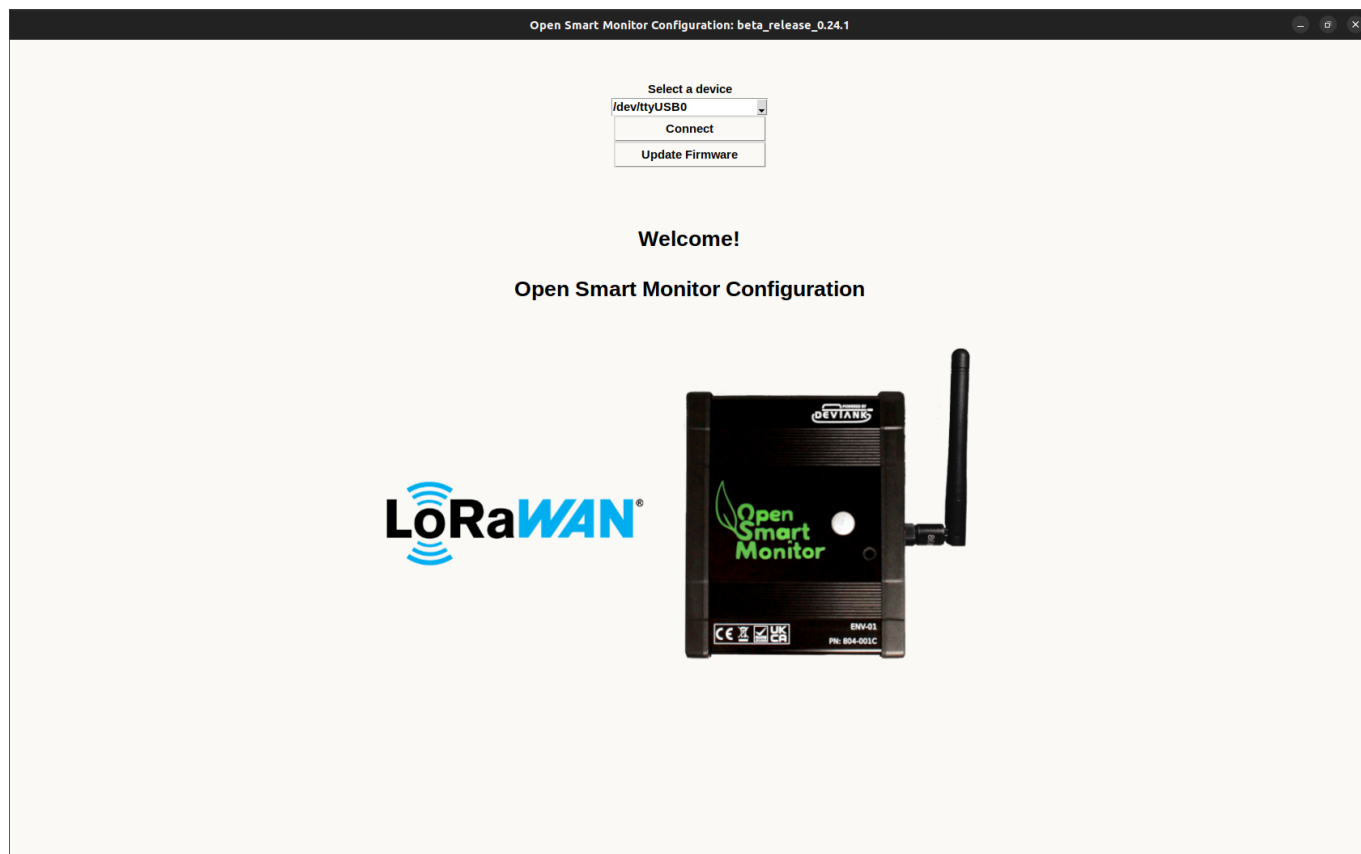# OpenSmartMonitor Configuration GUI Operating Manual

## Update Firmware



- Press update firmware.

