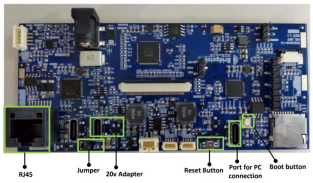


Bridgetek IDM2040 LDSBus Python SDK User Guide

Bridgetek IDM2040 LDSBus Python SDK User Guide

This document provides information about how to setup and use the LDSBus Python SDK on IDM2040.

Use of Bridgetek devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold Bridgetek harmless from any and all damages, claims, suits or expense resulting from such use.

Contents

Introduction

This document describes how to use IDM2040 with LDSU circuitpy example including the Installation procedure for Thonny Python IDE and steps to execute LDSU circuitpy examples. The Python SDK will run on IDM2040 with appropriate LDSBus interface. IDM2040 has built-in LDSBus interface and is capable of supplying up to 24v to the LDSBus. More information on the IDM2040 is available at **https://brtchip.com/product/.**

Credits

Open Source Software

- Thonny Python IDE: **https://thonny.org**

Getting Started with IDM2040

Hardware Overview

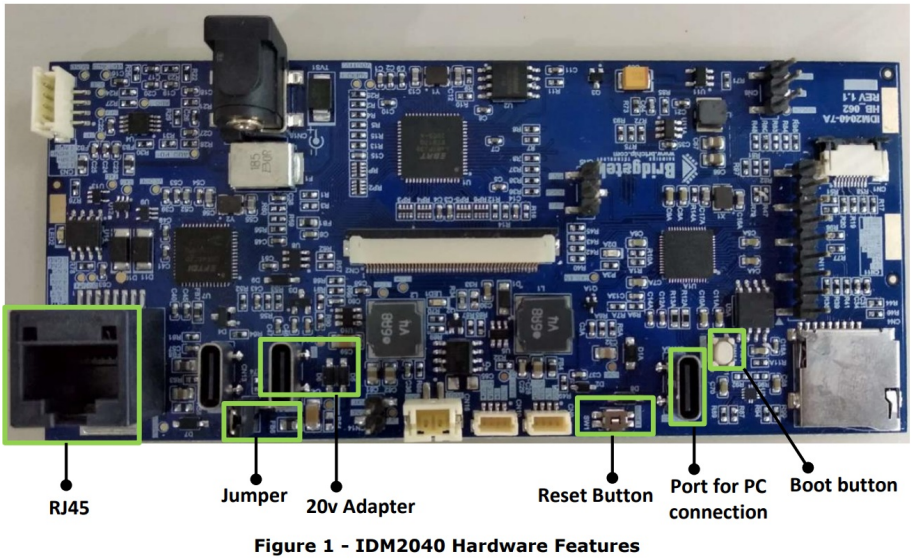
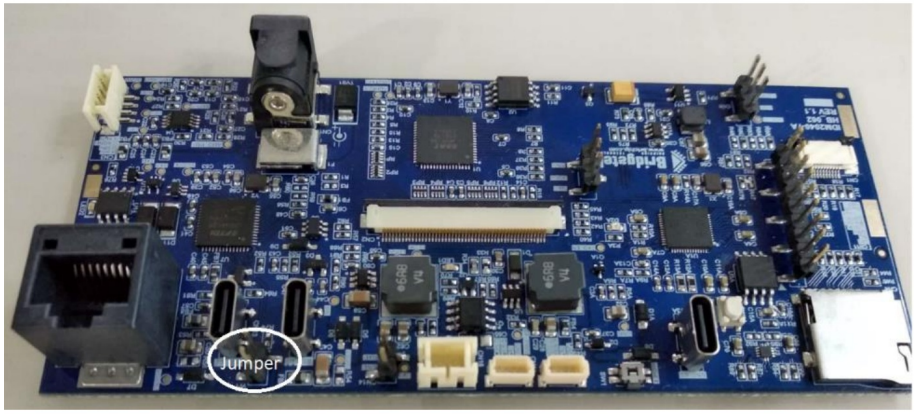


Figure 1 - IDM2040 Hardware Features

Figure 1 – IDM2040 Hardware Features

Hardware Setup Instructions

Follow these steps to setup the IDM2040 Hardware Setup –
a. Remove the Jumper.

