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Serial Number - ENV01-A-CTX-AX-PX-BX-RX-CAL-2204-00000001-kguora

Current Firmware Version - 64cecc4

Select a device
/dev/ttyUSB0
Update Firmware

Current Measurements on OSM

Measurement	Uplink (15min)	Interval in Mins	Sample Count
FW	1	15	1
PM10	1	15	5
PM25	1	15	5
CC1	1	15	25
CC2	1	15	25
CC3	1	15	25
TMP2	1	15	5
TMP3	1	15	5
TEMP	1	15	2
HUMI	1	15	2
BAT	1	15	5
CNT1	1	15	1
CNT2	0	0	1
LGHT	1	15	5


Uplink Interval
Enter a number and hit return to set uplink.


LoRaWan Configuration

Enter Dev-Eui
kguoraiaccx722pc
Generate Random Dev-Eui

Enter App-Key
vo31yfslp580gnmrb1efgwmk7z2ihi9e
Generate Random App-Key

Set LoRa Config





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OPERATING MANUAL

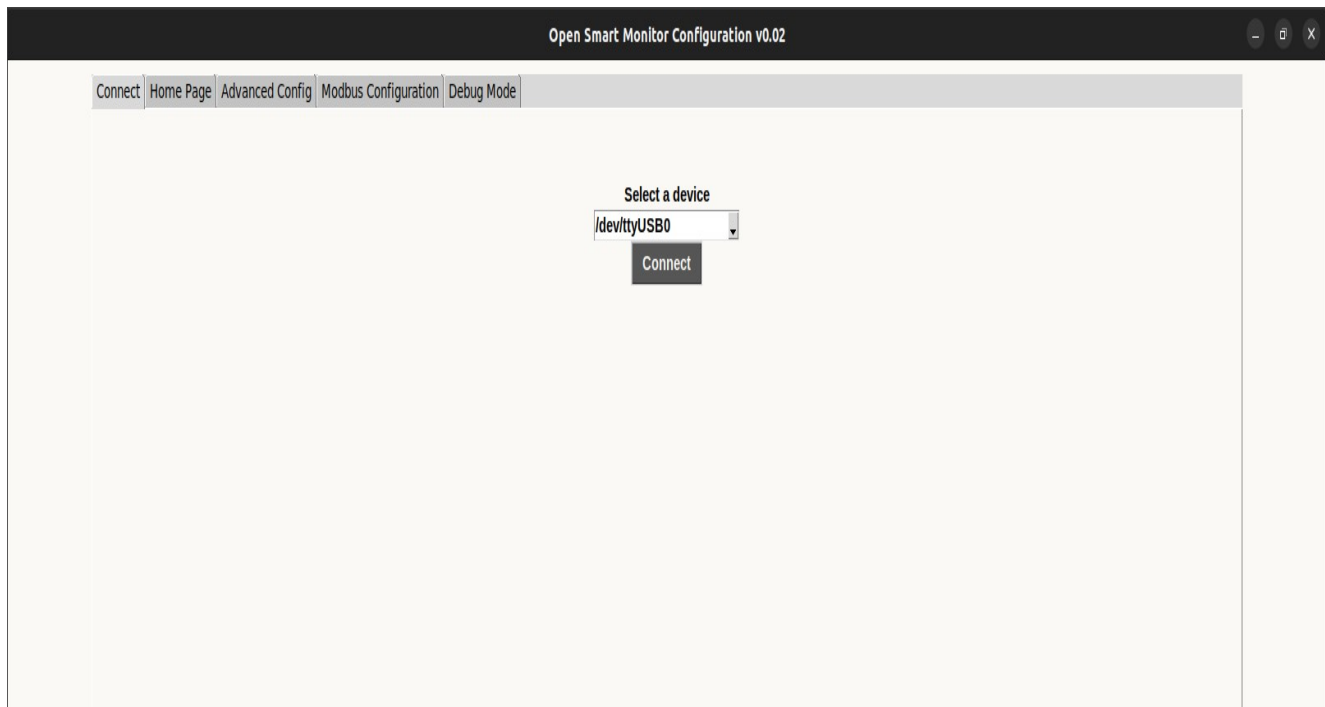
Open Smart Monitor Configuration GUI

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Connect



- Opening the GUI will bring you to the connect page.
- Selecting any of the tabs before connecting will only retrieve empty windows.
- 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 it's configuration and populating the gui.
- You will then be transferred to the home page which displays current measurements and LoRaWAN configuration.