- Select complete.bin which is the default image we provide for the sensor.

- Once you press open, you will be asked for confirmation on whether to write the image to the sensor.

- It will take a few seconds to download.

## Connect

- Opening the GUI will bring you to the connect page.

- Select the correct USB port that your sensor is connected to and press connect, the application will then start communicating to the sensor and retrieving its configuration and populating the gui.

- You will then be transferred to the home page which displays current measurements and LoRaWAN configuration.

# Current Measurements



This window reads all of the measurements available on your OSM Device and allows you to set the data transmission intervals. This can be done by changing the number in the Uplink heading (default is multiples of 15mins) or if you prefer, you can change the number of minutes per interval under Interval in Mins. You can also set the number of samples that are taken within each interval under the Sample Count heading.

- To make a change, you must select a cell and enter a number. Once you click somewhere else on the page, the command will be sent to the OSM Device.

- To change the uplink, enter a number into the entry bar and press enter. This will affect how often the sensor sends a report.

- To turn off multiple measurements, select the checkbox on the row of the measurement, this will bring up the button "Set interval to 0" and will apply to all the measurements you check.

- If you want to see the last value of a measurement, select all the checkboxes of the measurements that you want to see, then press "Get Value".

## LoRaWan Configuration

- The current dev-eui and app-key on the sensor will populate the entry boxes when you first load the gui.

- Manually enter a device eui or an application key or randomly generate one by pressing the buttons.

- To write them to the OSM Sensor press 'Send'.

