M5Stack Tab5 Energy Monitor

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Sensor

Adafruit INA3221 Triple Current / Voltage Sensor

Connections

1. Connect the USB C Cable – USB C on the Tab5 end and whatever type will plug into your computer on the other end.
2. Connect the 4 pin plug end of the sensor cable to red port on M5Stack Tab5.
3. Connect the 4 wire Grove to Dupont connector cable to the pins on the INA3221 sensor:

Sensor	Cable/Port
VCC	Red/VCC
GND	GND
SDA	Yellow/SDA
SCL	White/SCL

The Platform IO Project

The Platform IO project is located here: https://github.com/CrazyUncleBurton/M5Stack-Tab5-Energy-Monitor.git

See the document “VS Code with Source Control.pdf” located in the same directory as this document for info on how to clone the project to your local machine in VS Code.

Testing

1. Connect a USB cable from the computer that VS Code is running on to the M5Stack microcontroller.
2. If the microcontroller is not on, press the white button on the side once to turn it on.
3. In VS Code, click the Platform IO Upload icon  in the bottom toolbar. The hover text will be Platform IO: Upload.
4. The project will compile. When it’s ready to upload, we see lines like “Connecting…” and “Writing…”. Wait for the line that says SUCCESS in green text before proceeding.
5. When finished, the microcontroller will reboot.
6. When the microcontroller reboots, watch the display. You should see text that says “CrazyUncleBurton.com Energy Monitor” and a graph of live data.

Reference

M5Stack Tab5 Dev Board Info
https://docs.m5stack.com/en/core/Tab5

Microcontroller Info
https://www.espressif.com/en/products/socs/esp32-p4

https://www.espressif.com/en/support/documents/technical-documents?keys=&field_type_tid_parent=esp32P4Series-SoCs&field_type_tid%5B%5D=1633

Adafruit INA3221 Sensor Board Info
https://learn.adafruit.com/adafruit-ina3221-breakout

Texas Instruments INA3221 Sensor Data Sheet
https://www.ti.com/lit/ds/symlink/ina3221.pdf

M5GFX Display Library
https://docs.m5stack.com/en/arduino/m5gfx/m5gfx_functions

LVGL
https://lvgl.io/

LVGL Demo Project
https://github.com/nikthefix/M5Stack_Tab5_Arduino_Basic_LVGL_Demo

SquareLine Studios UI Creator (we need v8.33-8.4)
https://squareline.io/downloads