Current Measurements

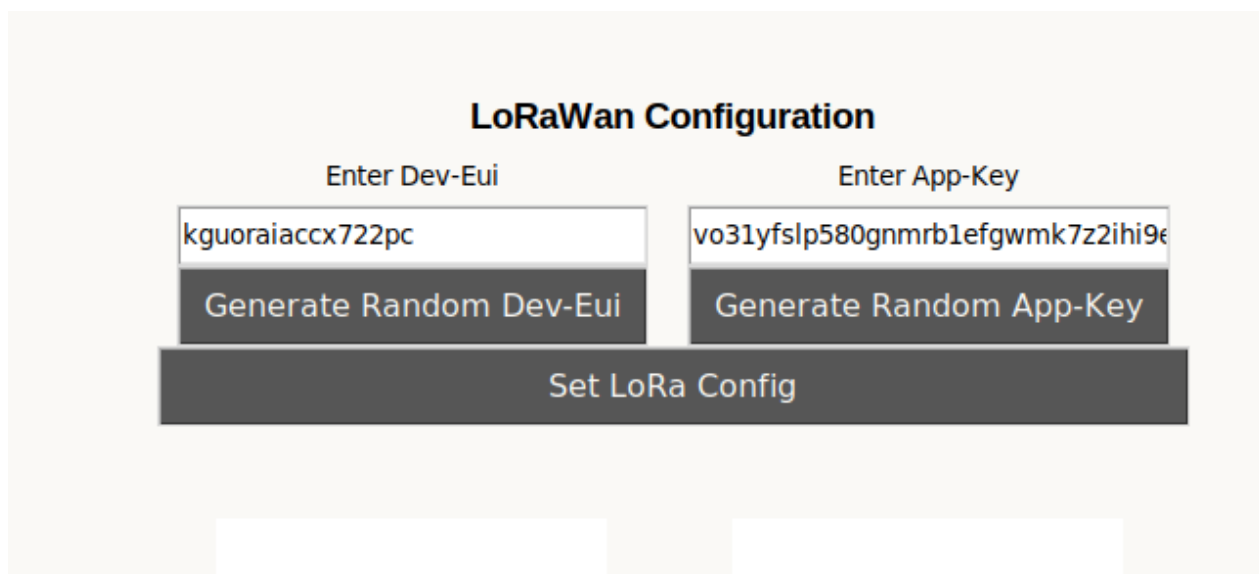
Current Measurements on OSM			
Measurement	Uplink (15min)	Interval in Mins	Sample Count
FW	1	15	1
PM10	1	15	5
PM25	1	15	5
CC1	1	15	25
CC2	1	15	25
CC3	1	15	25
TMP2	1	15	5
TMP3	1	15	5
TEMP	1	15	2
HUMI	1	15	2
BAT	1	15	5
CNT1	1	15	1
CNT2	0	0	1
LGHT	1	15	5

Uplink Interval
Enter a number and hit return to set uplink.

- This window reads all of the measurements currently on your OSM Device and allows you to set the amount of intervals that are bypassed by each measurement. This can be done by changing the number in the Uplink heading or if you prefer, you can change the amount of minutes per interval under Interval in Mins. You can also set the amount 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.
- If you want to turn off many measurements, you might find it easier to 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.