# Advanced Configuration
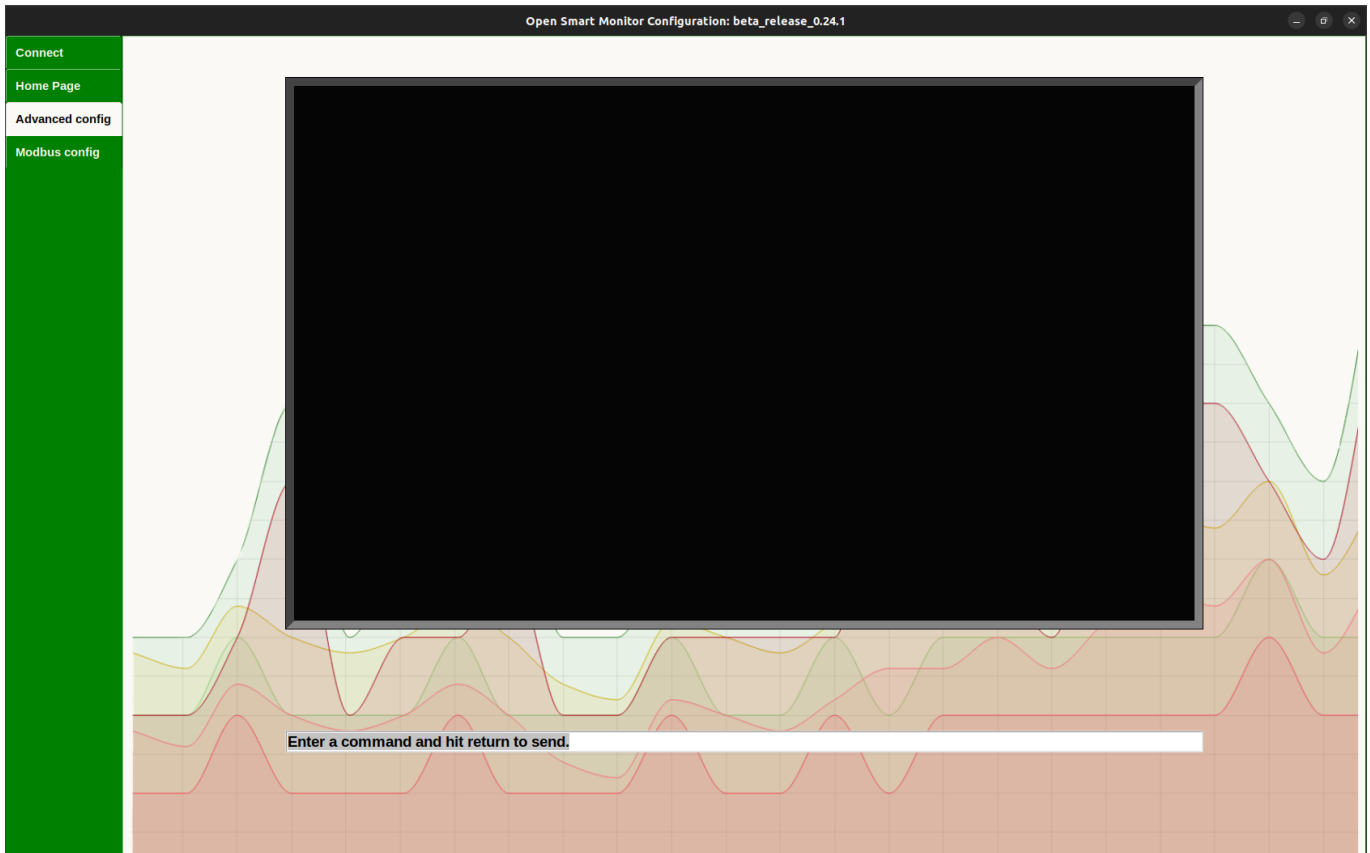


- If you want to communicate with the sensor without the help of the GUI and see its raw output, you can send commands to it using the entry bar.

- If you type '?' you will see a list of commands that you can use.

- Some basic commands you can use include 'get_meas' followed by the name of the measurement e.g. 'get_meas TEMP'.

- Typing 'comms_conn' will tell you if your sensor is connected to LoRaWAN or any other external communication type.

- Typing 'measurements' will output all of the measurements and their intervals and samplecount.

- Typing 'mb_log' will output the Modbus configuration of the OSM.

S

# Modbus Configuration



- Opening the modbus configuration tab brings you to a window with templates that contain a modbus device and registers associated to that device.

- The Countis E53 and Rayleigh RI F 2000 Modbus are devices that Devtank support and are saved as defaults with the application.

- To write the device and registers from a template to the OSM sensor you need to highlight a template and press 'Apply'.

- To delete a template, select one from Modbus Device Templates and press the delete button at the top of the window.

- You can edit an existing template or copy one if you want to retain the original template.

- You can add a new template by pressing 'Add' which will open a new window where you can submit information on the device and add registers. You will need a datasheet for the modbus device that you want to add to ensure you are inputting the correct information.

- By pressing 'Revert' you will undo any changes you have made since opening the Modbus Configuration page.

- 'Save' will submit all changes such as the addition, removal and editing of templates or registers. Any templates created or changes made prior to pressing this 'Save' button on the Modbus Configuration page will be lost when the window is exited.

## Modbus Device Templates

Rayleigh RI F200
Countis E53

Delete

Edit

Add

Apply

Copy

Revert

Save

## Modbus Registers on Template

0xc56e 3 U32 PF {Power Factor}
0xc552 3 U32 cVP1 {Voltage Phase 1}
0xc554 3 U32 cVP2 {Voltage Phase 2}
0xc556 3 U32 cVP3 {Voltage Phase 3}
0xc560 3 U32 mAP1 {Milliamps Phase 1}
0xc562 3 U32 mAP2 {Milliamps Phase 2}
0xc564 3 U32 mAP3 {Milliamps Phase 3}
0xc652 3 U32 ImEn {Import Energy}

Delete

▲

▼

- Highlighting a template will load its registers underneath.

- To delete a register, highlight the register before pressing 'Delete' .

- To rearrange the order of the registers, highlight one and shift it up or down using the arrows.

- Remember to save your changes afterwards or they will be lost.

- This is the window that pops up when you edit, copy or add a template. An edited template will replace the template you have selected, a copied template will be a seperate template and a new template will open this window with a few default values.

