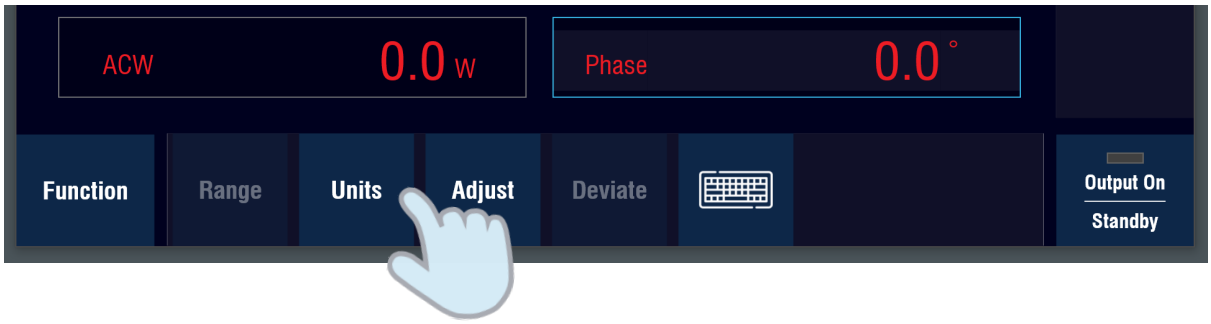
AC voltage, AC current, and frequency all swap to being the active settable function when pressed. You can enter and adjust these functions as required.



A Phase or Power Factor value can be entered, this is done pressing the **Phase** box:



Once selected the box will highlight in blue:

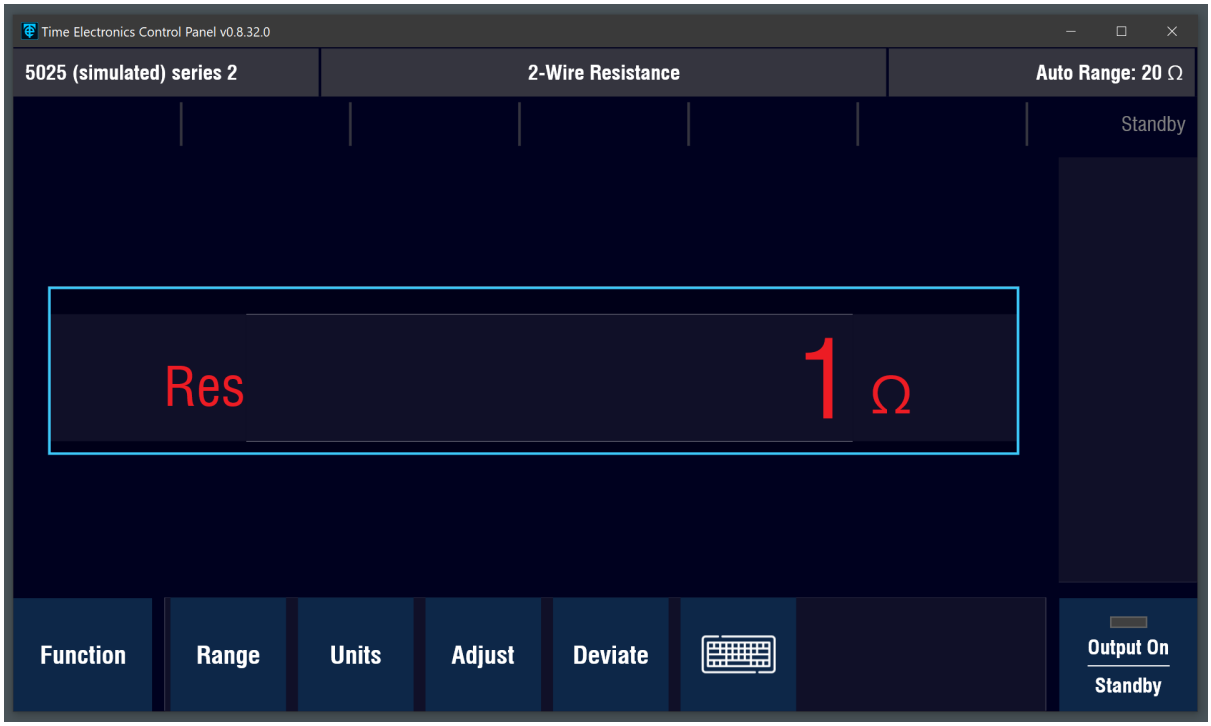


Either enter the required phase in degrees or press the **Units** button.

From the sidebar menu you can select degree **°** for phase, or **PF** for power factor.

3.7 Resistance Functions **2WΩ | 4WΩ**

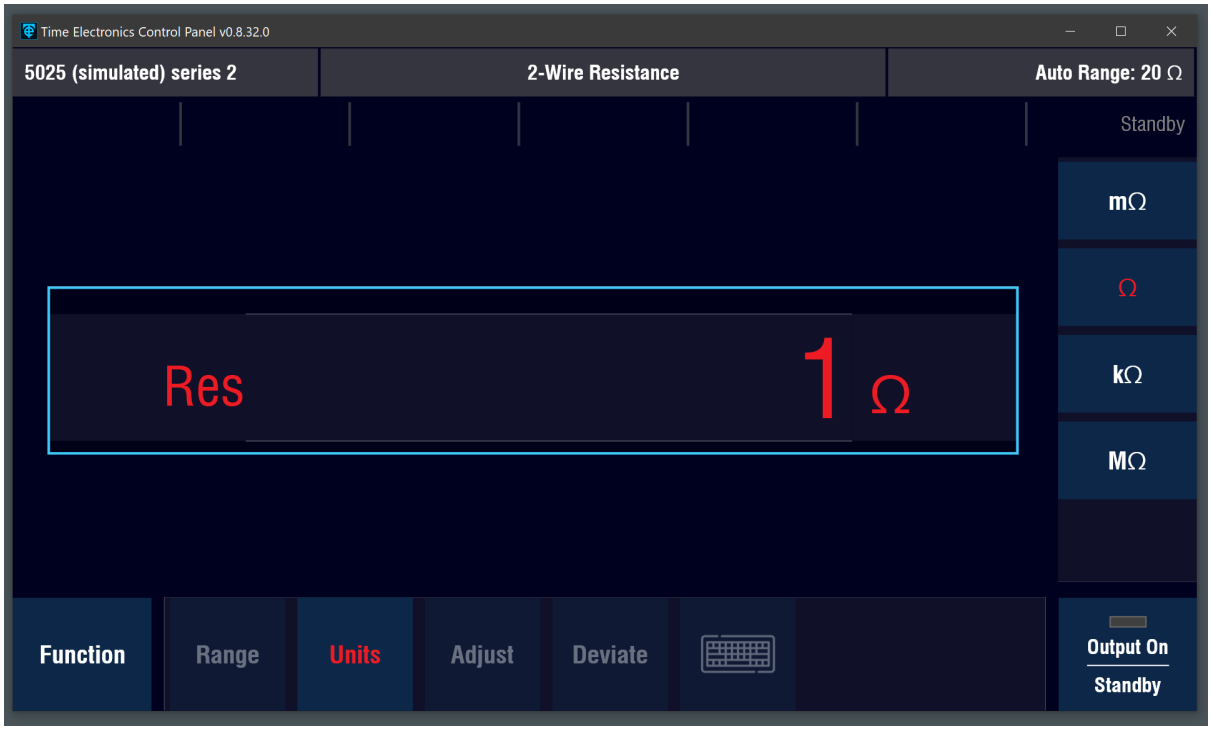
The 5025E-S2 features 2-wire variable resistance. The 5025C-S2 features both 2-wire variable resistance and 4-wire decade resistance.
2-wire variable resistance is selected by pressing the **2WΩ** button:



By default the application will set to auto-range. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:

To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:



To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

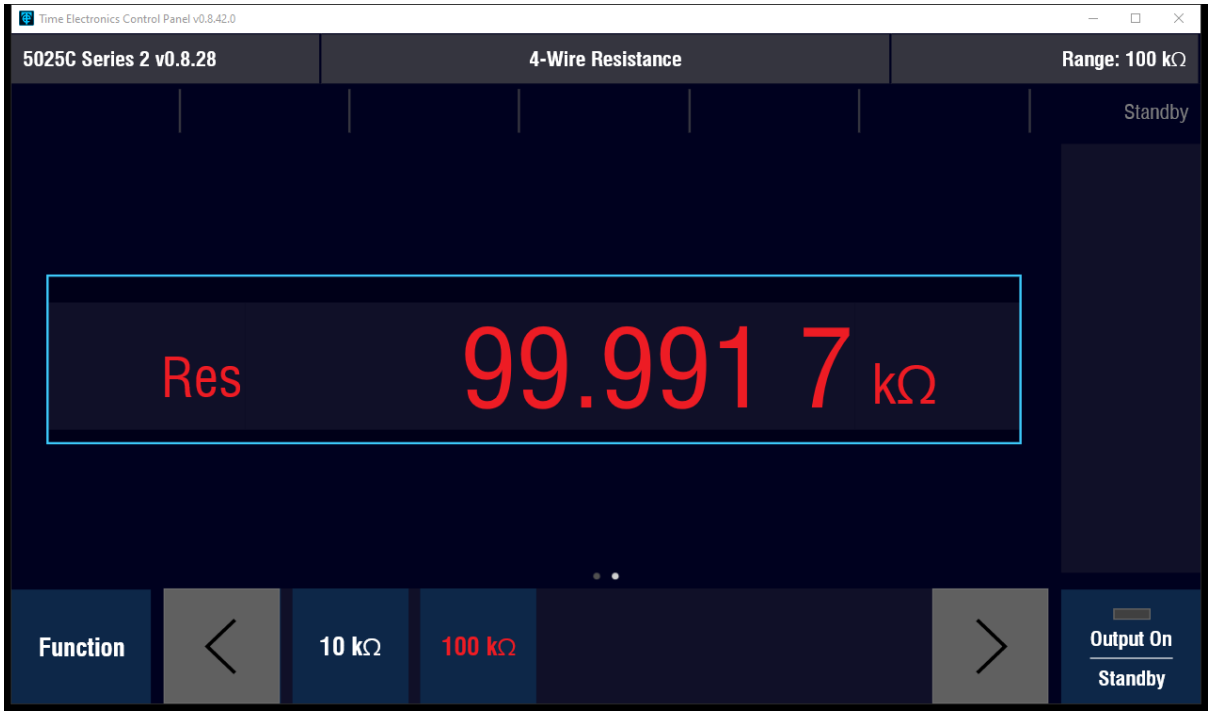
1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

To exit 2-Wire Resistance press the **Function** button. The output setting display will fade, and the other functions will show in the bottom menu, for selection.

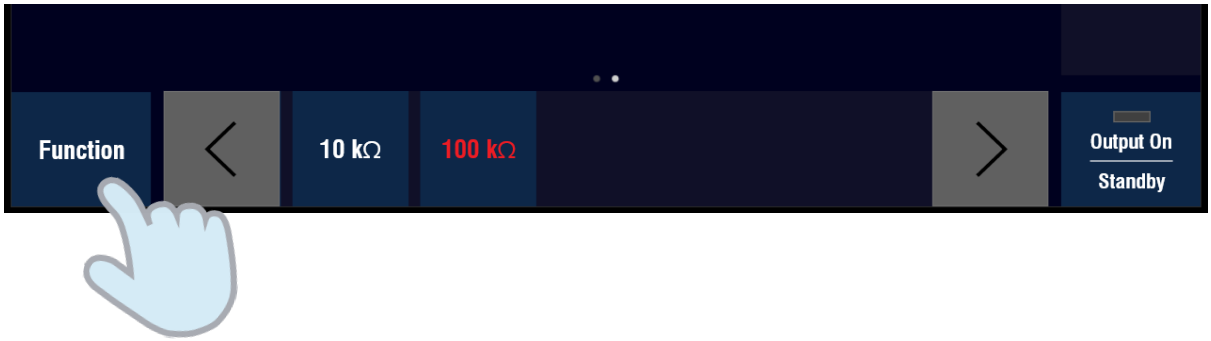
4-wire variable resistance is selected by pressing the **4WΩ** button:

When this option is fitted to the calibrator, decade resistance are fixed values that can be selected.



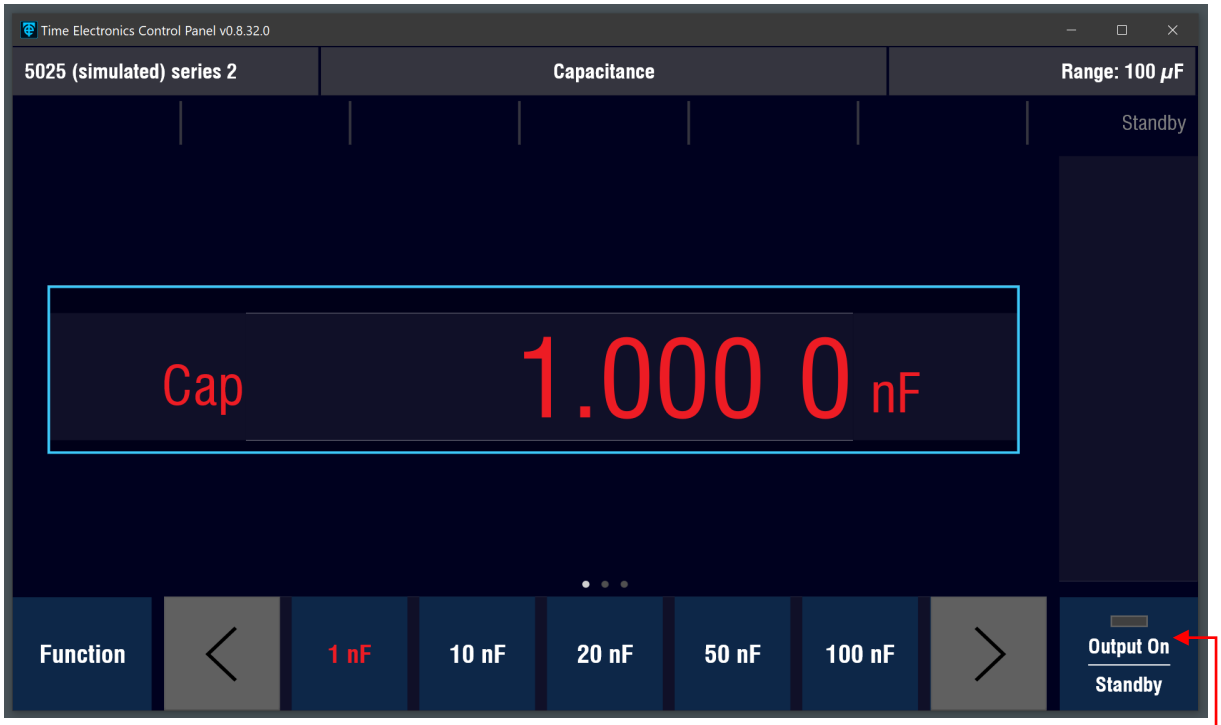
Note: *4-wire resistance is a set of fixed resistors that are displayed on the readout as calibrated values. This means the output will not indicate the nominal value (ie 1, 10, 100), but the actual value of the resistor from it's time of calibration. The same applies to capacitance and inductance functions.*

To return to the function menu, press the function button:



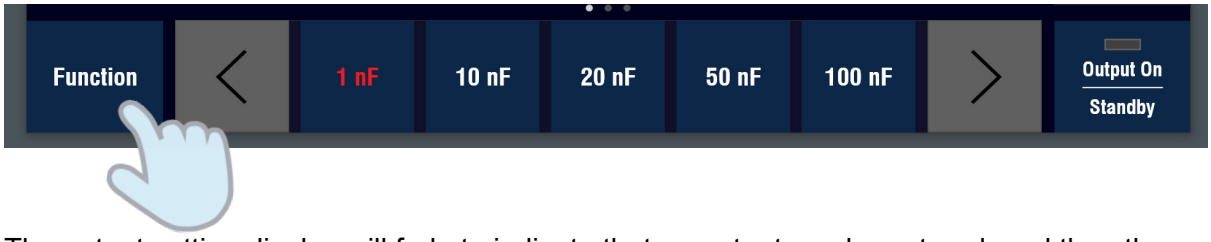
3.8 Capacitance **CAP**

Capacitance is available as fixed values that can be individually selected. Calibrated values are shown on the readout.
The function is selected by pressing the **CAP** button:

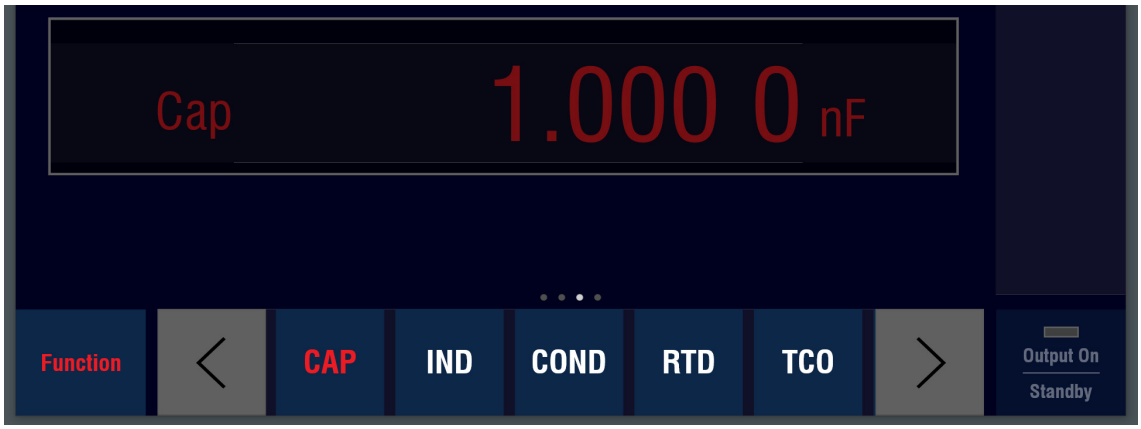


You can now select the from the fixed values listed. Use the left/right arrows to access the complete list. Once selected, press and hold the **output on** button for 2 seconds to output.