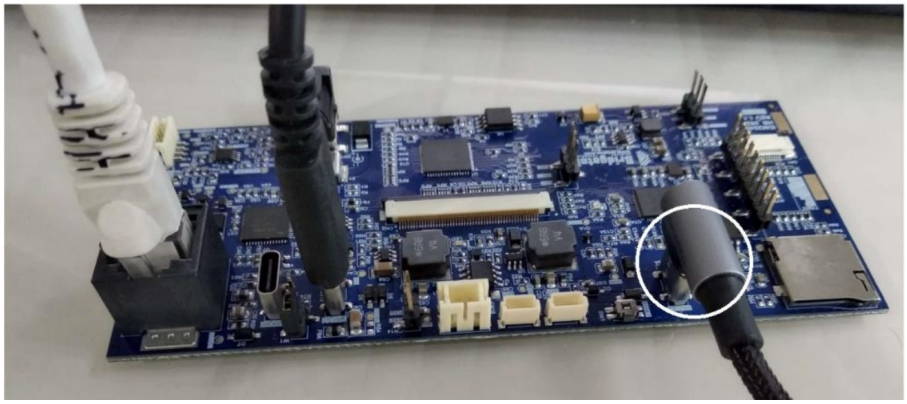


b. Connect the LDSU module to HVT.

c. Using RJ45 cable, connect HVT to IDM2040 RJ45 connector.

d. Connect the 20v supply adapter using a USB-C cable to the USB-C port on the IDM2040.

e. Turn on the 20v adapter using the AC power supply.
f. Connect IDM2040 to PC using Type-C cable



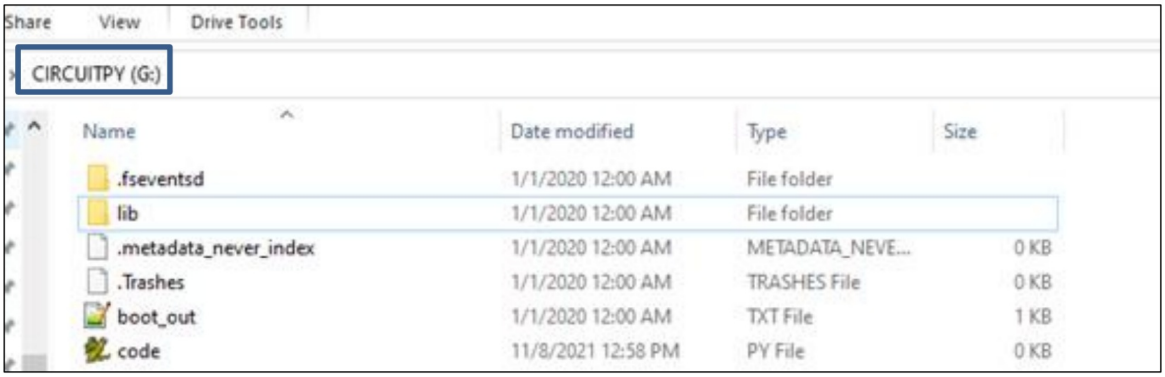
g. Press the Boot button the IDM2040 board; Hold it for a few seconds and release it after resetting the board. Windows will open a drive named “RP1-RP2”.

Document Instruction

h. In the given example package, there must be an “.uf2” file, copy the file and paste it into “RP1-RP2” drive.