- All of the fields must be filled in with the correct requirements in order for the template to be added.

- The fields Template Name and Description are associated with the template. All of the other fields at the top are associated with the Modbus Device.

- The delete, up, down and add buttons are associated with the registers on this window.

- Pressing add opens the following window below.

| Hex Address | Function id | Data Type | Name | Description |
|---|---|---|---|---|
| 0xc56e | 3 | U32 | PF | Power Factor |
| 0xc552 | 3 | U32 | cVP1 | Voltage Phase 1 |
| 0xc554 | 3 | U32 | cVP2 | Voltage Phase 2 |
| 0xc556 | 3 | U32 | cVP3 | Voltage Phase 3 |
| 0xc560 | 3 | U32 | mAP1 | Milliamps Phase 1 |
| 0xc562 | 3 | U32 | mAP2 | Milliamps Phase 2 |
| 0xc652 | 3 | U32 | ImEn | Import Energy |
| 0xc564 | 3 | U32 | mAP3 | Milliamps Phase 3 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Save                                    Cancel

- Fill in the associated fields and press save to add the registers to the template you are editing/creating.

- Pressing save on the Add Registers page or the Add New Template page will NOT save to the database, it will save to a temporary file. Only the save button on the Modbus Configuration Page will save to the database.

# Set IOs

- In current measurements: select TMP2, CNT1 or CNT2 to bring up a dialogue for enabling or disabling the IO pin.