To exit the function, press the **Function** button.

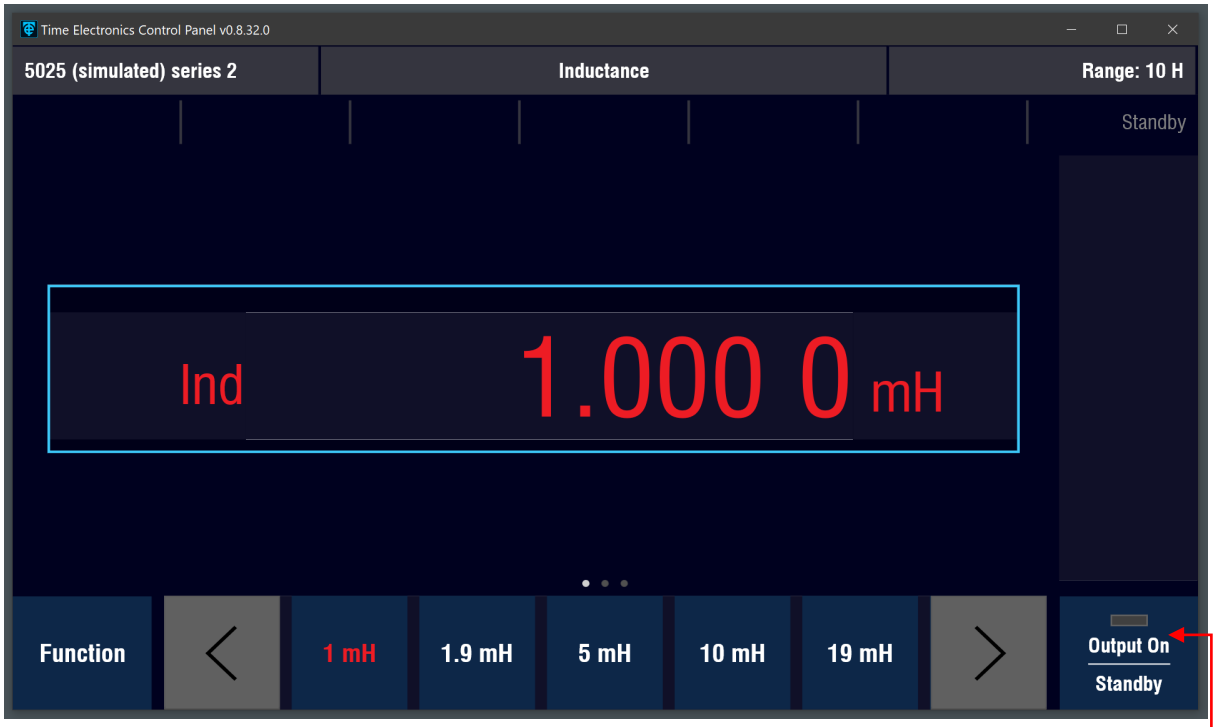


The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.



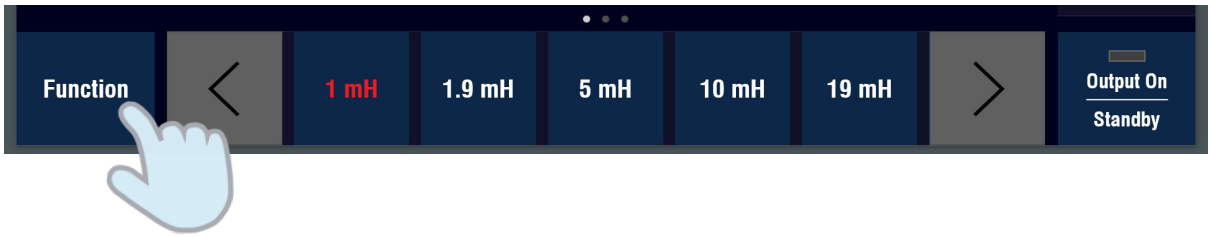
3.9 Inductance **IND**

Inductance (5025C-S2 only) is available as fixed values that can be individually selected. Calibrated values are shown on the readout.
The function is selected by pressing the **IND** button:

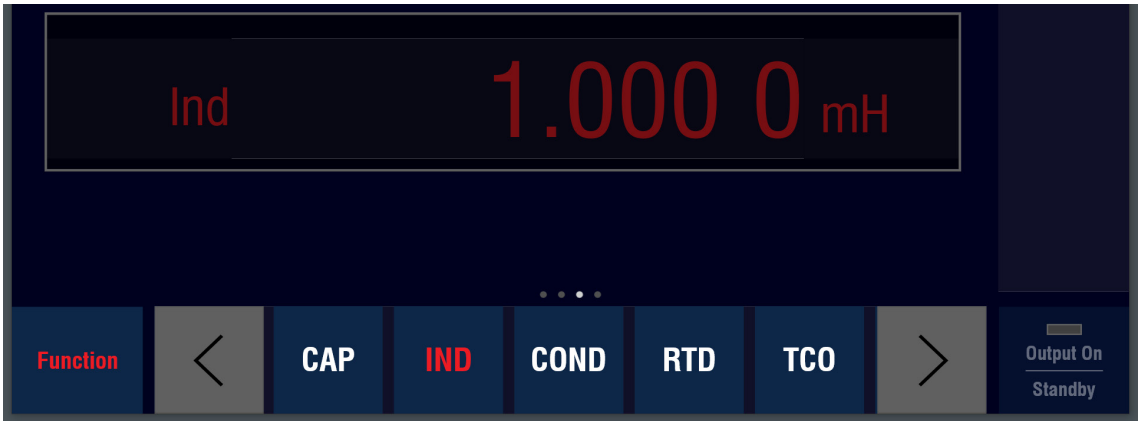


You can now select the from the fixed values listed. Use the left/right arrows to access the complete list. Once selected, press and hold the **output on** button for 2 seconds to output.

To exit the function, press the **Function** button.



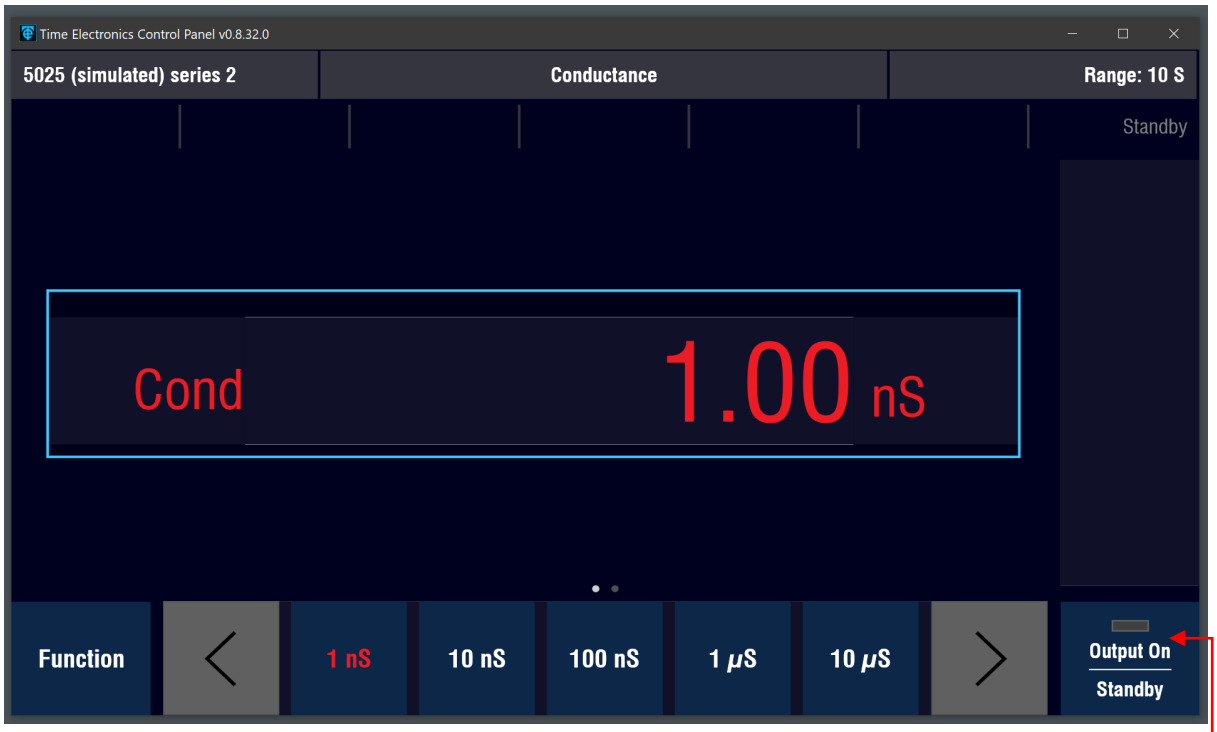
The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.



3.10 Conductance **COND**

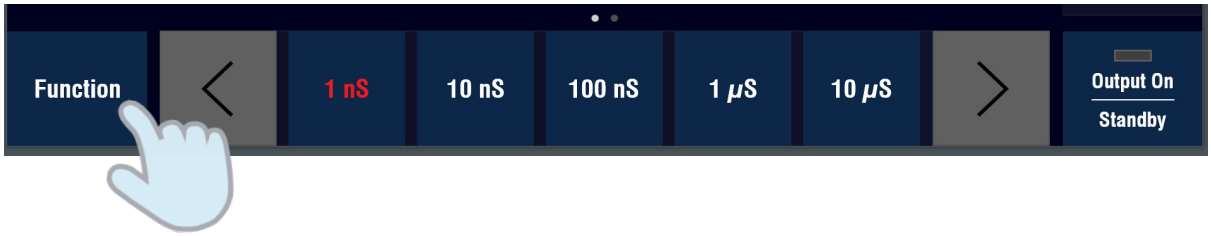
Conductance is available as fixed values that can be individually selected.

The function is selected by pressing the **COND** button:

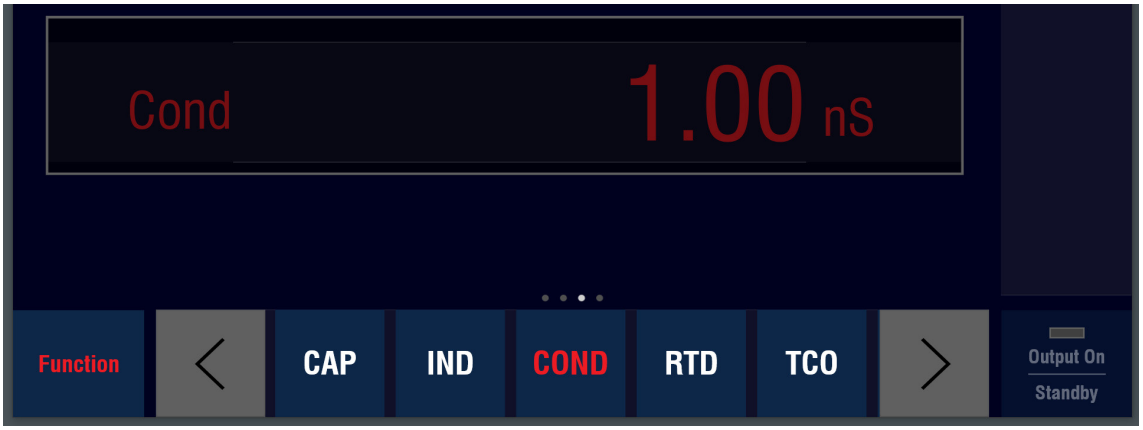


You can now select the from the fixed values listed. Use the left/right arrows to access the complete list. Once selected, press and hold the **output on** button for 2 seconds to output.

To exit the function, press the **Function** button.

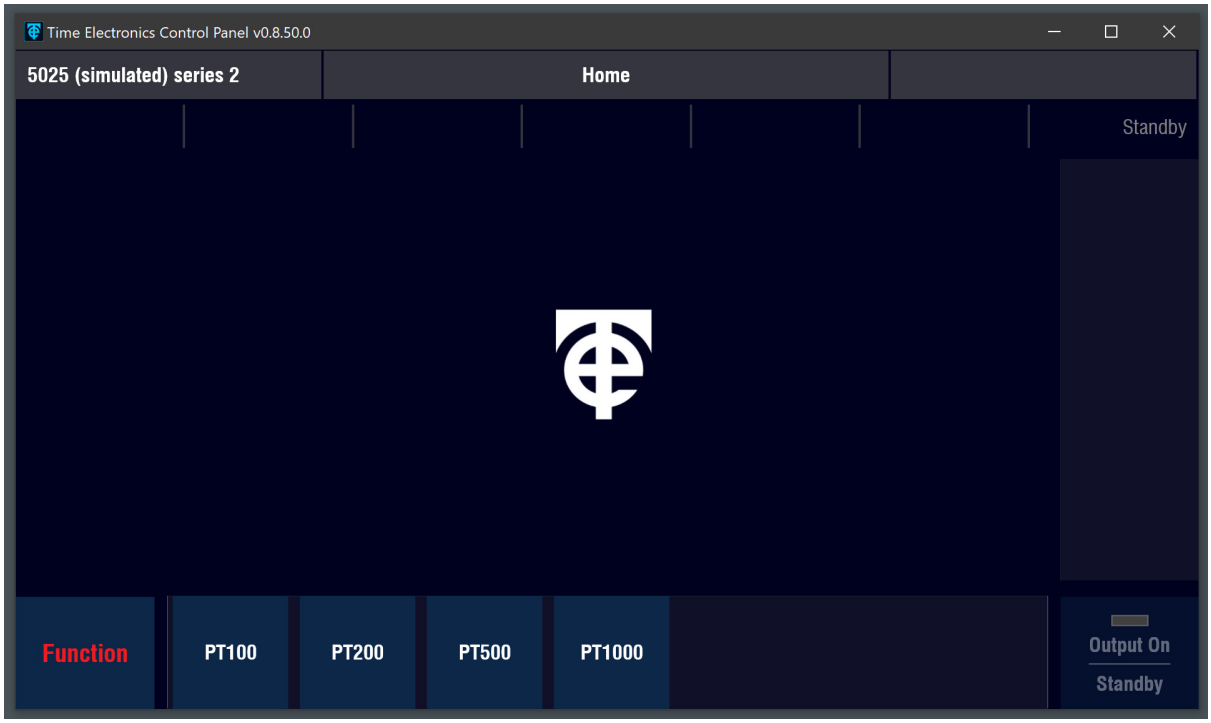


The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.