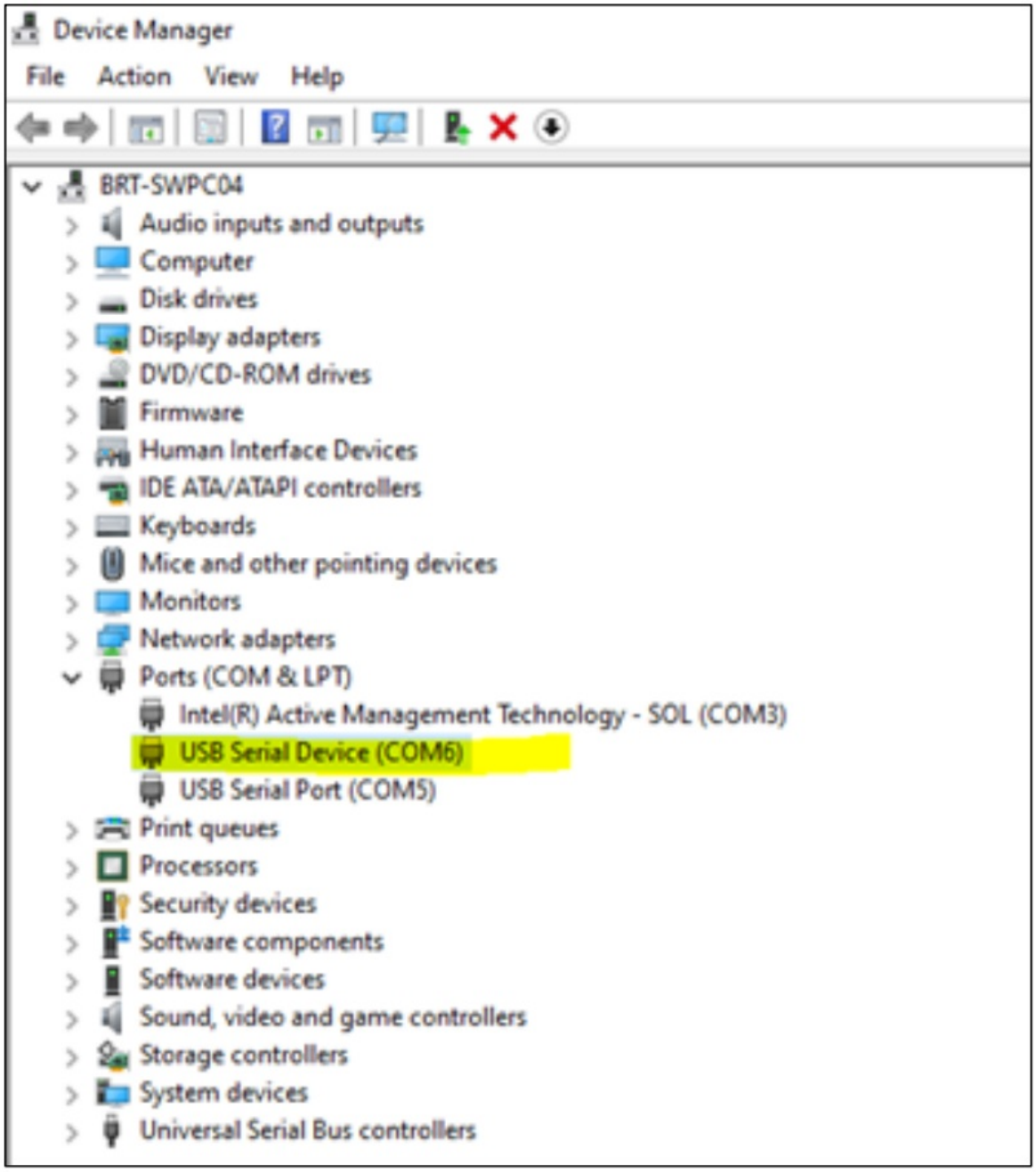
Document Instruction

i. Upon copying the “.uf2” file to “RPI-RP2”, the device will reboot automatically and again will appear as a new drive, such as “CIRCUITPY”.



The “code.py” is the main file which runs every time theIDM2040 is reset. Open this file and delete any content inside of it before saving.

j. The COM port for this device will appear in Device Manager. Here is an example screen showing the IDM2040’s COM Port as COM6.



Thonny Python IDE – Installation/Setup Instructions

Follow these steps to install and setup Thonny Python IDE –

a. Download the Thonny Python IDE package from **https://thonny.org/.**

b. Click **Windows** to download the windows version.