- This must be activated before these special measurements can start reporting data.
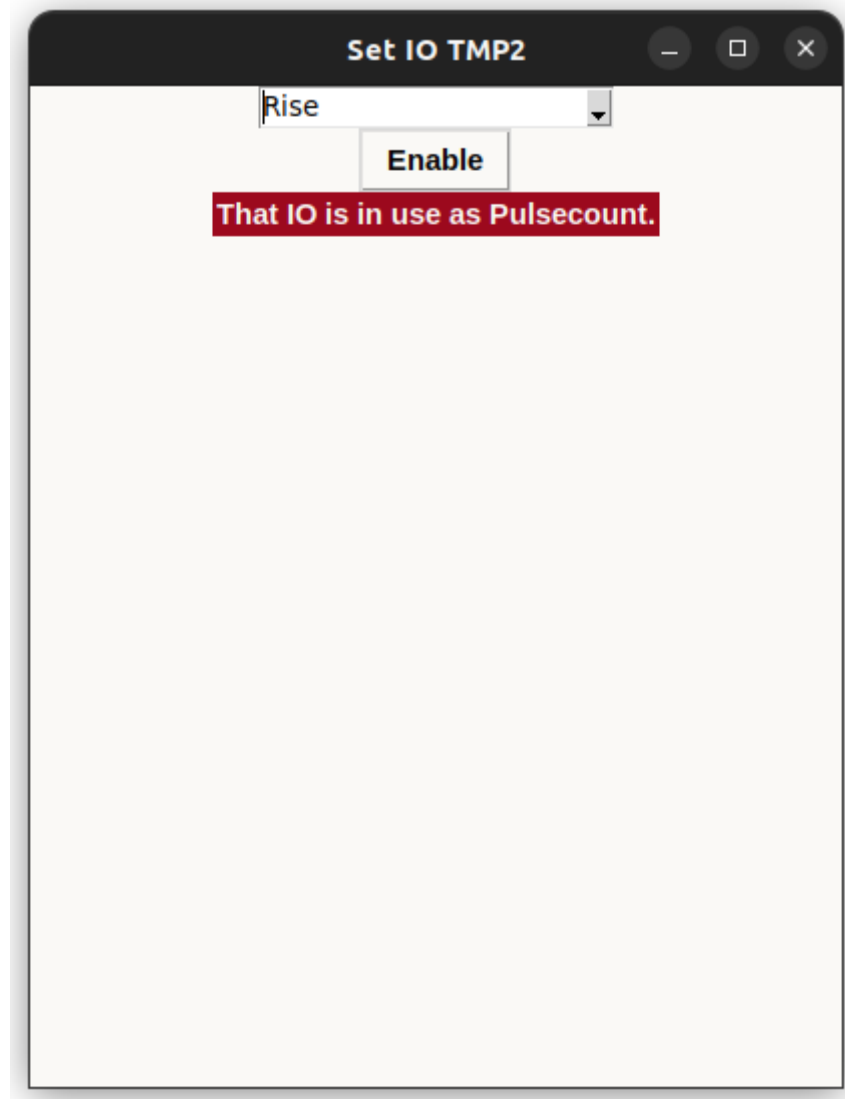
- This is the window that will open for TMP2, select rise, fall or both depending on which edge of the pulse you are watching for and then press enable.
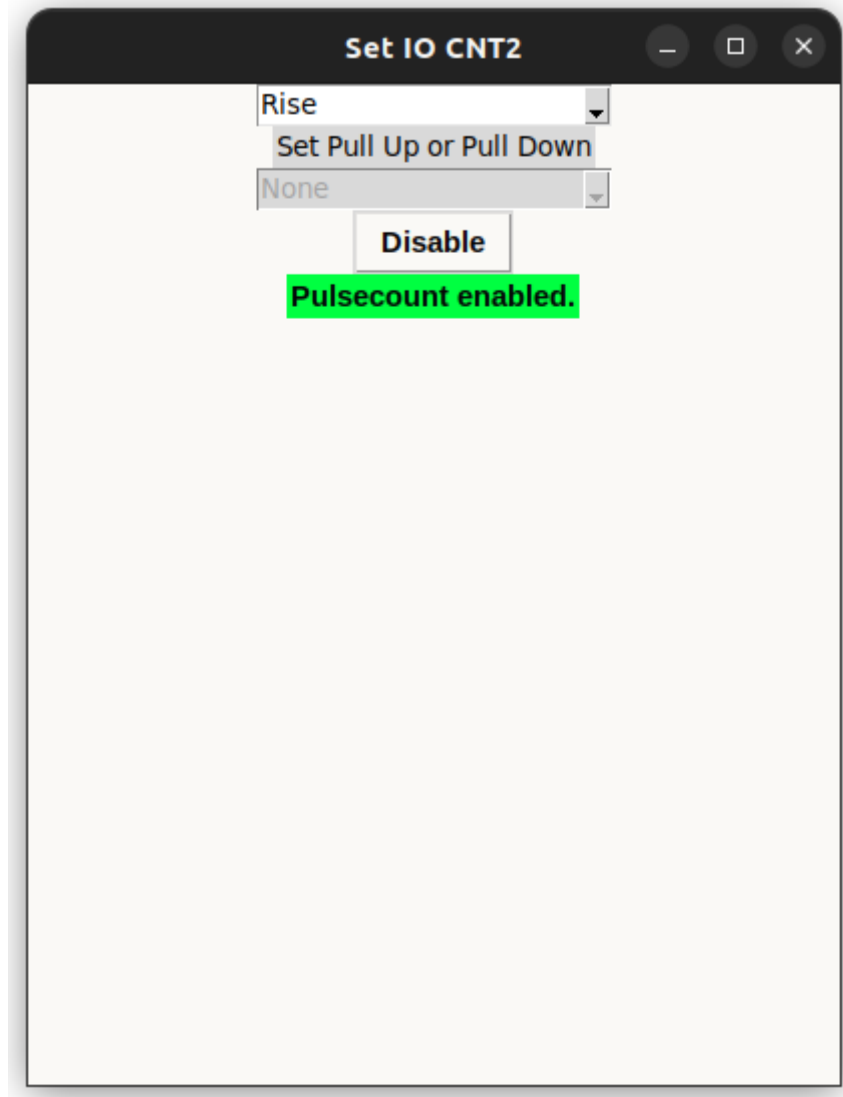
- Selecting CNT2 provides you with an extra option, to set the pullup for the IO.

- None of the options will make a dramatic effect.