3.11 RTD Simulation **RTD**

RTD simulation can be selected by pressing the **RTD** button:



You can now select from Pt100, Pt200, Pt500, or Pt1000.

Once selected the RTD type will display and range will show in the information bar.

You can now enter a temperature for output from the calibrator.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

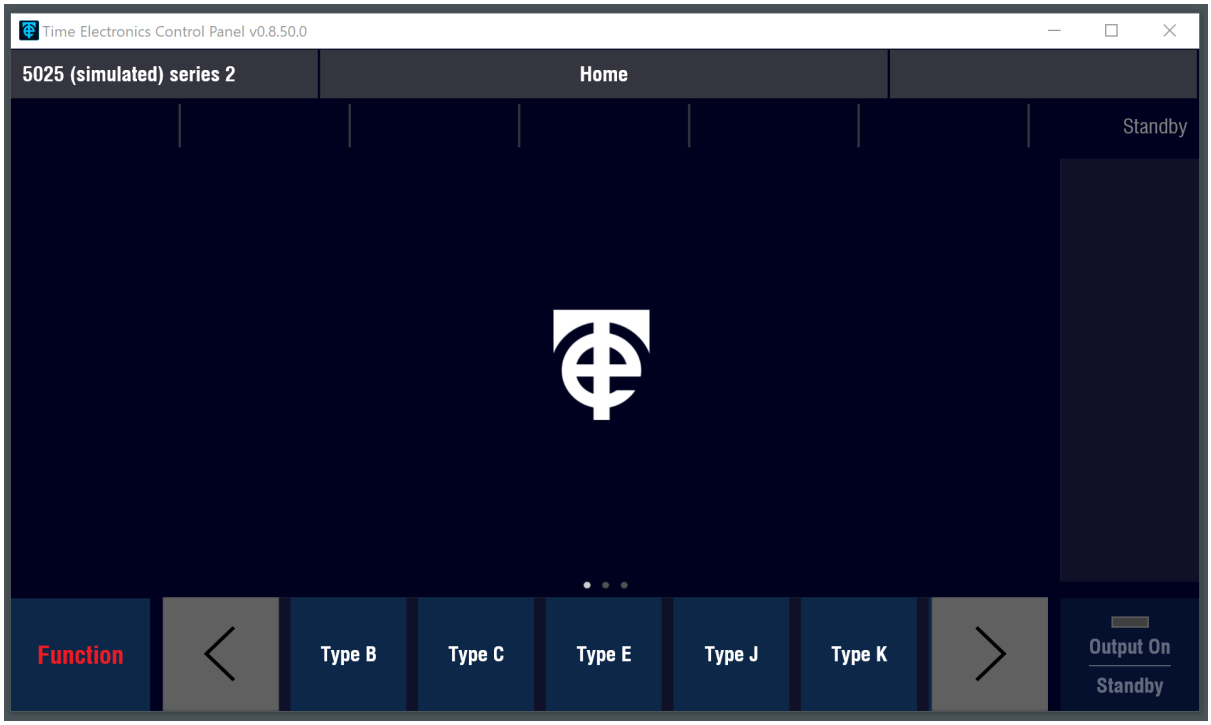
1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

To go back to the RTD selection menu, press the **Function** button. The output setting display will fade, and selection is possible. To exit RTD simulation, press function again.

3.12 Thermocouple Simulation **TCO**

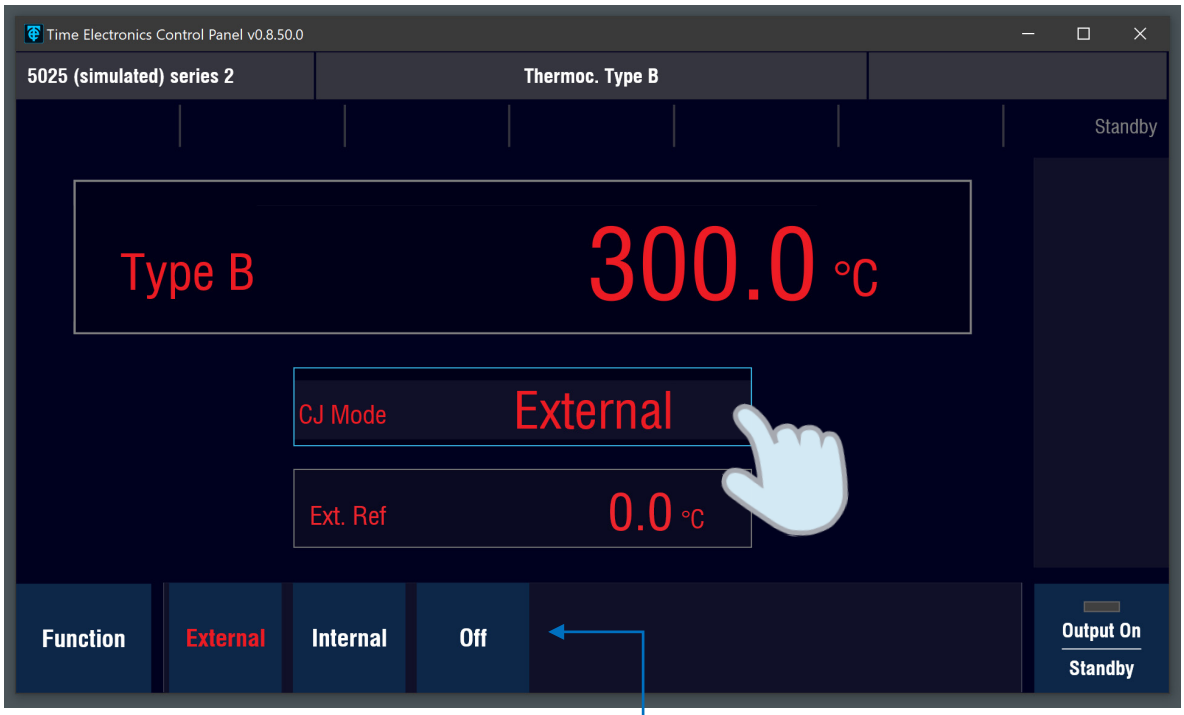
Thermocouple simulation can be selected by pressing the **TCO** button:



You can now select from the various types of thermocouples listed.
Once selected the thermocouple type will display and range will show in the information bar.

You can now enter a temperature value as required. Note that the display with the blue outline indicates the active state for user input. When you press a secondary lower display it will become active for user input or mode selection.

The default cold junction compensation setting is **External**. You can use this or change the mode to **Internal** or **Off**. To change the CJC mode press the **CJC Mode** display box:



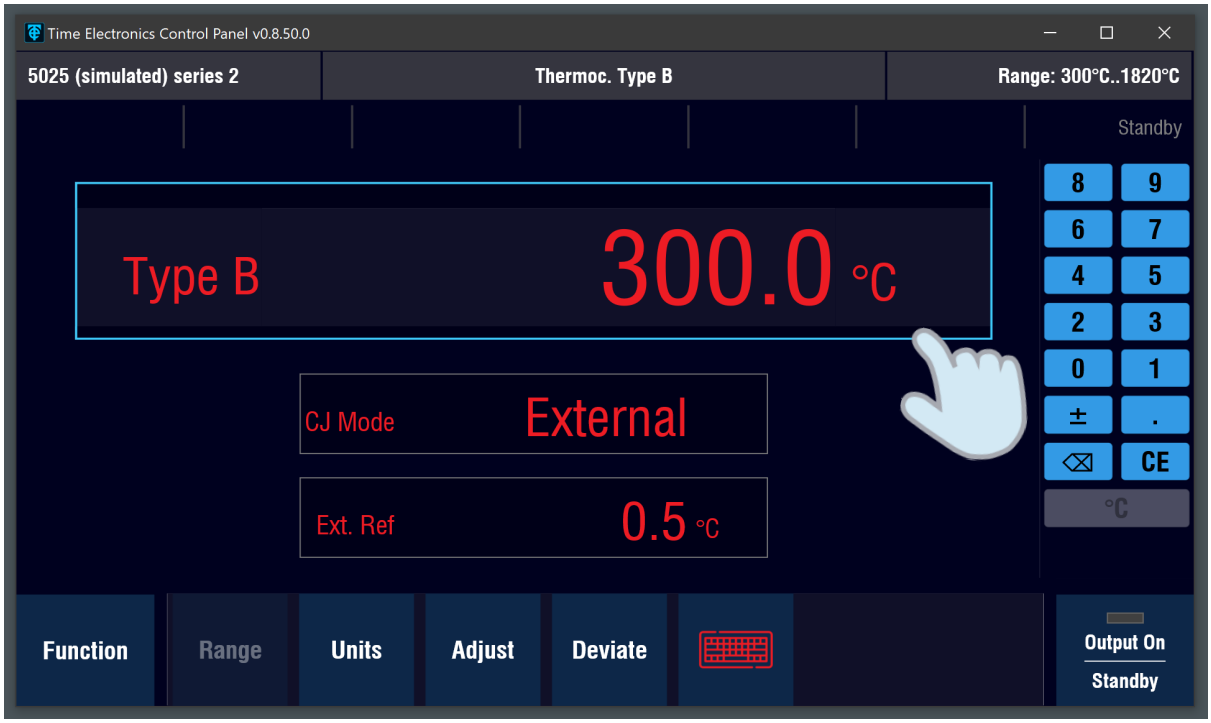
The 3 mode options will display at the bottom.

External: This setting allows a simulated cold junction temperature to be manually entered. Use this option if the junction from thermocouple alloy to copper is made externally and measured in temperature. This is common when using non-compensating cables and the UUT cold junction compensation is enabled.
To enter the CJC external value, press the **Ext Ref** display box and input the temperature.

The range of the allowable temperature value is shown in the right of the info bar.
You can enter the reference temperature by:

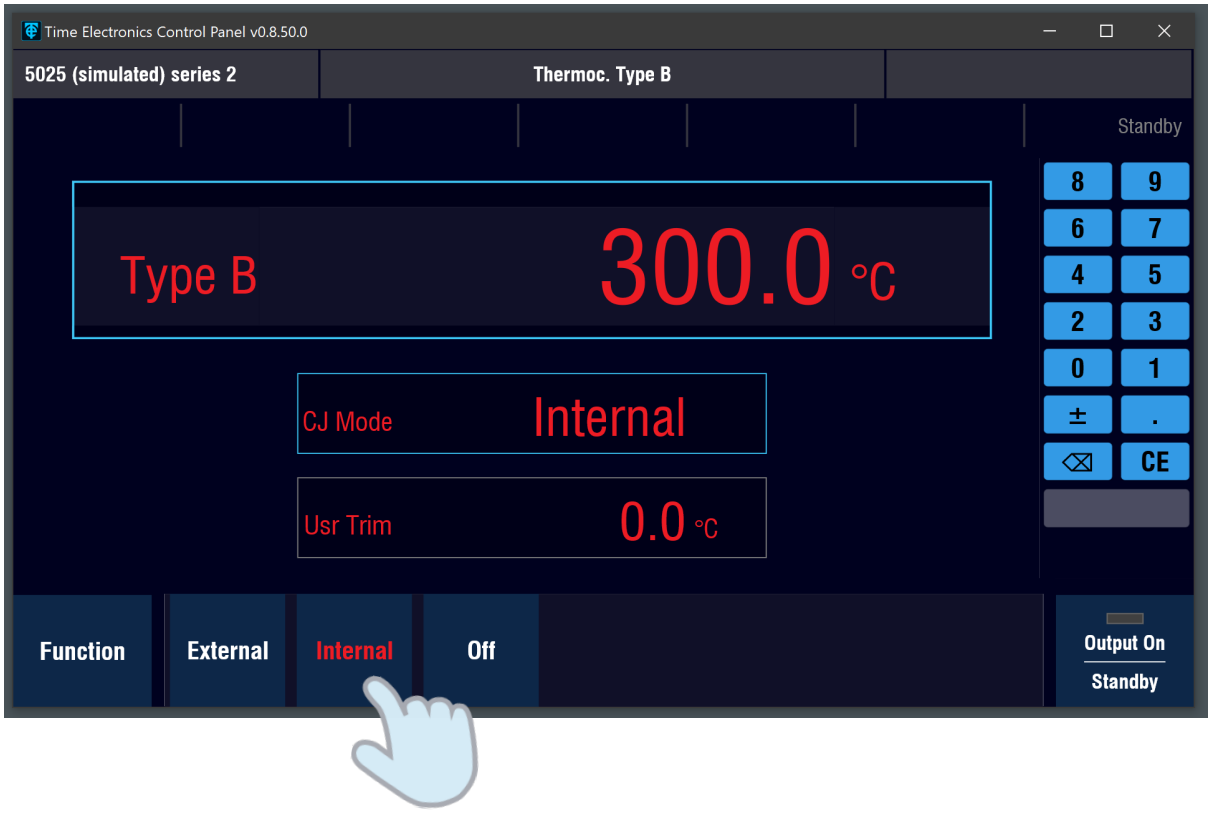
1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

To exit the external reference setting press the main display box. Then you can enter the required temperature output and the external reference will be applied.



Internal: This setting uses the front panel terminals as the cold junction. Use this if the UUT is connected to the front panel terminals using compensating cables (cables of the same alloy as the thermocouple being simulated).

To use, press the CJC Mode display, then the **Internal** button at the bottom:



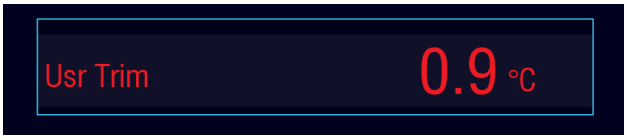
The CJ mode will show **Internal**, and the lower display provides the option for **User Trim**.

This option means that the calibrator's internal cold junction reference value can be trimmed by this additional setting, to correct for any thermal drifts or inaccuracies due to the UUT's cold junction compensation.

In effect it is a zeroing mechanism that allows the accuracy of the UUT's cold junction compensation to be disregarded and calibration performed purely on the UUT's capability to measure the EMF voltages for the specified thermocouple type.

You can enter the trim value temperature by:

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method



To exit the internal reference setting press the main display box. Then you can enter the required temperature output and the internal reference and trim value will be applied.

Off: This setting disables any cold junction reference. Use this if the UUT's cold junction compensation can be set to zero or if the junction from thermocouple alloy to copper wire is made in an ice bath.

To use, press the CJC Mode display, then the **Off** button at the bottom:

To exit the Off mode setting, press the main display box. Then you can enter the required temperature output.

Temperature Units

To change the temperature units, ensure the main display is selected, then press the **Units** button.

This opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

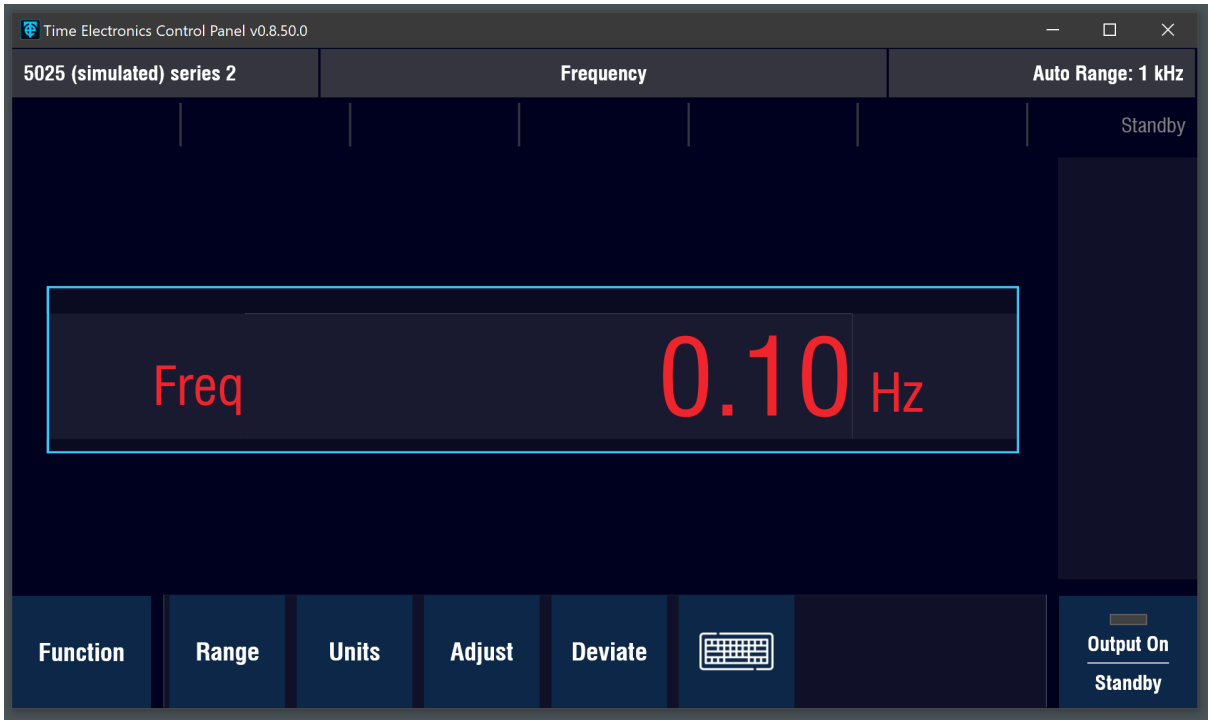
1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

To go back to the thermocouple selection menu, press the **Function** button. The output setting display will fade, and selection is possible. To exit, press **Function** again.