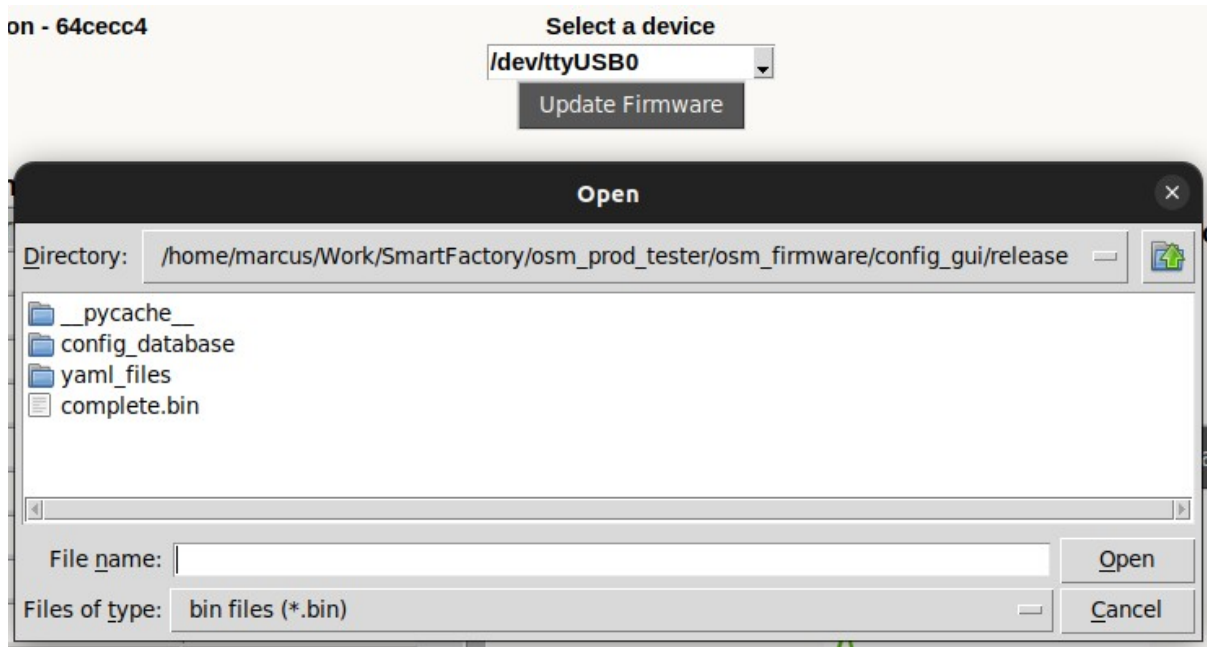
LoRaWan Configuration



The image shows a web-based configuration interface for LoRaWan. It has a title "LoRaWan Configuration" in bold. Below the title are two input fields. The first is labeled "Enter Dev-Eui" and contains the text "kguoraiaccx722pc". Below this field is a button labeled "Generate Random Dev-Eui". The second input field is labeled "Enter App-Key" and contains the text "vo31yfs1p580gnmrb1efgwmk7z2ihi9e". Below this field is a button labeled "Generate Random App-Key". At the bottom of the form is a large button labeled "Set LoRa Config".

- 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 ‘Set LoRa Config’

Update Firmware



- Pressing Update Firmware will bring up this dialogue in the current directory. It will only populate binary files.
- 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.

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.
- Pressing List of Commands will simply display the list of examples you can enter. These commands require arguments afterwards such as “mb_dev_add E53”. Avoid using these if you are uncomfortable doing so.

Modbus Configuration

Modbus Device Templates

Rayleigh RI F200
Countis E53

Delete

Edit

Add

Apply

Copy

Revert

Save

Modbus Registers on Template

Delete

▲

▼

- 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	<div>Delete</div> <div>Edit</div> <div>Add</div> <div>Apply</div> <div>Copy</div> <div>Revert</div> <div>Save</div>
Countis E53	

Modbus Registers on Template

0xc56e 3 U32 PF {Power Factor}	<div>Delete</div> <div>▲</div> <div>▼</div>
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}	

- 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.