# Scaling Current
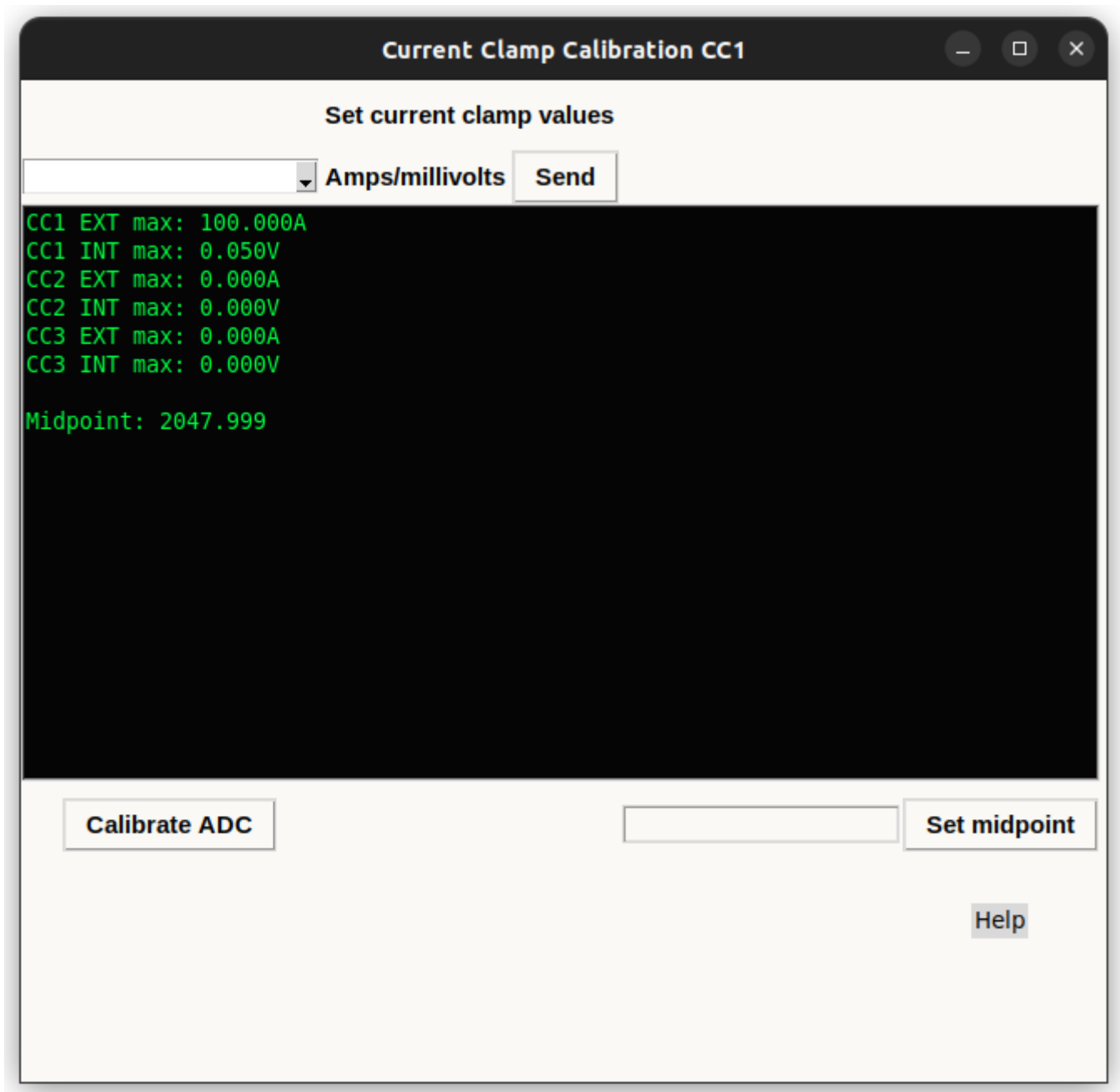


- Selecting CC1, CC2 or CC3 will bring up this window where you can calibrate your current clamp measurements.