3.13 Frequency **FRQ**

Digital frequency is selected by pressing the **FRQ** button:



By default the application will set to auto-range. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:

To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

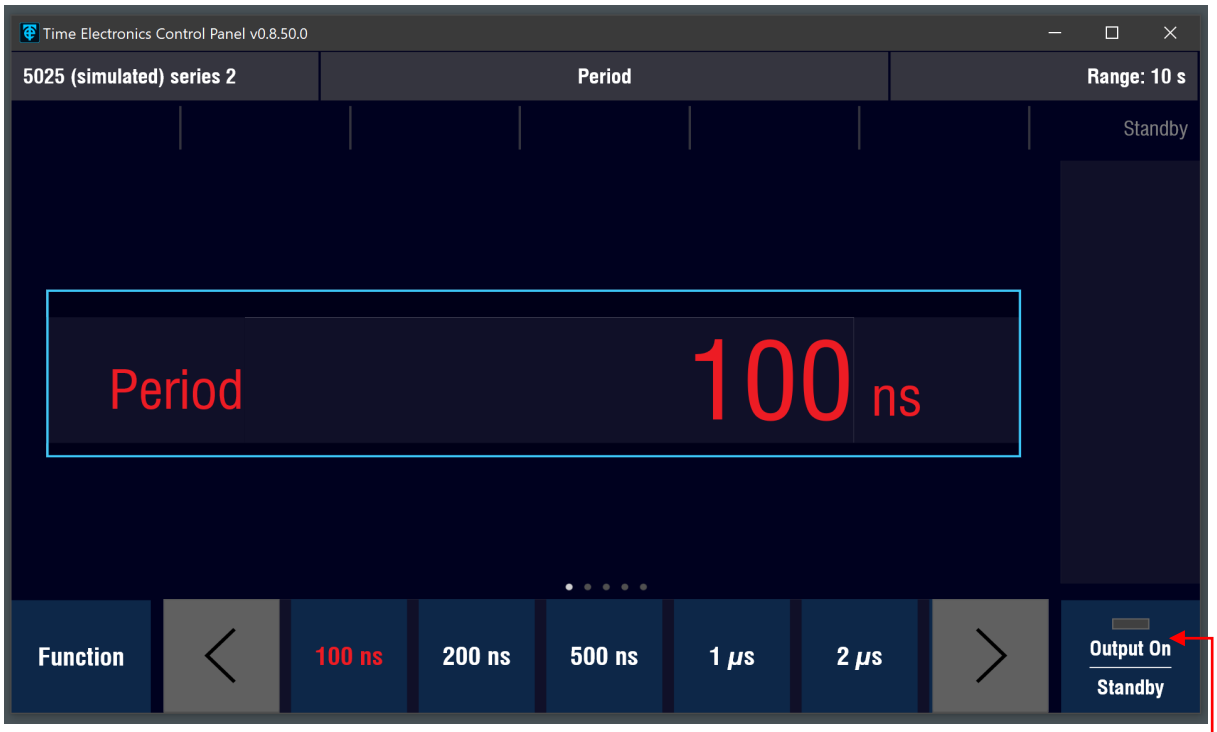
To exit the function, press the Function button.

The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.

3.14 Period **PER**

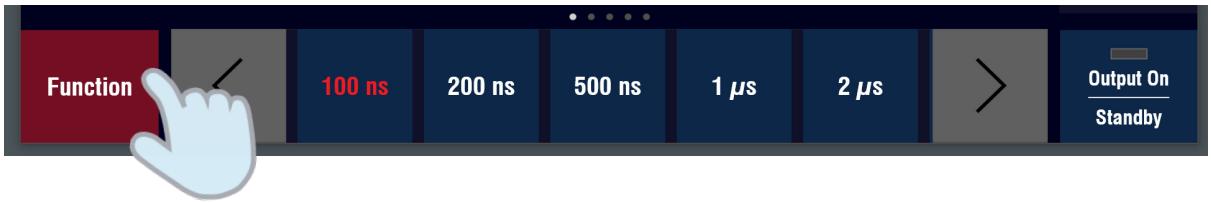
Period is available as fixed values that can be individually selected.

The function is selected by pressing the **PER** button:

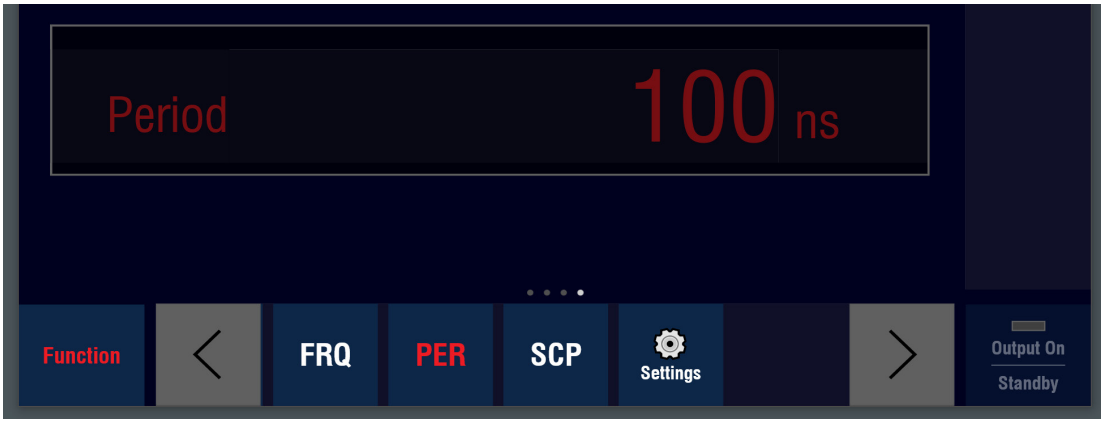


You can now select the from the fixed values listed. Use the left/right arrows to access the complete list. Once selected, press and hold the **output on** button for 2 seconds to output.

To exit the function, press the **Function** button.



The output setting display will fade to indicate that no output can be entered, and the other functions will show in the bottom menu, available for selection.

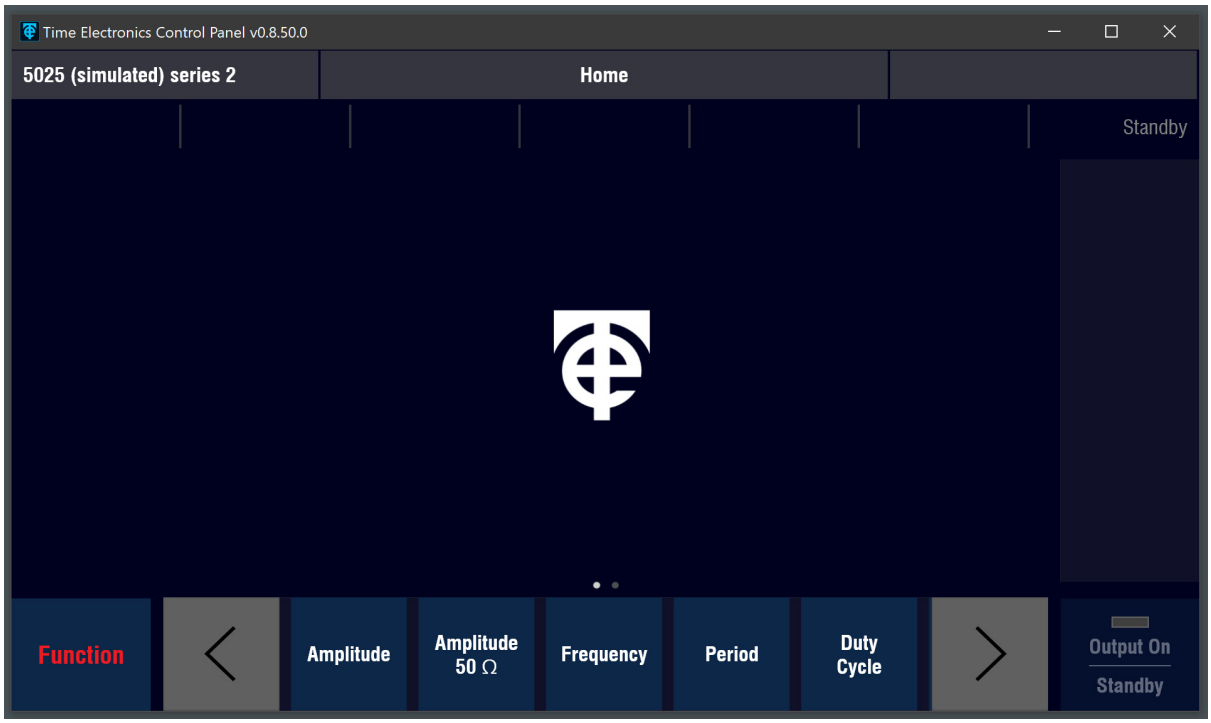


3.15 Scope Calibration **SCP**

The oscilloscope calibration option that is available in the control application when fitted to a calibrator. It provides:

- **Amplitude** for calibrating the voltage gain. (Vertical deflection)
- **Frequency and Period** for calibrating the time base. (Horizontal deflection)
- **Fast Rise** for rise time calibration and bandwidth determination.
- **Duty Cycle** for verifying duty cycle measurements.
- **Levelled Sine** for bandwidth calibration (frequency response) and trigger functions.

The function is selected by pressing the **SCP** button:

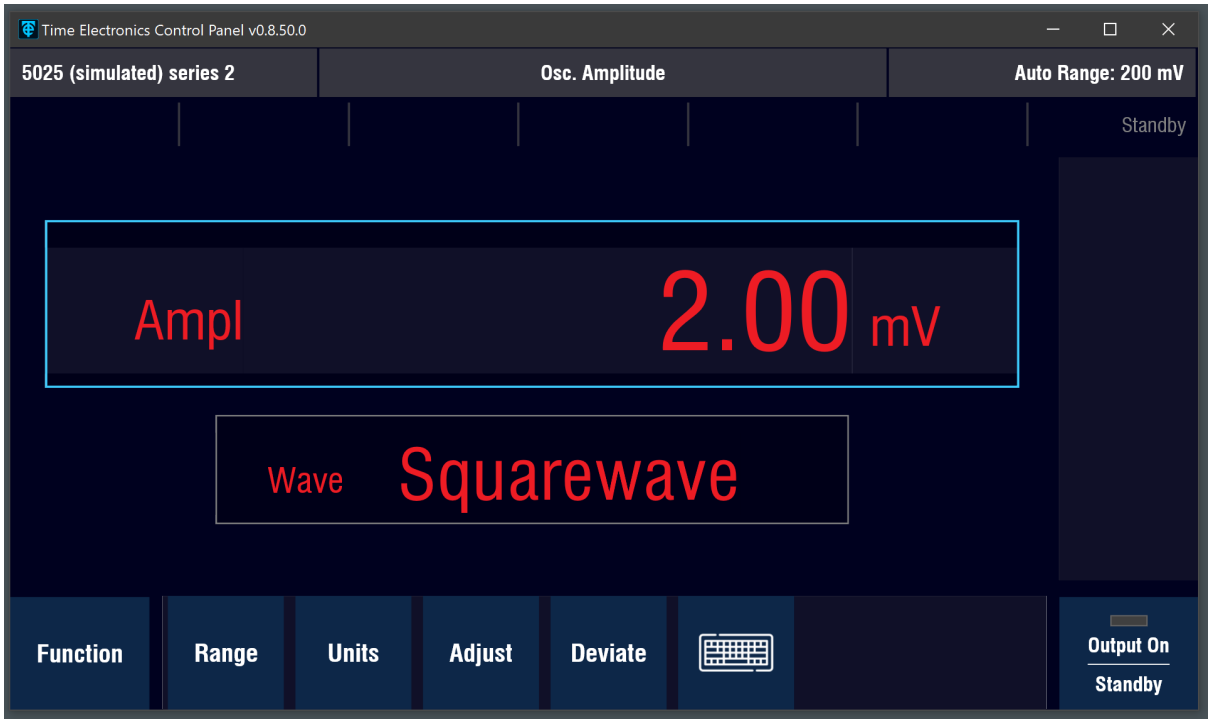


The menu buttons for scope calibration are displayed at the bottom. These are:

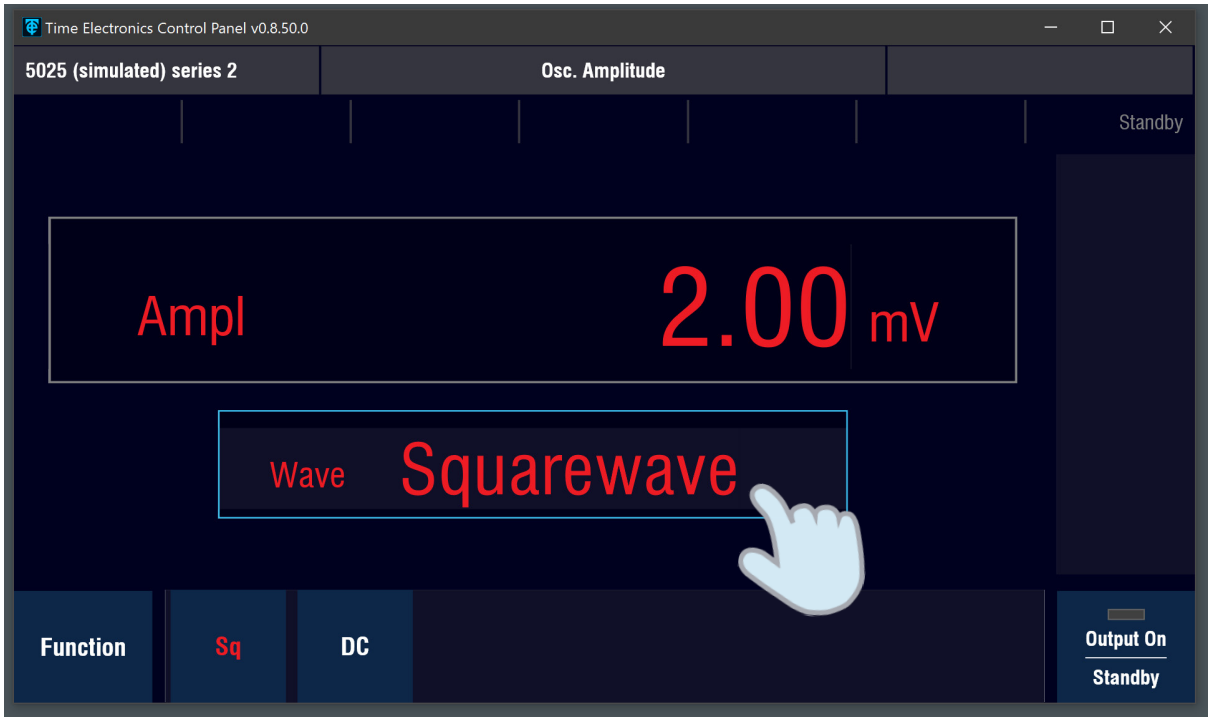
- Amplitude
- Amplitude 50 Ω
- Frequency
- Period
- Duty Cycle
- Fast Rise
- Levelled Sinewave

3.15.1 Amplitude

Select by pressing the **Amplitude** button:



The wave can be set as Squarewave or DC. Press the **Wave** box and select from the two options in the bottom menu:



By default the application will set to auto-range. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:

To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

To go back to the Scope Calibration Option menu, press the **Function** button. The output setting display will fade, and selection is possible. To exit, press **Function** again.