The screenshot shows a window titled "Edited Template" with the following fields and values:

Template Name:	Countis E53	Unit ID:	5
Byte Order	MSB MSW	Description:	Countis E53 Modbus
Baudrate:	9600	Character Bits	8
Parity:	N	Mode	RTU
Device Name	E53	Stop Bits	1

Below the fields is a section titled "Registers" containing a list of register addresses and descriptions:

- 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}

At the bottom of the window are "Save" and "Cancel" buttons. On the right side, there are four buttons: "Delete", an up arrow, a down arrow, and "Add".

- 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 separate template and a new template will open this window with a few default values.

Copied Template

Template Name:

Countis E53 (copy)

Unit ID:

5

Byte Order

MSB MSW

Description:

Countis E53 Modbus

Baudrate:

9600

Character Bits

8

Parity:

N

Mode

RTU

Device Name

E53

Stop Bits

1

Registers

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

▲

▼

Add

Save

Cancel

Add New Template

Template Name:

Unit ID:

0

Byte Order

Description:

Baudrate:

9600

Character Bits

8

Parity:

N

Mode

RTU

Device Name

Stop Bits

1

Registers

Delete

▲

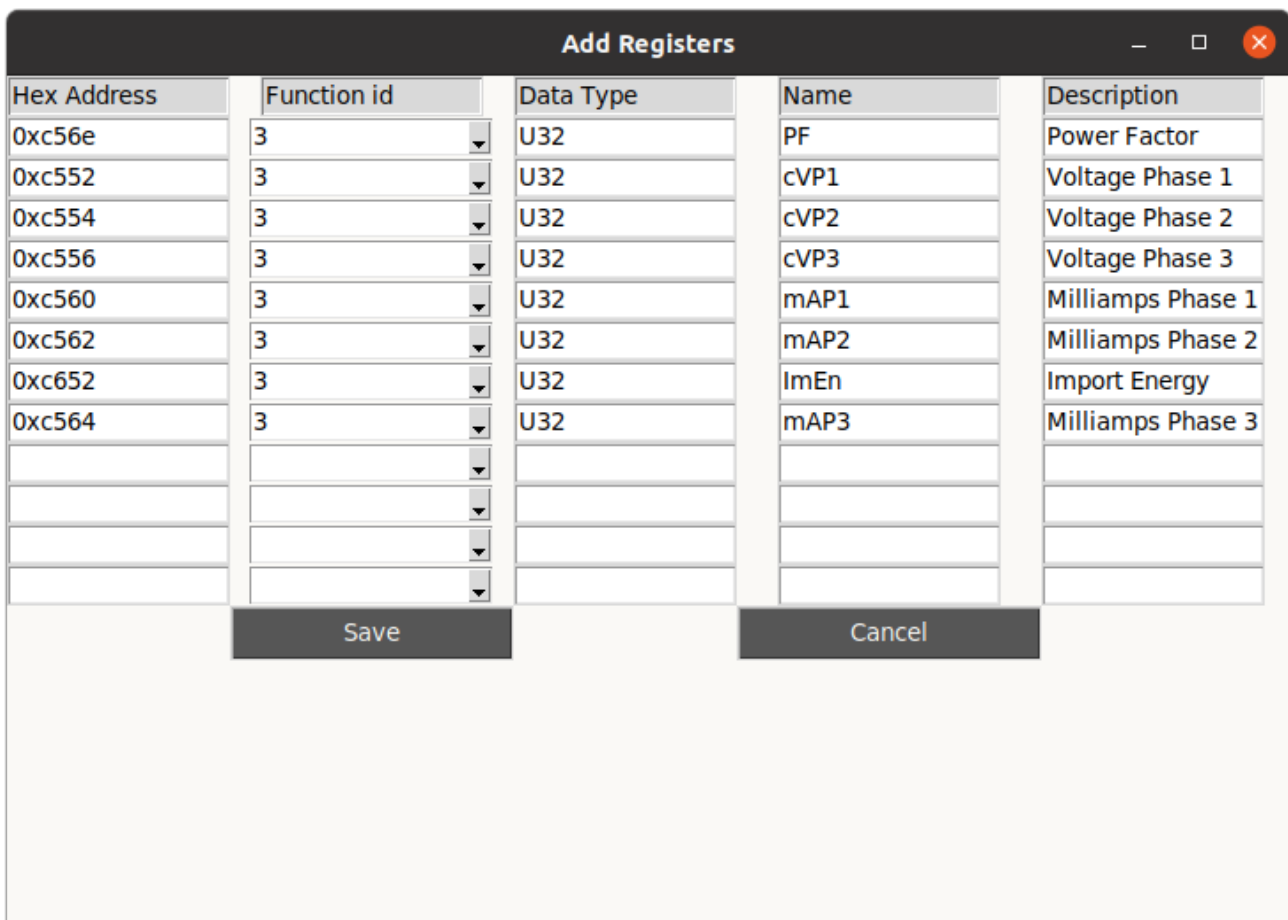
▼

Add

Save

Cancel

- 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.



The 'Add Registers' window is a modal dialog with a title bar containing standard window controls. It contains a table with five columns: 'Hex Address', 'Function id', 'Data Type', 'Name', and 'Description'. The table has 10 rows. The first 8 rows are pre-filled with data, and the last 2 rows are empty. Below the table are two buttons: 'Save' and 'Cancel'.

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.

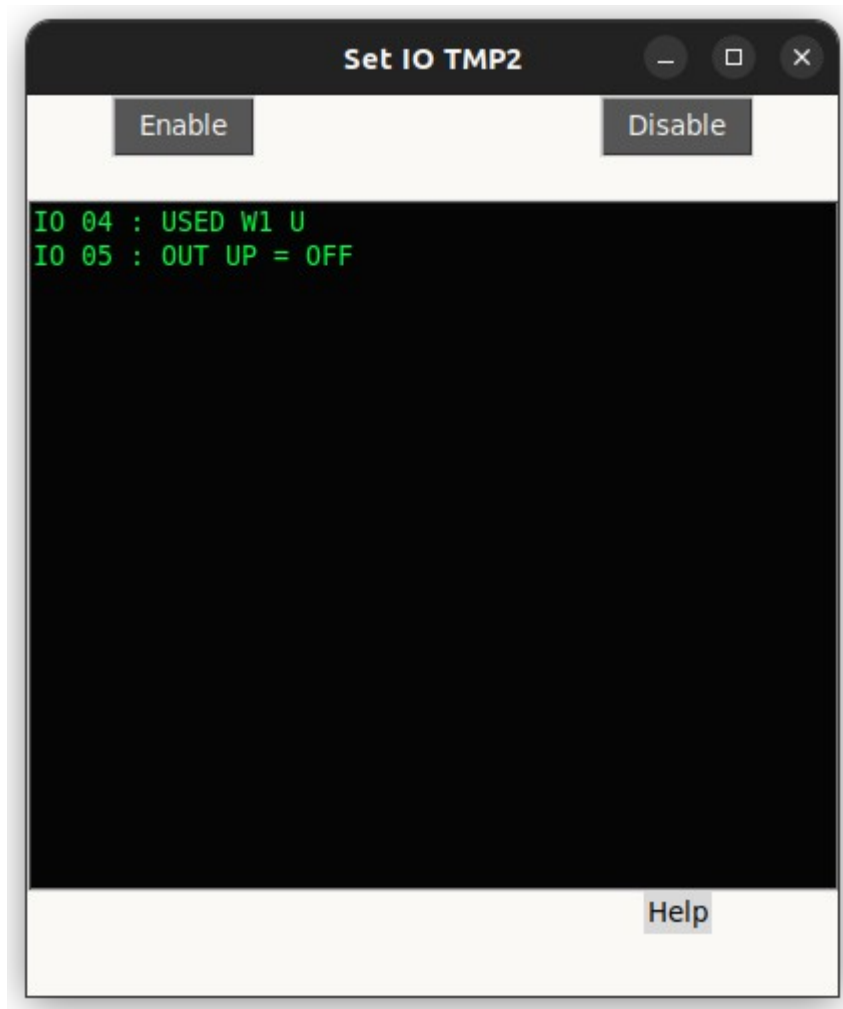
- Pressing save on the Add Registers page or the Add New Template page will NOT save to the database, it will save to a temporary file. Only the save button on the Modbus Configuration Page will save to the database.