Document Instruction

c. Upon downloading the application, complete the installation by clicking the executable file (.exe) and following the installation wizard. Upon completing the installation, open the Thonny Python IDE from the Windows Startup.

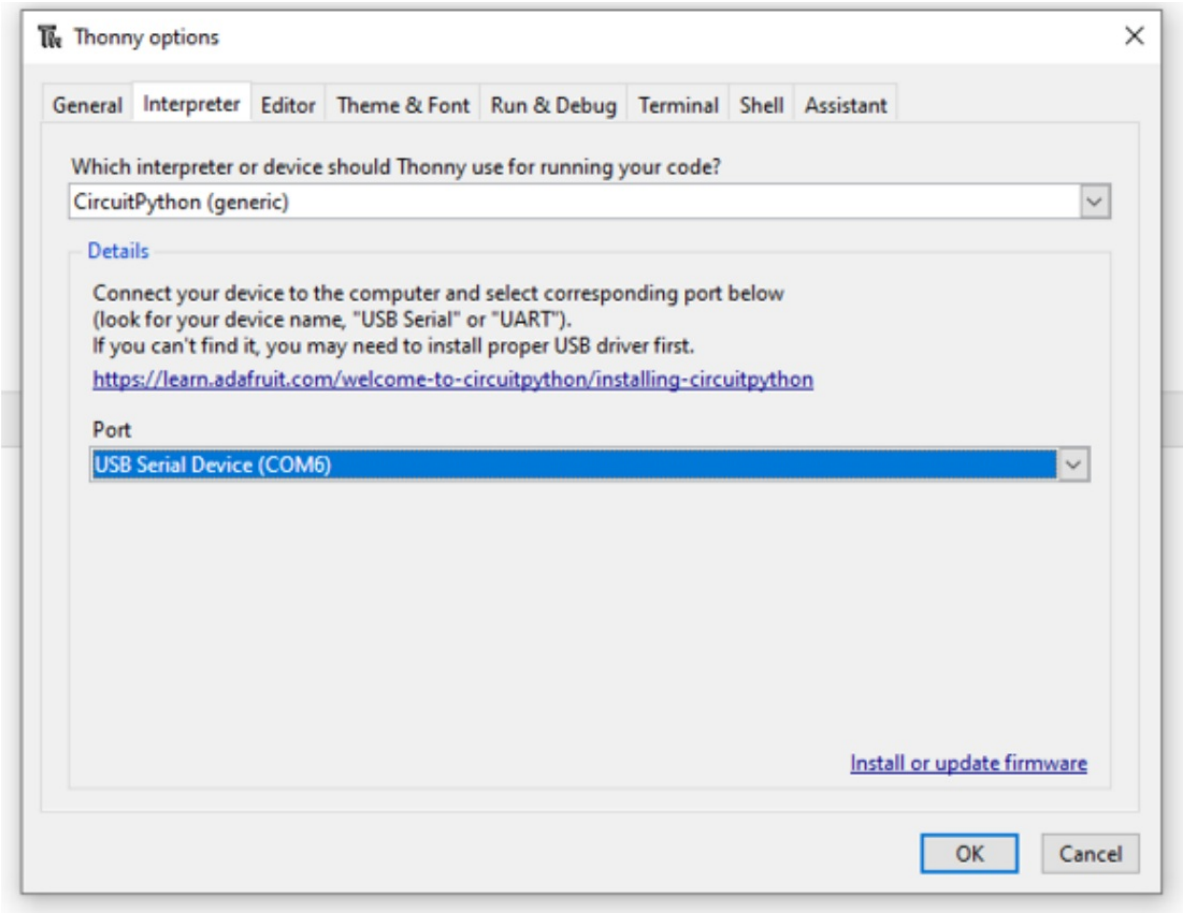
d. To open the Properties, click the left mouse button at the right bottom corner. Select **"CircuitPython (generic)"**