3.15.2 Amplitude 50 Ω

This function is the same operation as amplitude.
Select by pressing the **Amplitude 50 Ω** button:

The wave can be set as Square or DC. Press the **Wave** box and select from the two options in the bottom menu.

Range: By default the application will set to auto-range. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges. To close the Range sidebar menu, press the **Range** button.

Units: The **Units** button opens a sidebar menu that allows you to change the units as required. To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

To go back to the Scope Calibration Option menu, press the **Function** button. The output setting display will fade, and selection is possible. To exit, press **Function** again.

3.15.3 Frequency

Frequency in the Scope Calibration Function is available as fixed values that can be individually selected.

The function is selected by pressing the **Frequency** button:

You can now select the from the fixed values listed. Use the left/right arrows to access the complete list. Once selected, press and hold the **output on** button for 2 seconds to output.

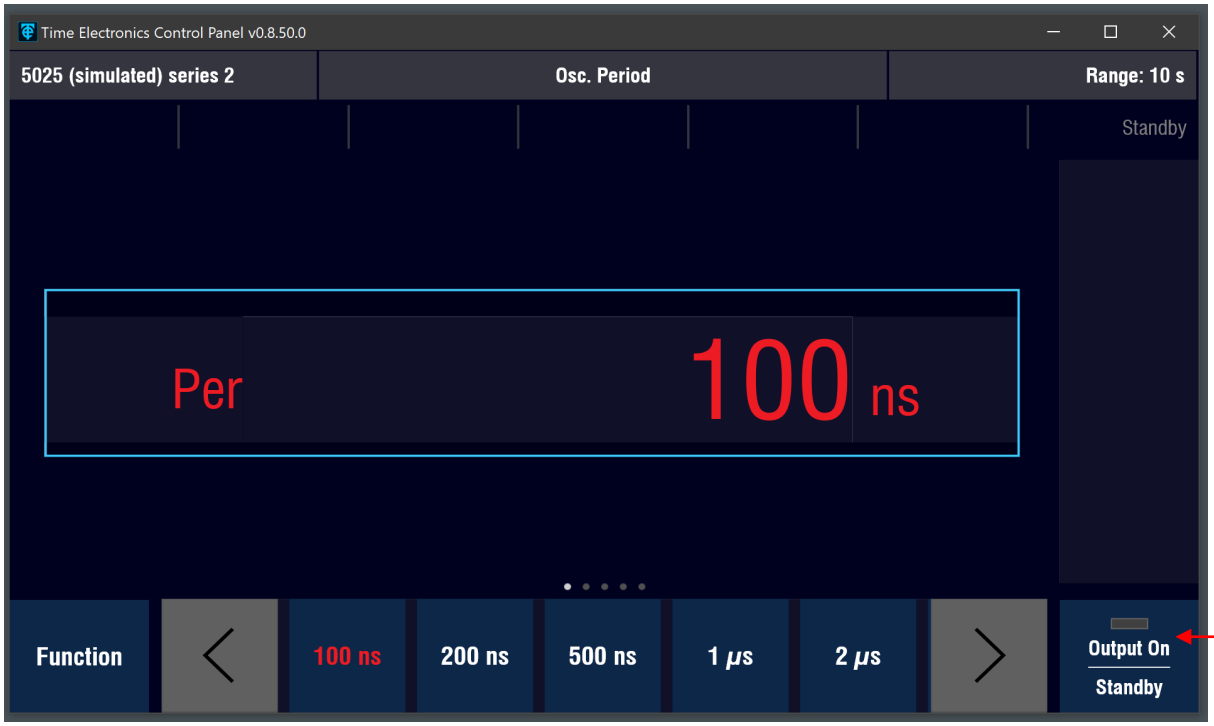
To go back to the Scope Calibration Option menu, press the **Function** button. The output setting display box will fade, and selection is possible.

To exit, press **Function** again.

3.15.4 Period

Period in the Scope Calibration Function is available as fixed values that can be individually selected.

The function is selected by pressing the **Period** button:



You can now select the from the fixed values listed. Use the left/right arrows to access the complete list. Once selected, press and hold the **output on** button for 2 seconds to output.

To go back to the Scope Calibration Option menu, press the **Function** button. The output setting display box will fade, and selection is possible.

To exit, press **Function** again.

3.15.5 Duty Cycle

Select by pressing the **Duty Cycle** button:

Select the frequency (100 Hz, 1 kHz, 10 kHz) from the menu buttons at the bottom.

Then press the **Duty** display box and enter the required % duty cycle.

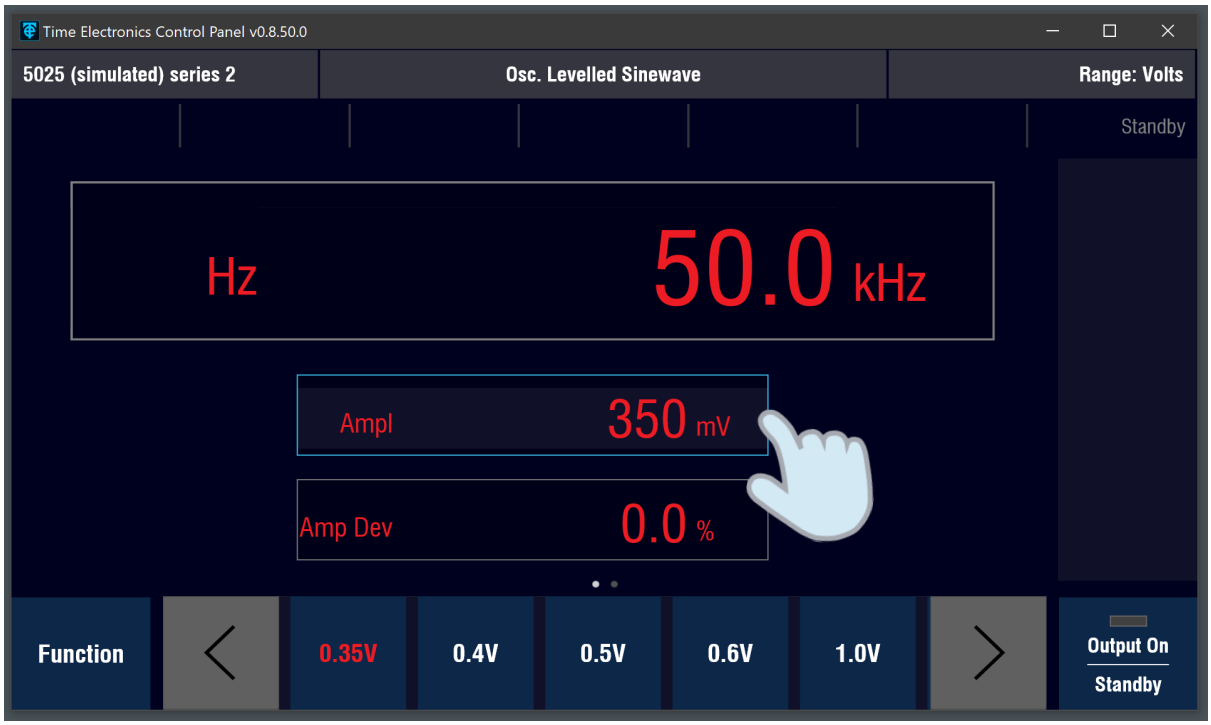
You can adjust and deviate the duty cycle % value as required.

To go back to the Scope Calibration Option menu, press the **Function** button. The output setting display box will fade, and selection is possible. To exit, press **Function** again.

3.15.6 Levelled Sinewave

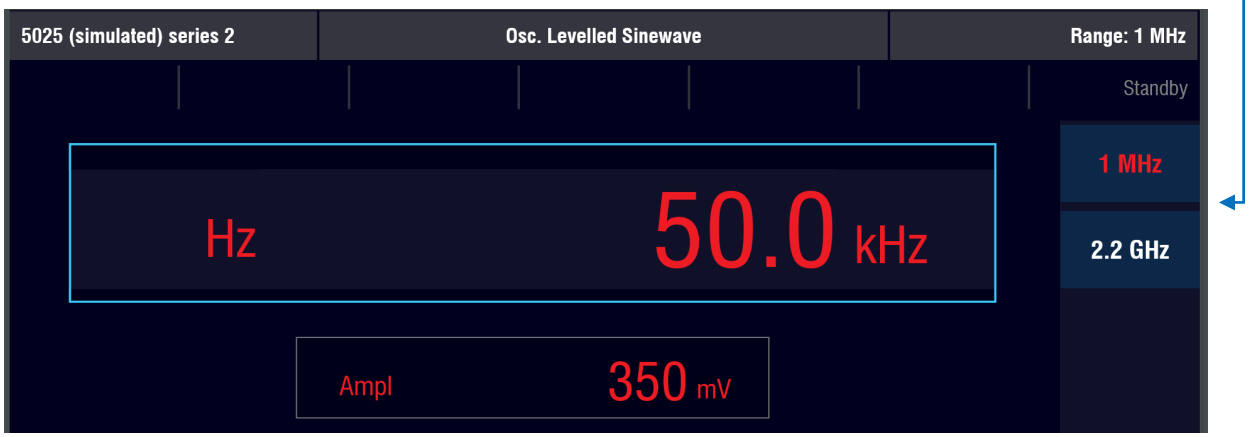
Select by pressing the **Levelled Sinewave** button:

To set the amplitude, press the **Ampl** box and select from the voltages in the bottom menu:



The amplitude can also be deviated by pressing the **Amp Dev** box and entering a value. The adjust method can also be used.

By default the application will set to 1 MHz. This can be changed by pressing the **Range** button. The sidebar menu will display the available ranges:



To close the Range sidebar menu, press the **Range** button.

The **Units** button opens a sidebar menu that allows you to change the units as required:

To close the Units sidebar menu, press the **Units** button.

Setting an Output Value

Setting the output value is the same method as the DCI and ACI functions. See section 3.2 and 3.4 for detailed instructions of these setting methods.

1. Keyboard Entry
2. On-screen Keyboard Entry
3. Adjust Method

Deviation can also be used on this function.

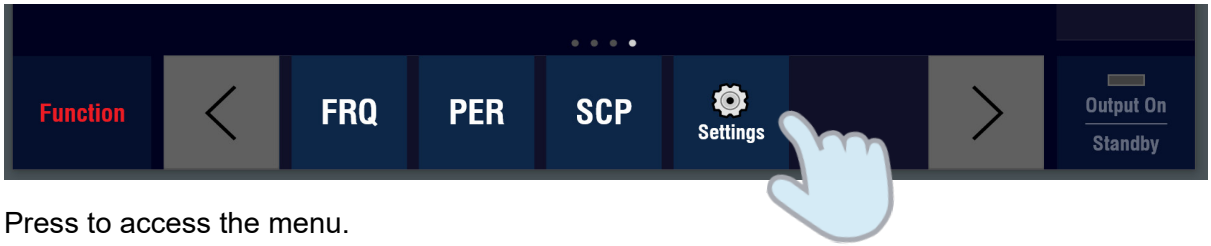
To go back to the Scope Calibration Option menu, press the **Function** button. The output setting display will fade, and selection is possible. To exit, press **Function** again.

3.15.7 Fast Rise

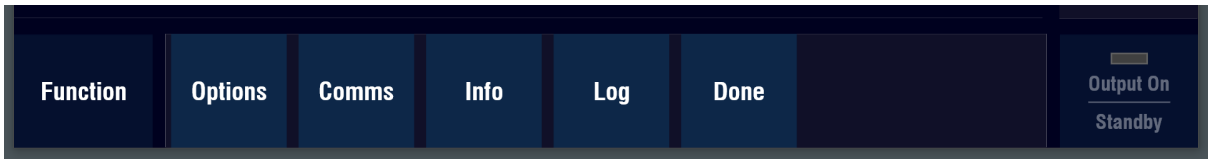
Select by pressing the **Fast Rise** button:

4 Settings

The **Settings** button is situated in the functions menu at the end:



Press to access the menu.

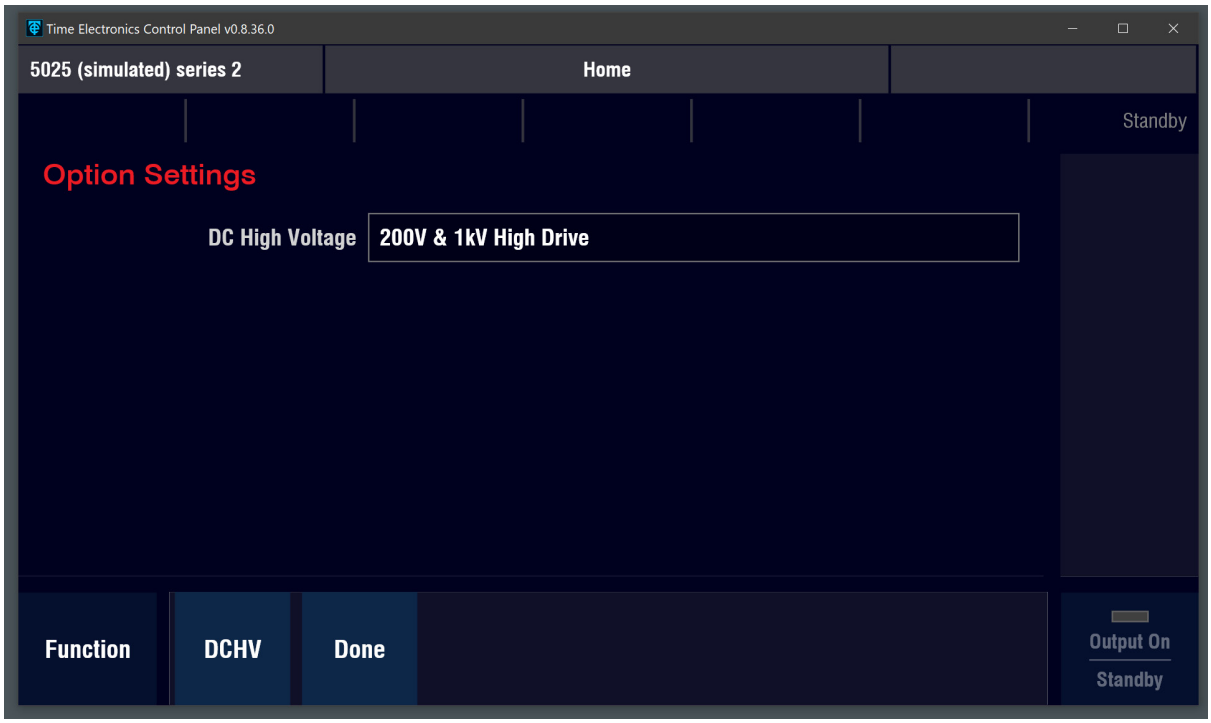


The **Done** button is used to step back a menu level at any time within the settings screens.

Options

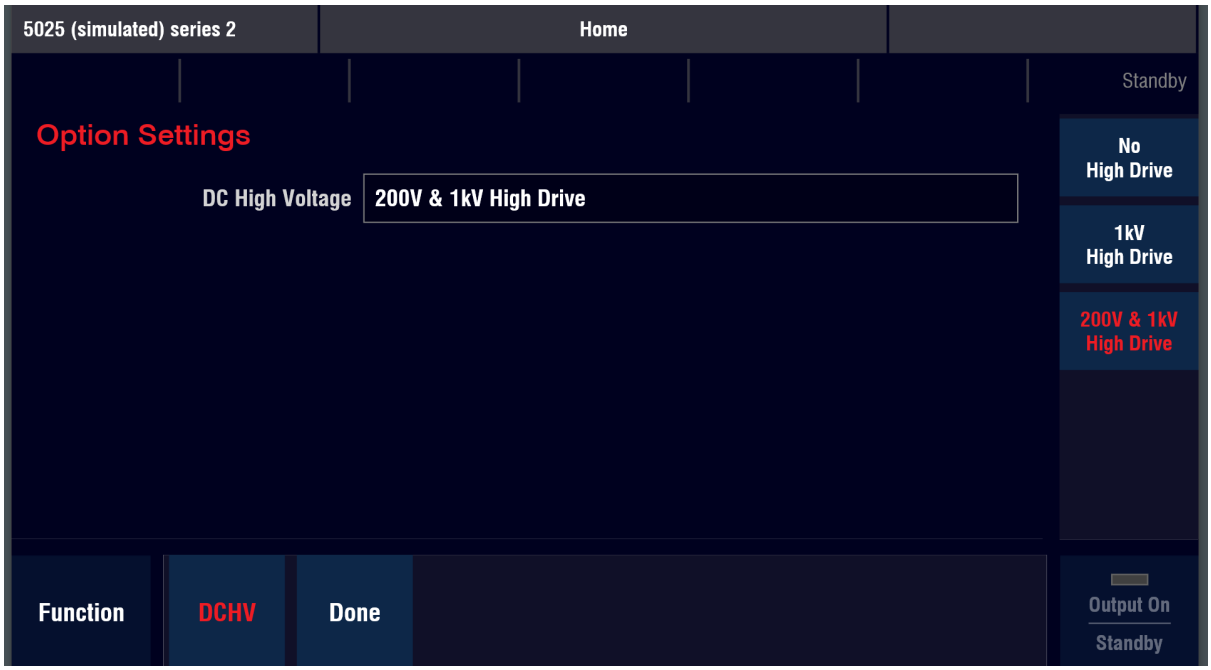
This screen will display the calibrator options that can be set. The 5025-S2 models have an optional DC High Drive setting that can be set for required use.