Set IOs

Current Measurements on OSM				
Measurement	Uplink (15min)	Interval in Mins	Sample Count	
FW	1	15	1	<input type="checkbox"/>
PM10	1	15	5	<input type="checkbox"/>
PM25	1	15	5	<input type="checkbox"/>
CC1	1	15	25	<input type="checkbox"/>
CC2	1	15	25	<input type="checkbox"/>
CC3	1	15	25	<input type="checkbox"/>
TMP2	1	15	5	<input type="checkbox"/>
TMP3	1	15	5	<input type="checkbox"/>
TEMP	1	15	2	<input type="checkbox"/>
HUMI	1	15	2	<input type="checkbox"/>
BAT	1	15	5	<input type="checkbox"/>
CNT1	1	15	1	<input type="checkbox"/>
CNT2	0	0	1	<input type="checkbox"/>
LGHT	1	15	5	<input type="checkbox"/>

Uplink Interval Enter a number and hit return to set uplink.

- 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.

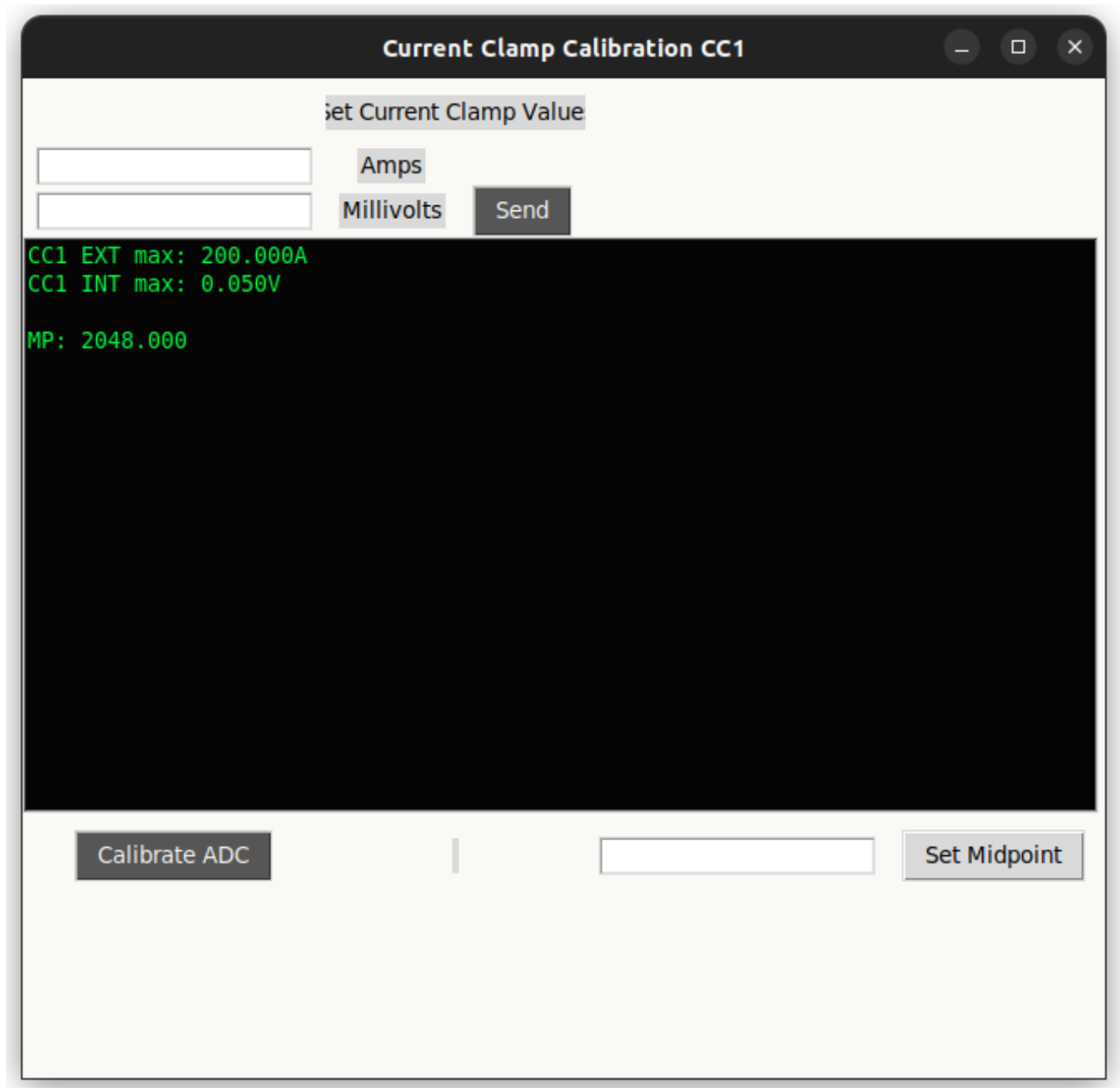


- This is the window that will open for TMP2, enabling or disabling this measurement will use IO 04.



- Selecting CNT2 provides you with an extra option, to set the pullup for the IO.
- None of the options will make a dramatic effect.