Document Instruction

e. Click **"Configure Interpreter…**

Document Instruction

f. Click on the Port drop down and select the port appeared for IDM2040 in device manager after connecting. In this example screenshot COM port appeared as COM6. Click **[OK].**



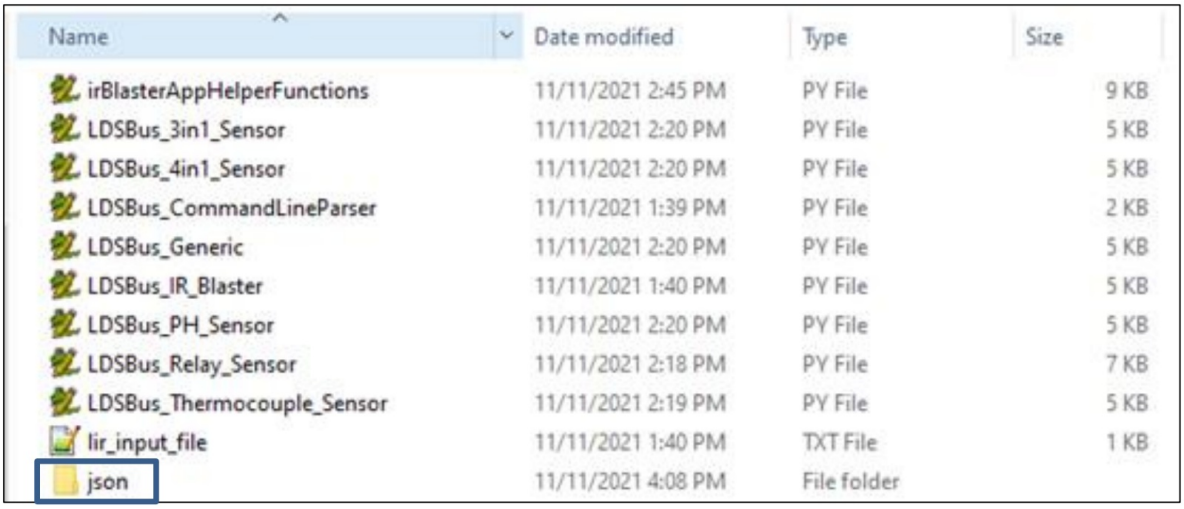
g. Thonny will report the device information at the interpreter prompt (“Adafruit CircuitPython 7.0.0-dirty on 2021-11-11; Raspberry Pi Pico with rp2040”) if the device port is correct.

```
Adafruit CircuitPython 7.0.0-dirty on 2021-11-11; Raspberry Pi Pico with rp2040
>>>
```

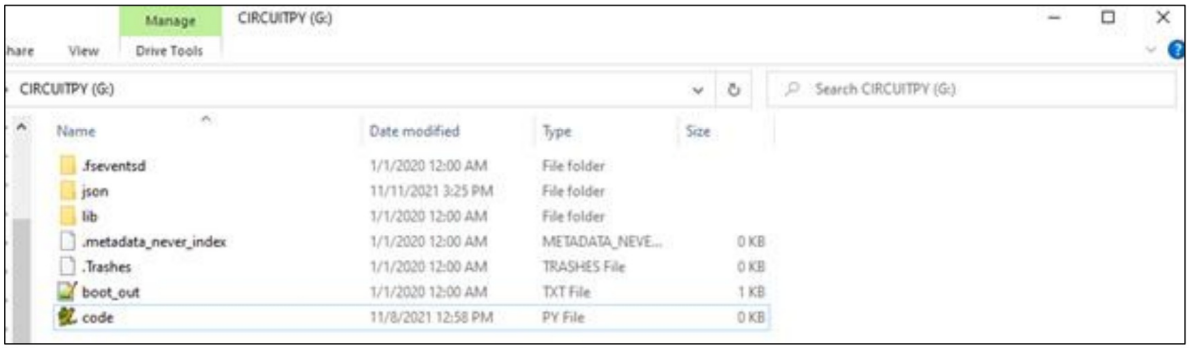
Procedure to run LDSU Circuitpy Sample Example using Thonny