After pressing the options button, the screen appears:



The high drive modes provides a higher output current to power more demanding instruments such as analogue meters or voltage detectors.

Press the DCHV button to open the sidebar menu with available settings:



When the High Drive option is set, the display will indicate it is in use at the top right of the screen. The High Drive ranges will also be available in the Range selection menu:

Additional settings are:

Comms: Check and select the communication settings required.

Info: View the calibrator details, options fitted, firmware versions etc.

Log: View the log records of recent commands in the application.

Done: Exit settings.

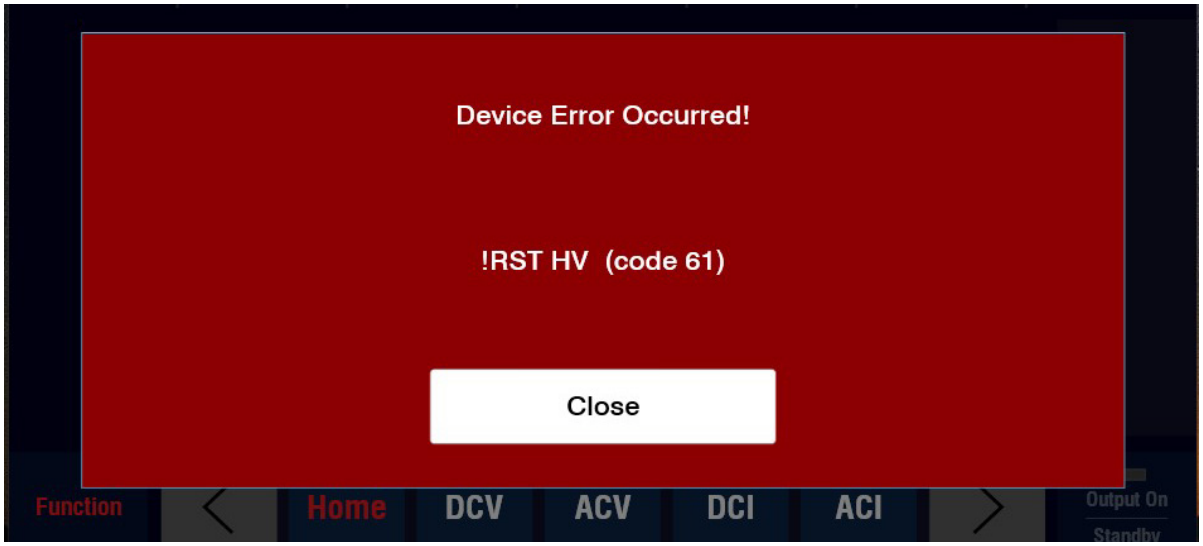
5 Errors and Fault Diagnosis

The control interface will detect and display errors from the calibrator. These errors are displayed on the calibrator front panel as well.

NOTE: *When an error displays, please look up the code in the calibrator user manual for information and guidance on how to proceed.*

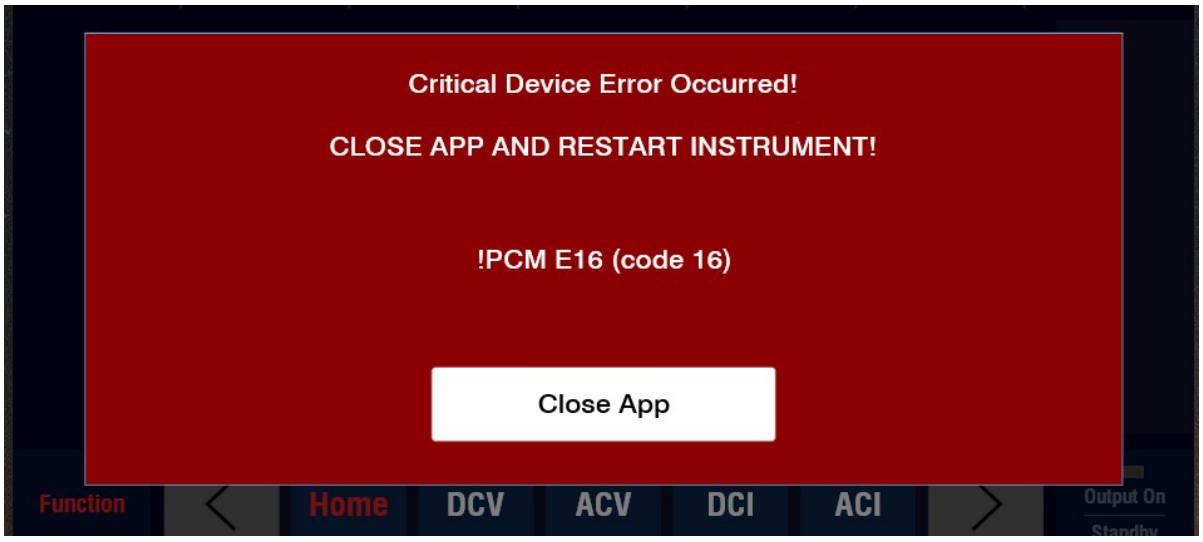
Recoverable Error Notifications

These are displayed in a pop-up window and notify you of the error and code.
The window can be closed and the application can continue to be used.



Non-Recoverable Error Notifications

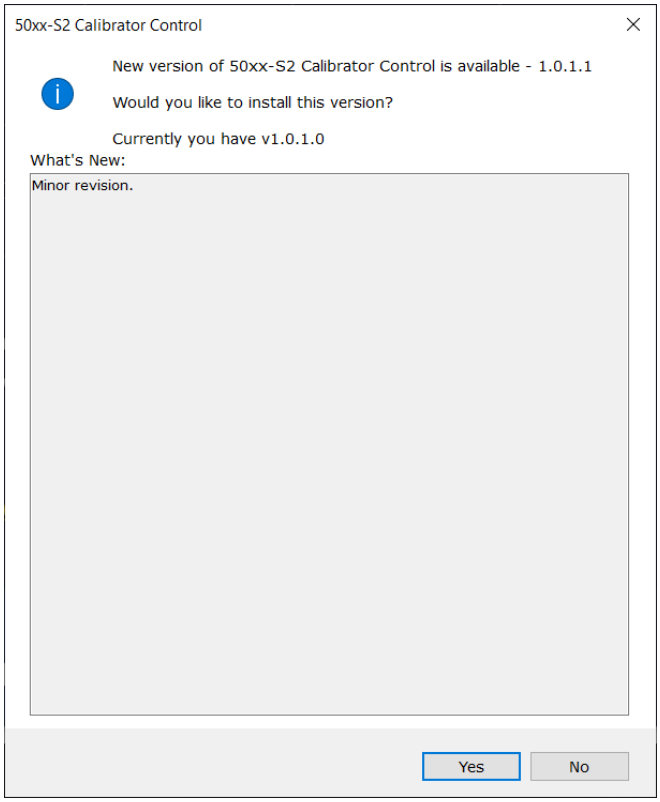
These are displayed in a pop-up window and notify you of the error and code.
The control application must be closed when this type of error appears.



6 Application Upgrades

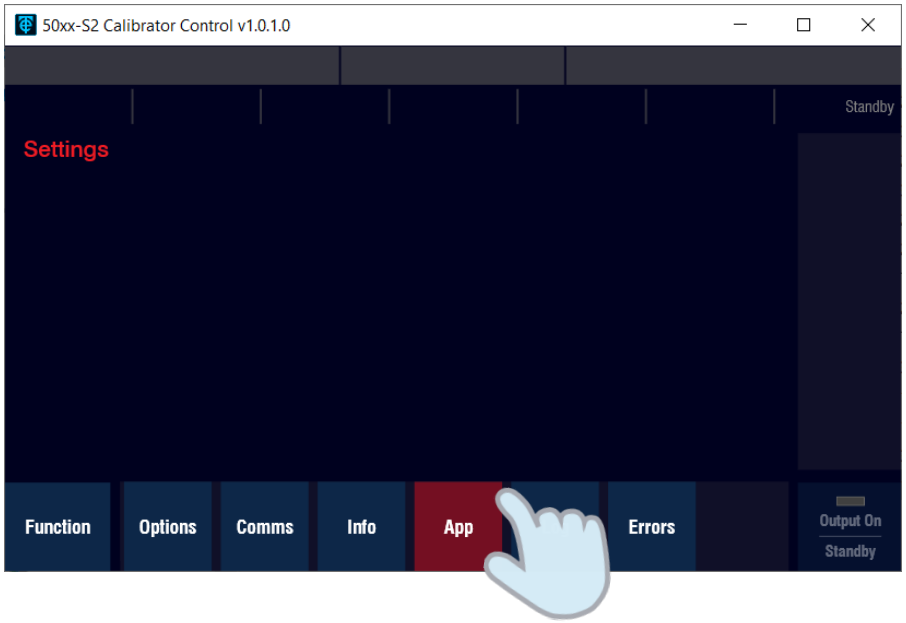
6.1 Upgrading if your PC is connected to the internet

When you start the application, it will first check if there is a newer version of the application available. If there is a newer version then a window will appear:

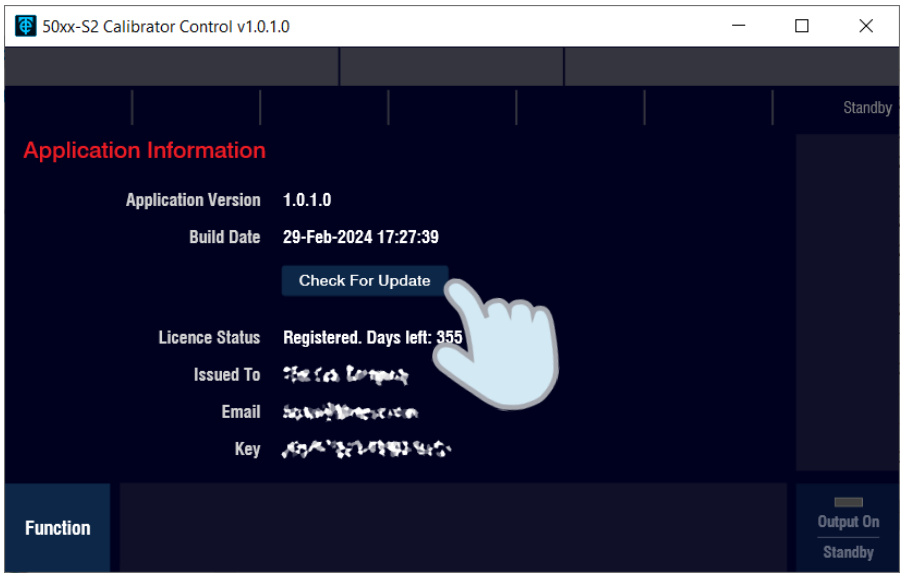


This window shows the latest version available and its release notes. Click Yes to start the upgrade, or Click No to continue using the currently installed version of the application.

You can also check if there is an upgrade available while using the application. To do this, select the Settings -> App screen.

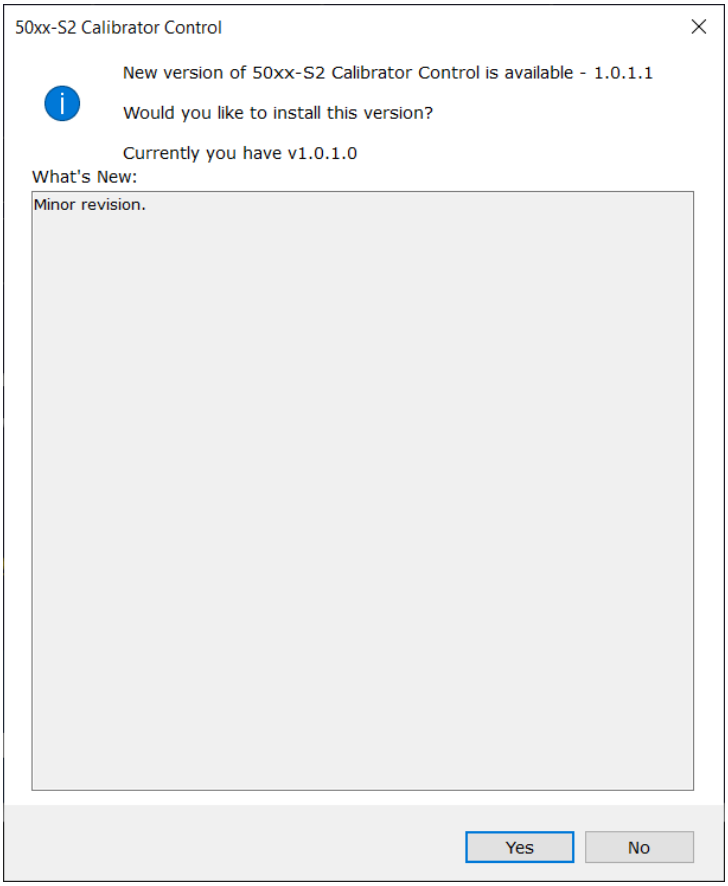


This screen shows application and license information.



Click the Check For Update button to check if a newer version of the application is available.

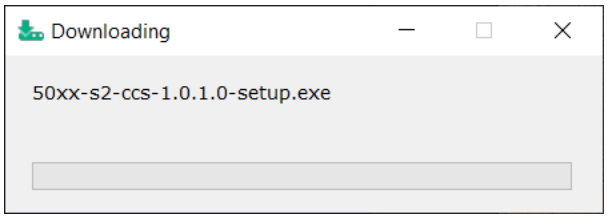
If there is a newer version, this window will appear:



Click Yes to start the upgrade.

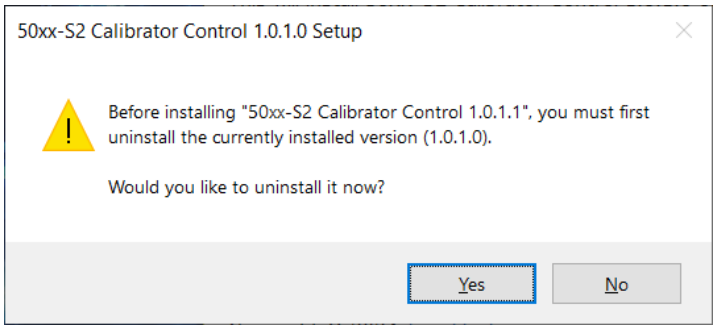
6.2 Upgrade Process

The upgrade process begins by downloading the latest version from our web server. You will see this window for a short time (depending on your download speed):



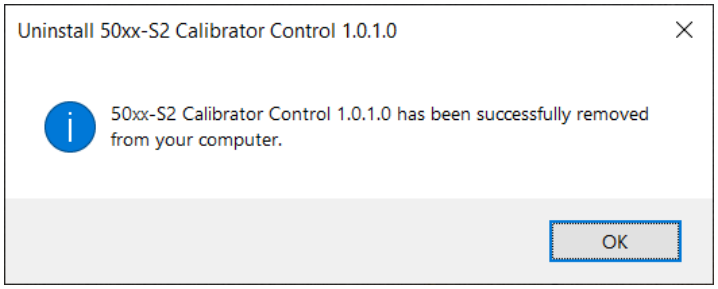
When download is complete, the installer for the latest version will automatically start.