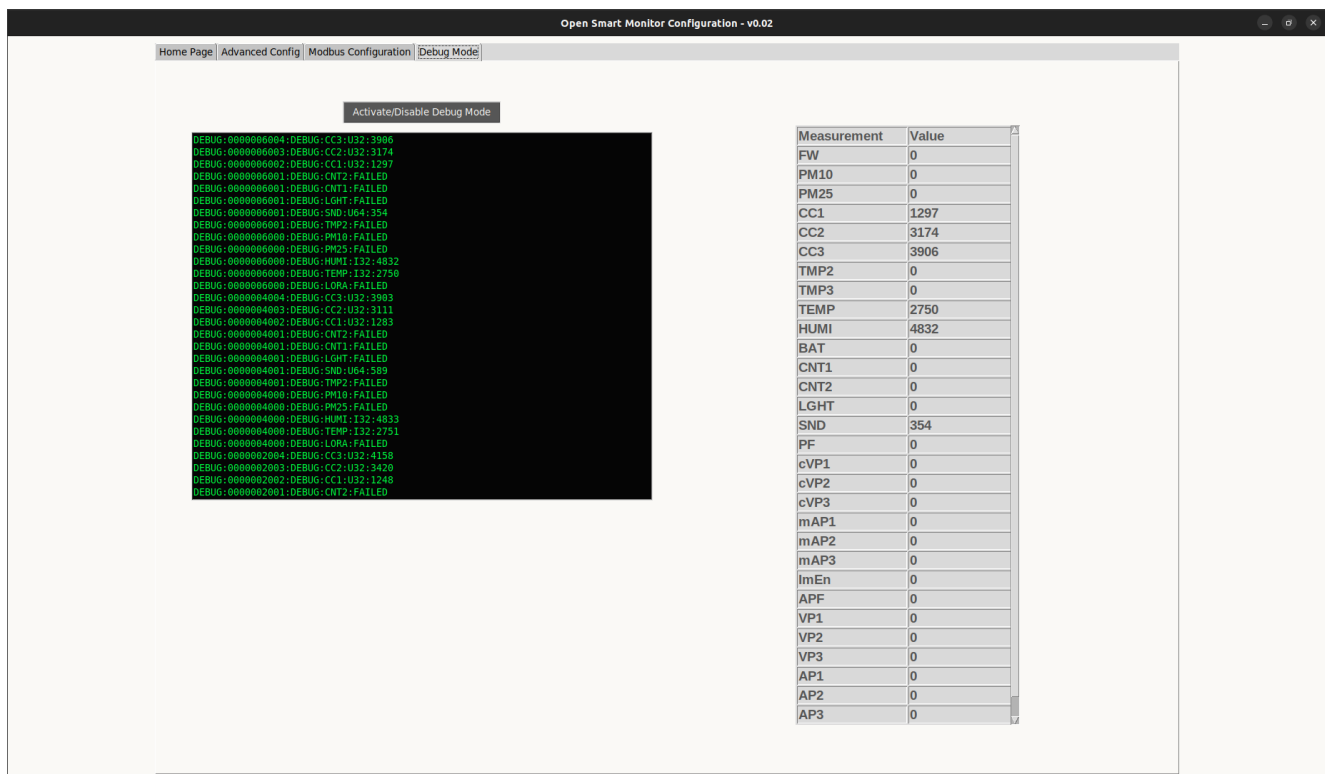
Scaling Current



- 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.

Debug Mode



Open Smart Monitor Configuration - v0.02

Home Page | Advanced Config | Modbus Configuration | **Debug Mode**

Activate/Disable Debug Mode

```

DEBUG:0000000004:DEBUG:CC3:U32:3906
DEBUG:0000000003:DEBUG:CC2:U32:3174
DEBUG:0000000002:DEBUG:CC1:U32:1297
DEBUG:0000000001:DEBUG:CNT2:FAILED
DEBUG:0000000001:DEBUG:CNT1:FAILED
DEBUG:0000000001:DEBUG:LGHT:FAILED
DEBUG:0000000001:DEBUG:SND:U64:354
DEBUG:0000000001:DEBUG:TMP2:FAILED
DEBUG:0000000000:DEBUG:PM10:FAILED
DEBUG:0000000000:DEBUG:PM25:FAILED
DEBUG:0000000000:DEBUG:HUMI:132:4832
DEBUG:0000000000:DEBUG:TEMP:132:2750
DEBUG:0000000000:DEBUG:LORA:FAILED
DEBUG:0000004004:DEBUG:CC3:U32:3903
DEBUG:0000004003:DEBUG:CC2:U32:3111
DEBUG:0000004002:DEBUG:CC1:U32:1283
DEBUG:0000004001:DEBUG:CNT2:FAILED
DEBUG:0000004001:DEBUG:CNT1:FAILED
DEBUG:0000004001:DEBUG:LGHT:FAILED
DEBUG:0000004001:DEBUG:SND:U64:589
DEBUG:0000004000:DEBUG:TMP2:FAILED
DEBUG:0000004000:DEBUG:PM10:FAILED
DEBUG:0000004000:DEBUG:PM25:FAILED
DEBUG:0000004000:DEBUG:HUMI:132:4833