Follow these steps to run the LDSU circuitpy sample example –

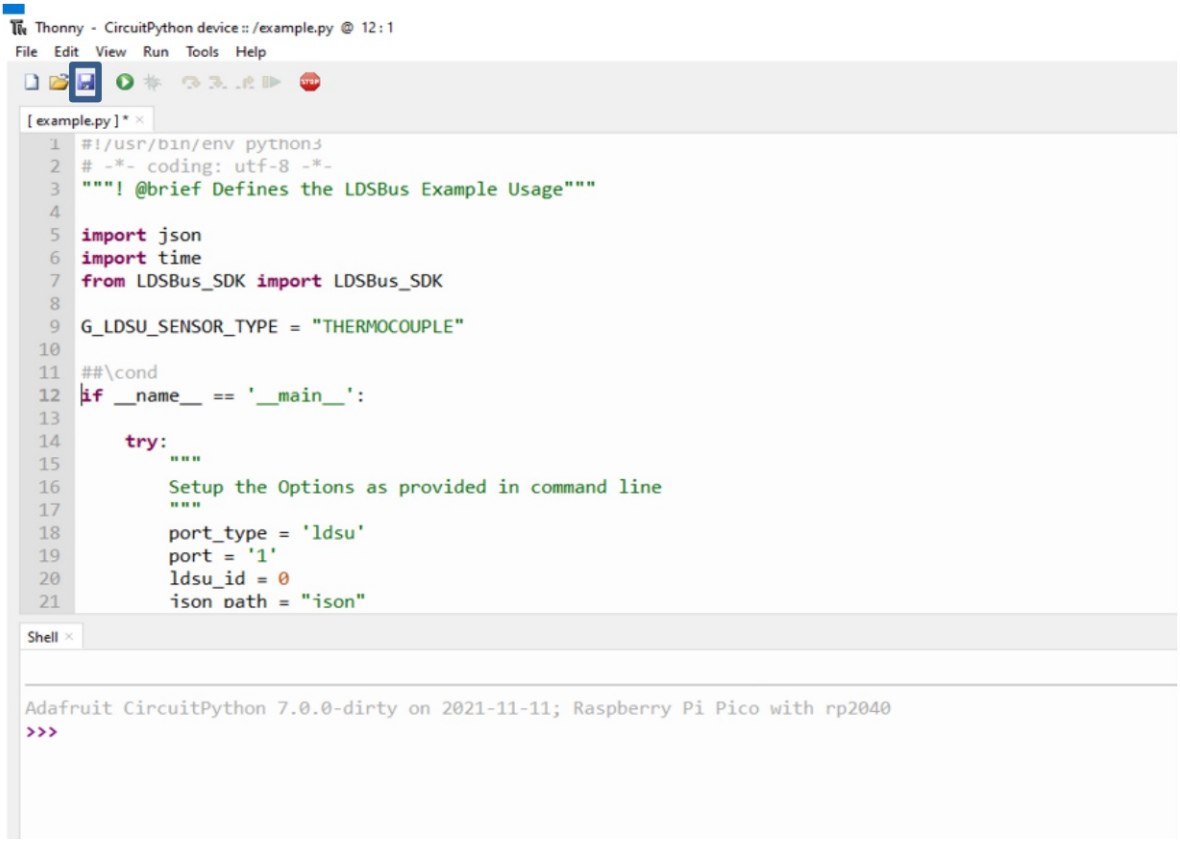
a. Open the sample package file. As part of the sample package there is a folder by name “json” which contains various sensor json file.