- Set the exterior cc value by entering a number in the Amps entry, set the interior cc value by entering a number in the Millivolts entry. Press send when you have filled both values.

- Set the midpoint by either pressing the button Calibrate ADC or manually set it by entering it manually in the entry box and pressing Set Midpoint.

# 4-20 Milliamps
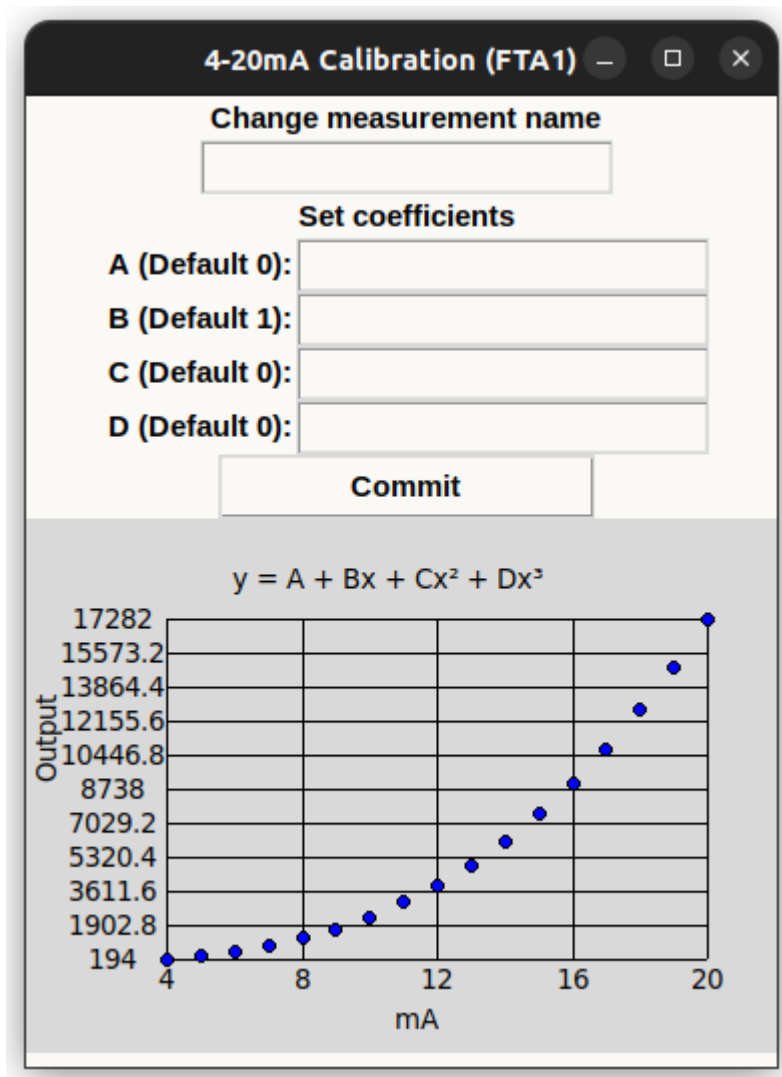


- Selecting one of the special measurements named 'FTA[1,2,3,4]' will open this window.

- Set the coefficients to whichever integers your use case requires and press commit to save the changes. This will close the window, open it again if you want to see the changes to the output from the equation.

- You can also change the name of the measurement to something which may make more sense to you, the name can't exceed 4 characters.

# Saving / Loading Configuration Files



- Saving the current settings of your OSM can save you a lot of time and pain if you were to lose the configuration on your OSM.

- To do this, select 'Save Config' at the top of the home page, give the file a name and make sure it is a json filetype, as shown in the image above, because when loading a configuration file, the file dialog will only look for json files.

- To write a configuration file to your OSM, select 'Load Config' and select the config file you want to load, the GUI will verify that is a valid config before writing it to your OSM and reloading the GUI.