You will be asked to confirm that you wish to uninstall the current version of the application:



Click Yes to continue the upgrade.

This window will appear, confirming that the current version of the application has been removed:



You will now see the Setup window for the new version.

Follow the steps in the Installation section to install the new version.

6.3 Upgrading if your PC is not connected to the internet

If your PC is not connected to the internet, the application is unable to detect automatically that a new version is available.

Instead, you will need to obtain the latest version of the setup application when one becomes available.

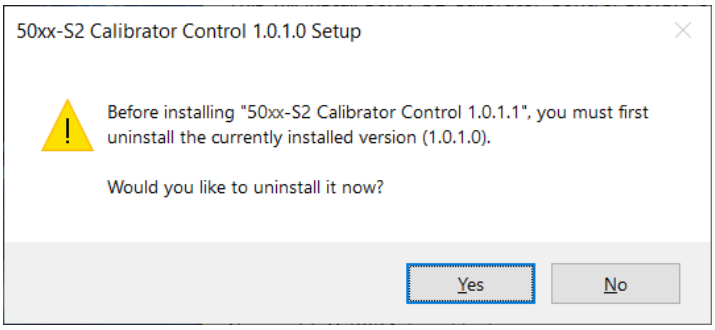
The filename will be of the format **50xx-s2-ccs-*{version number}*-setup.exe**.
For example, **50xx-s2-ccs-1.0.1.0-setup.exe**.

To perform an upgrade:

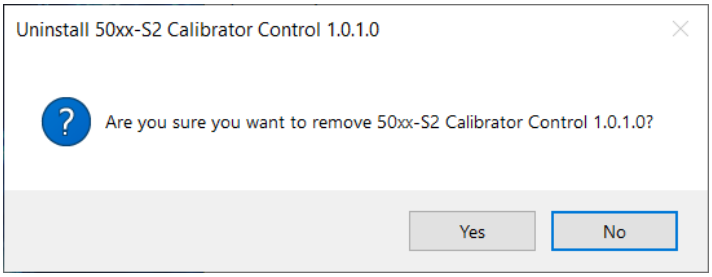
Close the application if it is running.

Double-click on the setup application file (e.g. 50xx-s2-ccs-1.0.1.0-setup.exe).

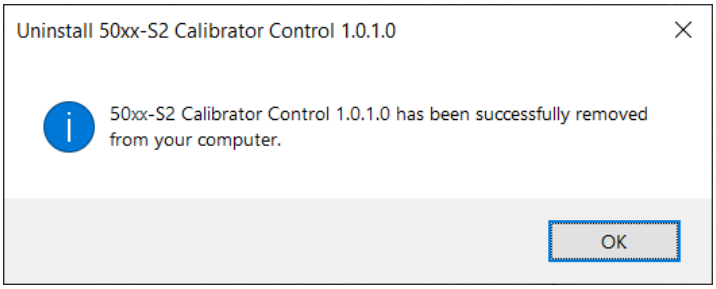
You will be asked to confirm that you wish to uninstall the current version of the application:



Click Yes to continue the upgrade.
You will be asked to confirm you wish to remove the current version:



Click Yes to continue the upgrade.
This window will appear, confirming the current version of the application has been removed:



You will now see the Setup window for the new version. Follow the steps in the Installation section to install the new version.

7 Uninstalling the Software

If you want to remove the application from your PC, follow these steps.

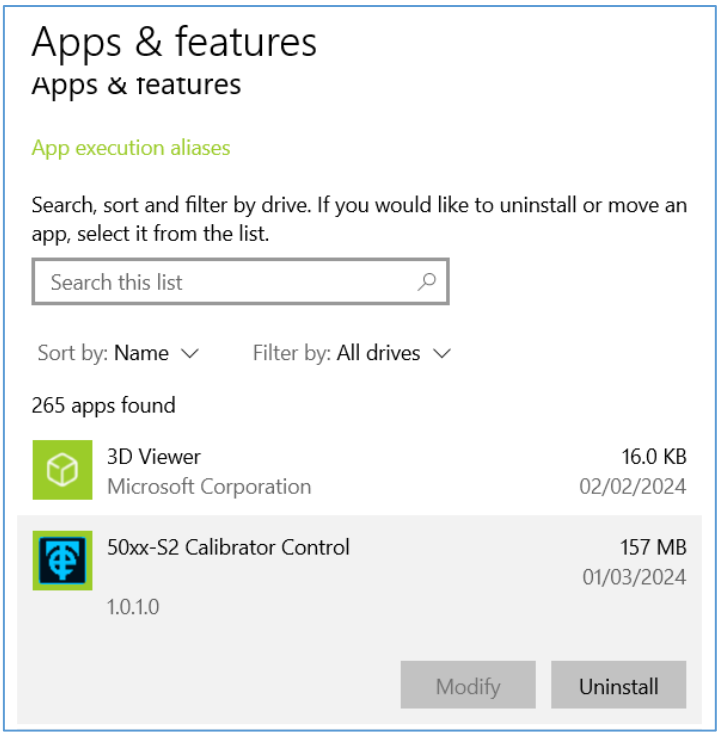
Close the application if it is running.

Click the Windows Start button.

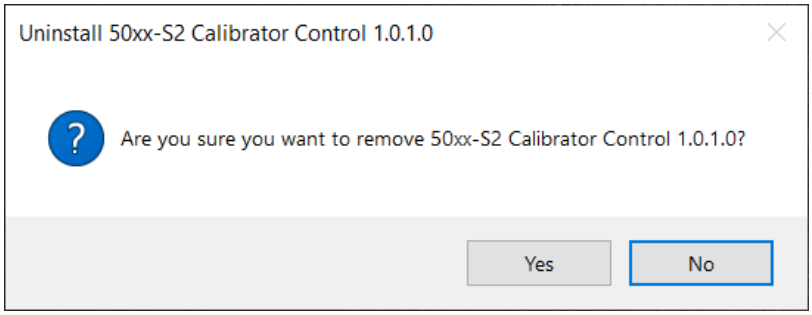
Click Settings (⚙.).

Click Apps.

Find “50xx-S2 Calibrator Control” in the section titled “Apps & Features” and click on it.

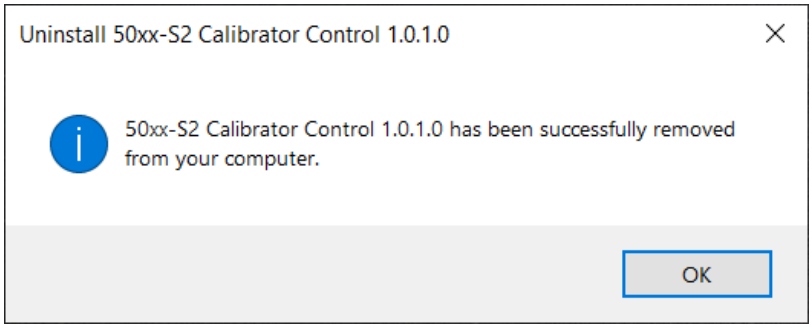


Click the Uninstall button. This window will appear:



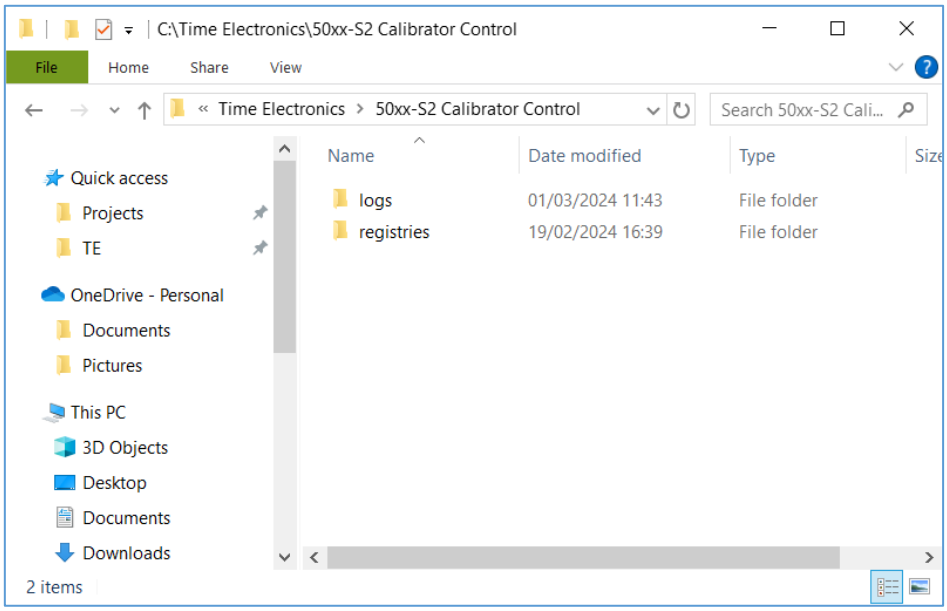
When prompted, click Yes if you are sure you want to uninstall the application.

Uninstalling takes a few seconds. Confirmation that the application was uninstalled will then be displayed:



Click OK to close the uninstaller.

Note: Following uninstall of the application, the application's folder will still be present on your PC (e.g. C:\Time Electronics\50xx-S2 Calibrator Control):



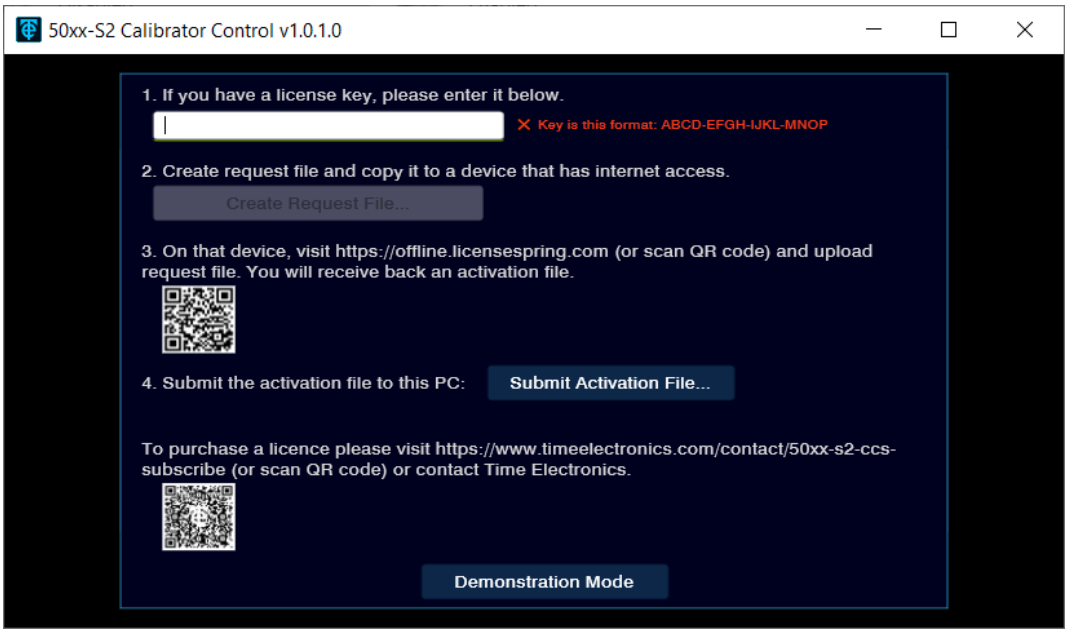
After uninstalling, the application folder retains log and configuration files that will be useful if you decide to re-install the application at a later date. If you prefer you can delete the install folder (e.g. C:\Time Electronics\50xx-S2 Calibrator Control) completely.

8 Further Licensing Information

8.1 Registering a license if your PC is not connected to the internet

NOTE:
Due to the nature of registering a license on a PC that is not connected to the internet, there are many more steps involved. If possible, we recommended you connect your PC to the internet while registering a license key.

If you have not yet registered a license in the application (for instance, the very first time you run the application) then the application will display this screen at startup:



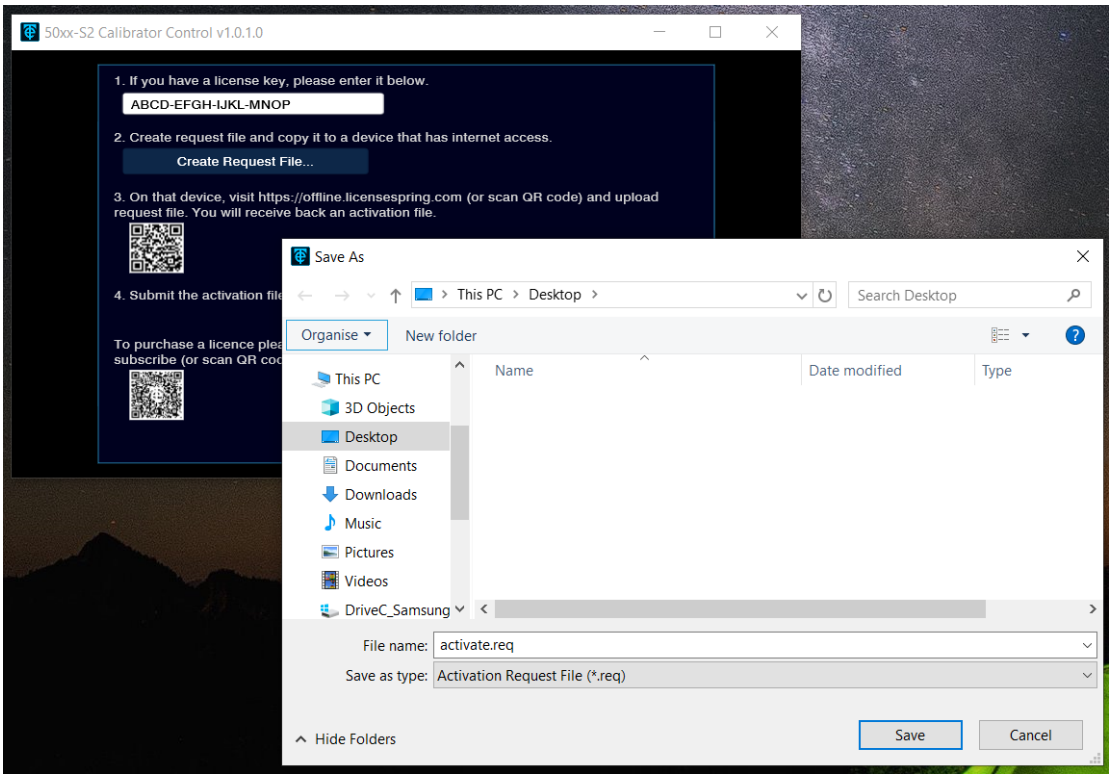
If you do not have a license key, you can use a device that is connected to the internet to purchase one: Visit the link shown near the bottom of the screen (www.timeelectronics.com/contact/50xx-s2-ccs-subscribe) , or scan its QR code to get there.

If you do not have a license key and do not want to purchase one, click on the Demonstration Mode button. In Demonstration mode, the application can only control a simulated 5025 calibrator, so you can see the application in action. The application will not control a real 5025 calibrator.

If you have a license key, follow step 1 on the screen and enter the license key into the box. Your license key will comprise four groups of four letters and numbers, with the groups separated by hyphens.

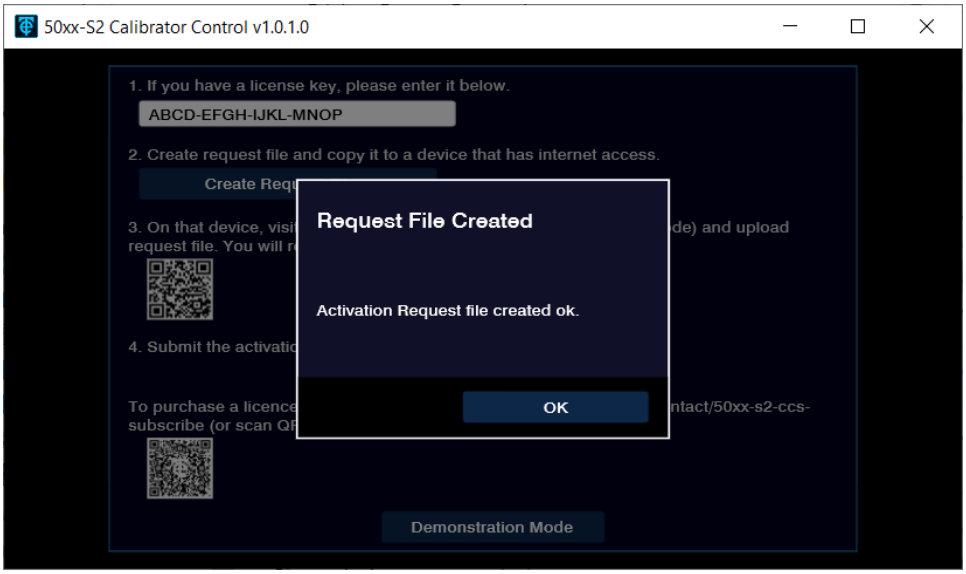
Follow step 2 on screen: Click the Create Request File... button.