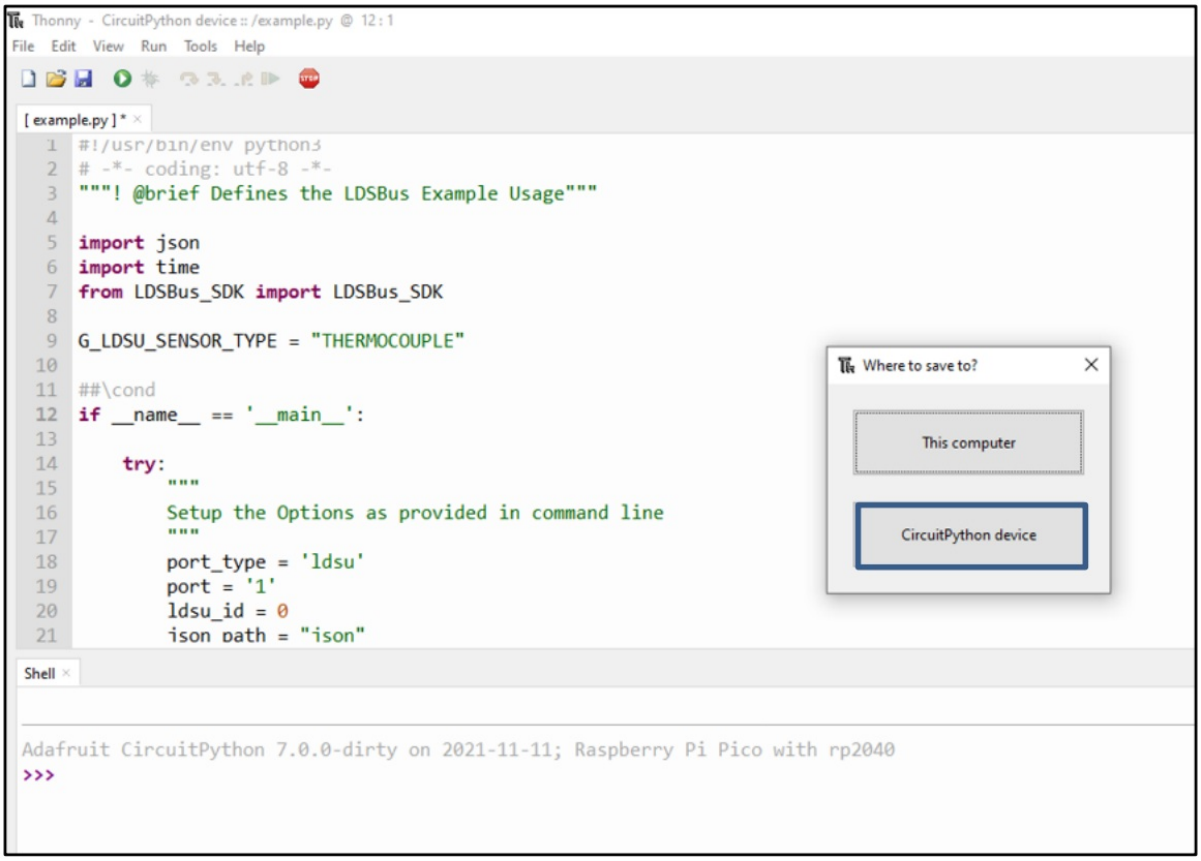
b. Copy and paste the “json” folder to the “CIRCUITPY” storage device.



c. Open any given example using a text editor such as notepad ++ and copy it to the Thonny Editor and save it. For example, open “LDSBus_Thermocouple_Sensor.py” and copy/paste on Thonny Editor. Click **[Save].**