DEBUG:0000004000:DEBUG:TEMP:132:2751
DEBUG:0000004000:DEBUG:LORA:FAILED
DEBUG:0000002004:DEBUG:CC3:U32:4158
DEBUG:0000002003:DEBUG:CC2:U32:3420
DEBUG:0000002002:DEBUG:CC1:U32:1240
DEBUG:0000002001:DEBUG:CNT2:FAILED
  
```

Measurement	Value
FW	0
PM10	0
PM25	0
CC1	1297
CC2	3174
CC3	3906
TMP2	0
TMP3	0
TEMP	2750
HUMI	4832
BAT	0
CNT1	0
CNT2	0
LGHT	0
SND	354
PF	0
cVP1	0
cVP2	0
cVP3	0
mAP1	0
mAP2	0
mAP3	0
ImEn	0
APF	0
VP1	0
VP2	0
VP3	0
AP1	0
AP2	0
AP3	0

- Opening this window will open a blank terminal screen at first and a table with no values.
- Press Activate Debug Mode and wait a couple seconds for the sensor to begin reporting, it will seem like nothing has happened

until you begin seeing the measurements appear so avoid pressing the button again as it will turn debug mode off.

- This will continuously report all the measurements and their values until you close the window or deactivate debug mode.
- If you are finding it difficult to keep track of all the descending measurements, use the table which stores the most recent value reported by debug mode to its corresponding measurement.