This window will appear:



Click Save. This creates an activation request file named activate.req on your Desktop. You can save it in a different folder if you like.

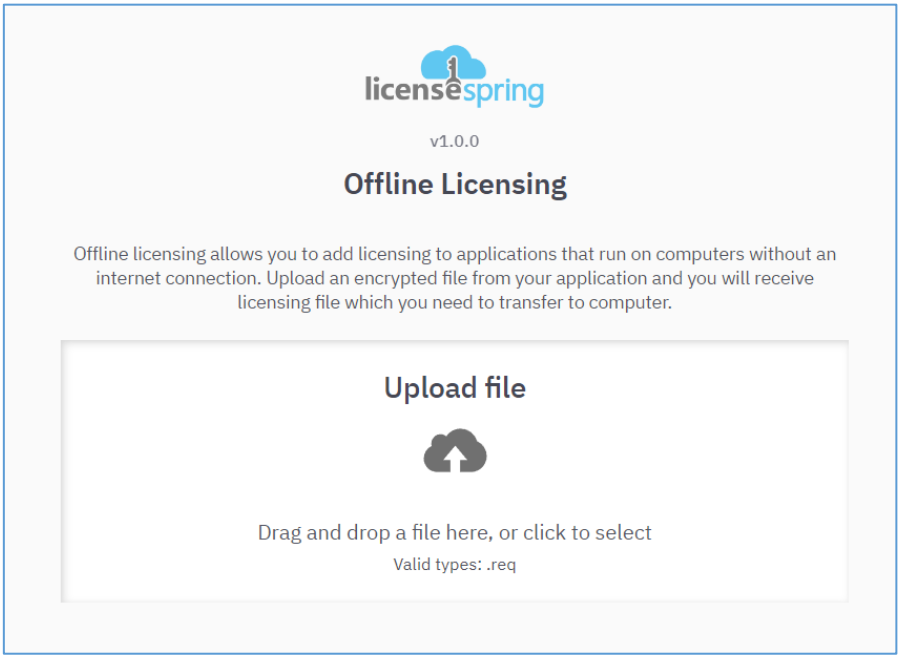
This window will appear, confirming the activation request file has been created:



Click OK.

This file activate.req needs to be accessible to a device that is connected to the internet, so copy it to the device as required.

Follow step 3 on screen: Using your device that is connected to the internet, visit https://offline.licensespring.com or scan the QR code on screen to get there. You will see this web page:

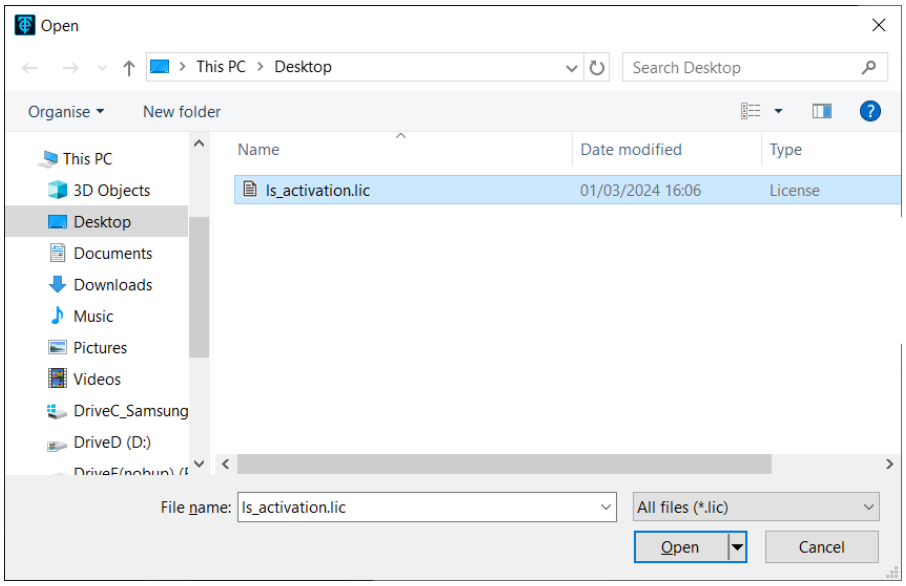


LicenseSpring are our licencing partners.

Take the activation request file “activate.req” and drag it onto the Upload file area of the web page. The web page will report the file as 100% uploaded and save a file called “ls_activation.lic” in your downloaded files folder.

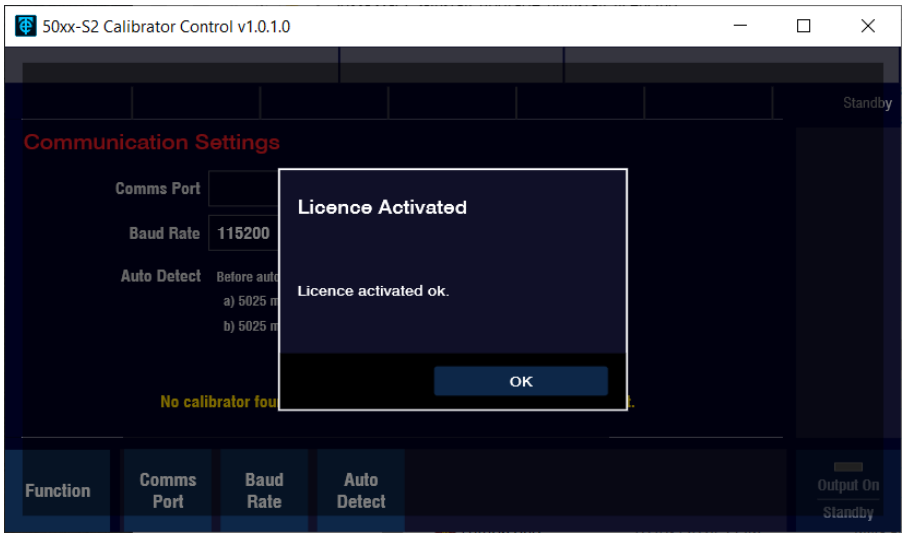
Copy the ls_activation.lic file to the PC that is running the 50xx-S2-CCS application, for instance on to its desktop.

Now follow step 4 of the on-screen instructions: Click the Submit Activation File... button. This window will appear:



Select the ls_activation.lic file and click Open.

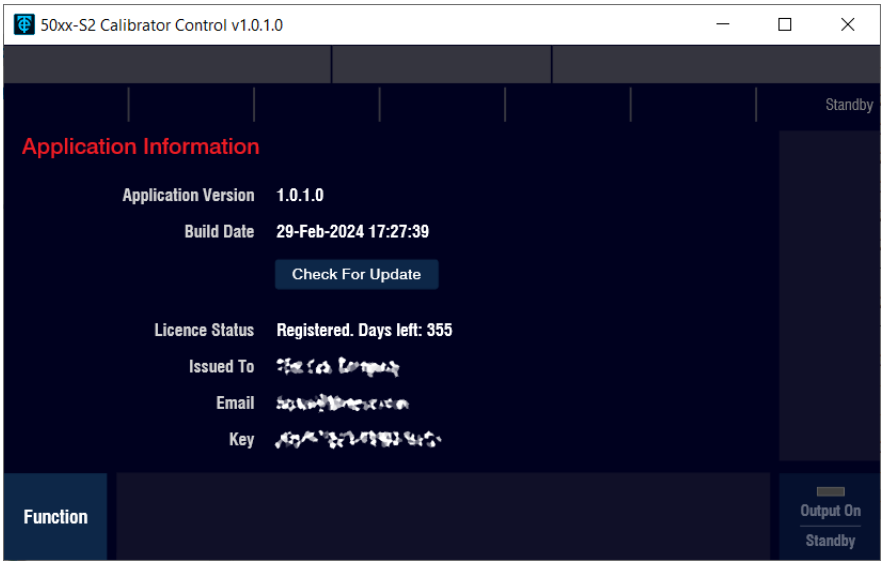
After a few seconds, this window will appear to show the license has been activated ok:



Click Continue to start using the application.

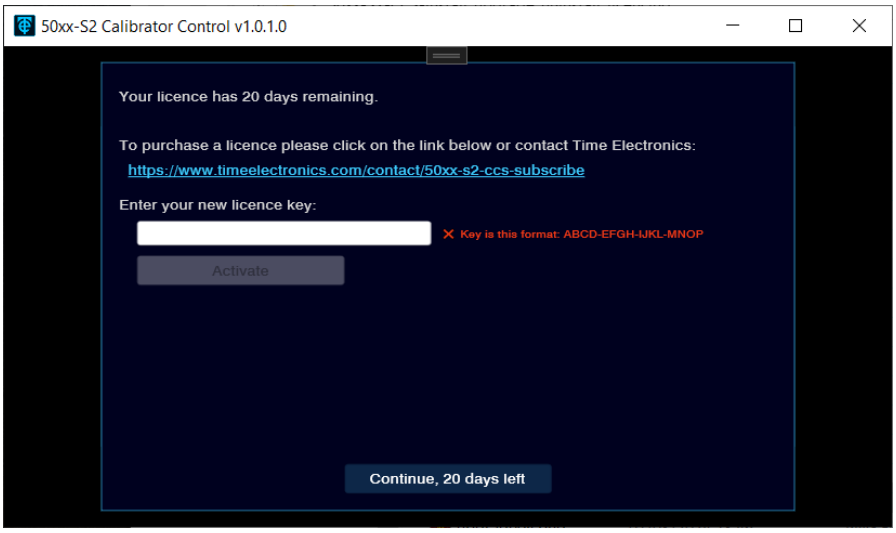
8.2 Checking License Status

Within the application, use the Settings -> App screen to view the license status, including how many days remain:



8.3 When a License is About to Expire

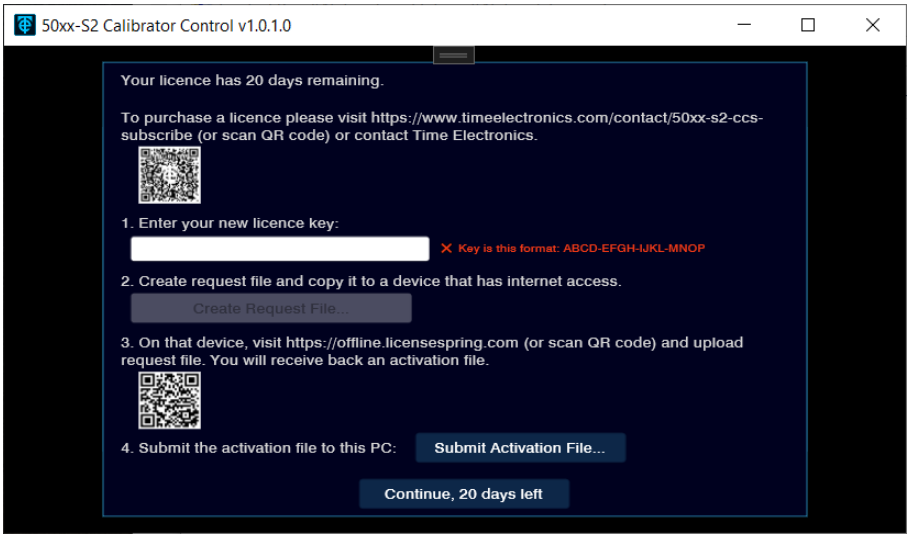
When a license has less than 31 days left, a warning will displayed each time the application starts:



You can continue using the application until your license expires, or if your license renews automatically.

If you wish to purchase a new license, then follow the instructions on-screen.

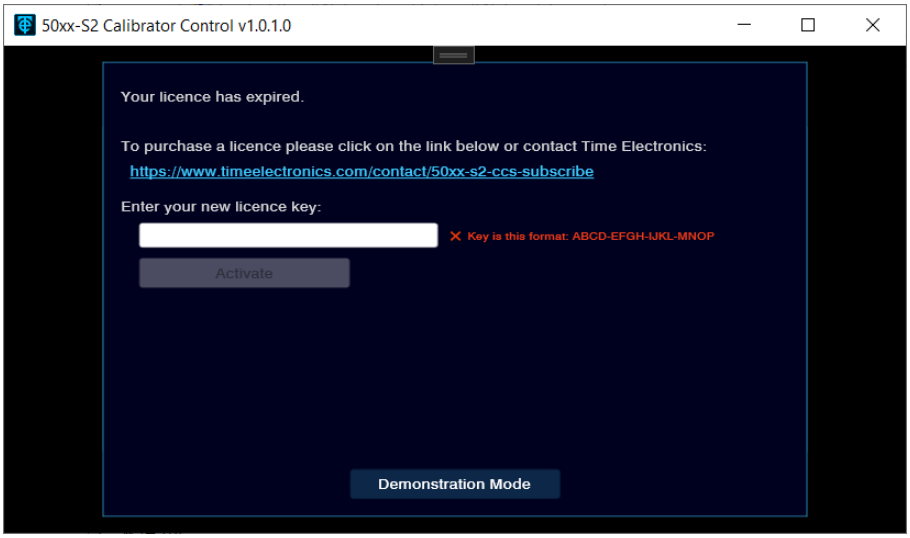
Note, if your PC is not connected to the internet then the screen displayed is this instead:



Refer to the section “Registering If Your PC is Not Connected to the Internet” for how to perform these steps.

8.4 When a License Expires

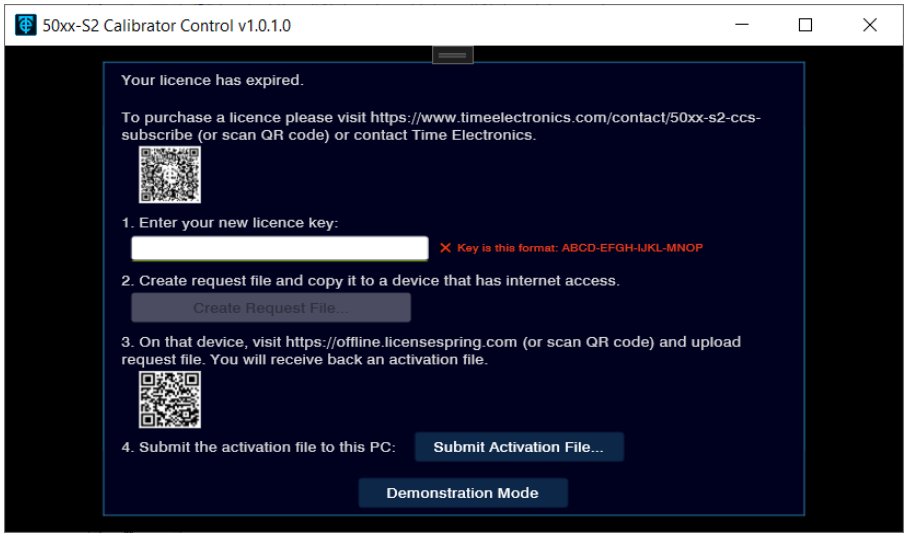
If your license has expired, this screen will be shown when the application starts:



If you have a new license key, enter it into the box on-screen and click Activate.

Otherwise, you can continue to use the application but only in Demonstration Mode (control of a simulated 5025 calibrator only).

Note, if your PC is not connected to the internet then the screen displayed is this instead:



Refer to the section “Registering If Your PC is Not Connected to the Internet” for how to perform these steps.

9 Contacting Time Electronics

Online:
Please visit **www.timeelectronics.com** and select Support Request from the Contact links. From this page you will be able to send information to the Time Electronics service team who will help and support you.

By phone:
+44 (0) 1732 355992

By email:
mail@timeelectronics.co.uk

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