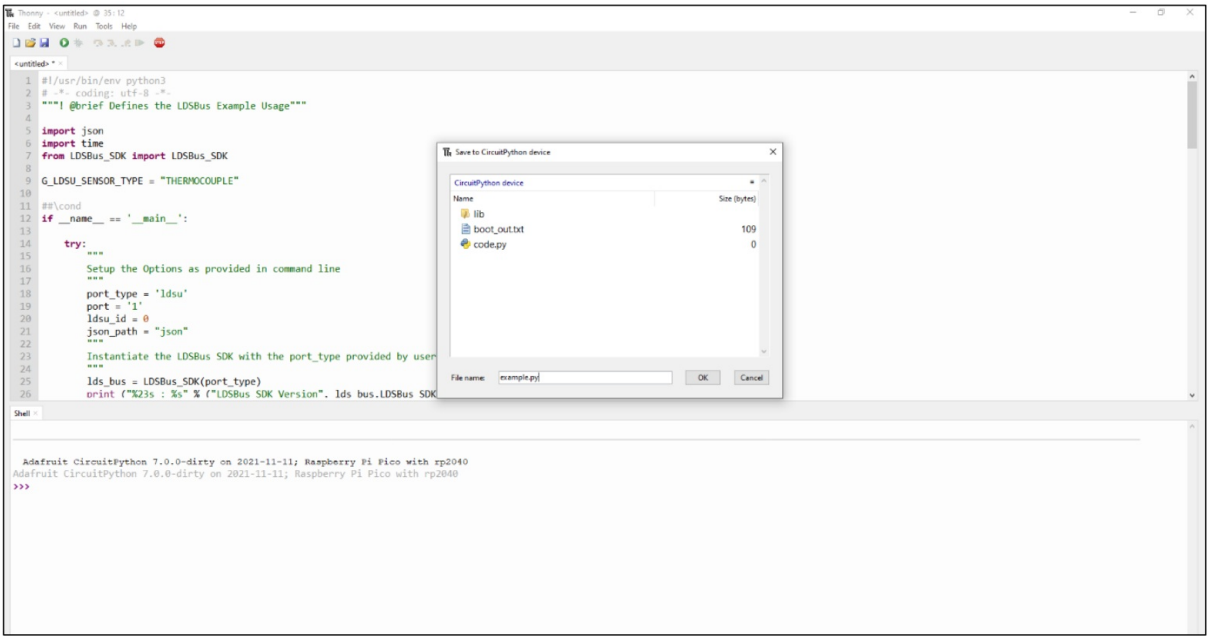


d. Upon clicking **[Save],** a “Where to save to?” dialog box will be displayed. Click and selectCircuitPython device.

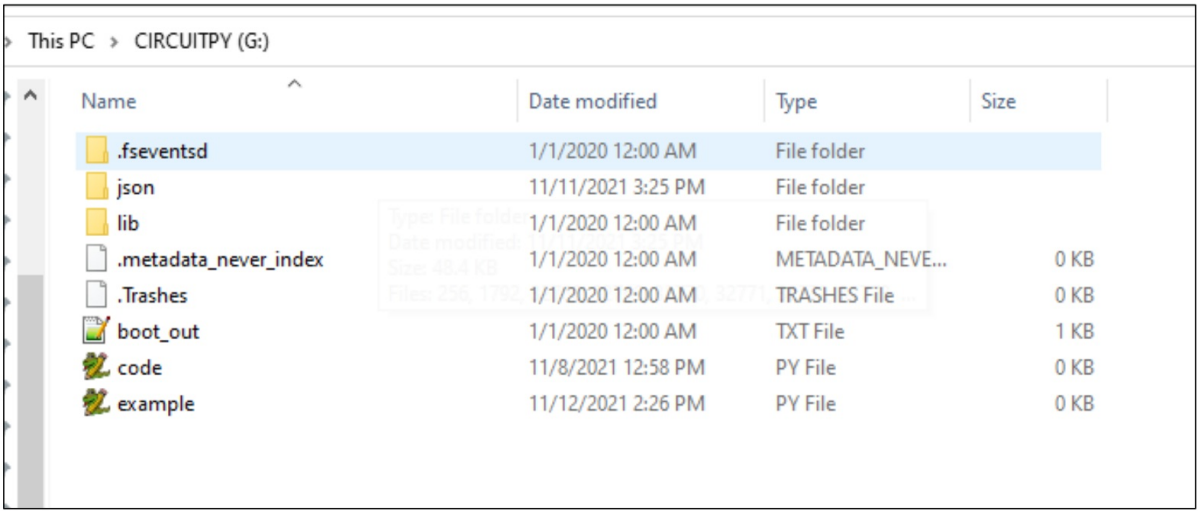


e. Enter a file name and click **[OK].**

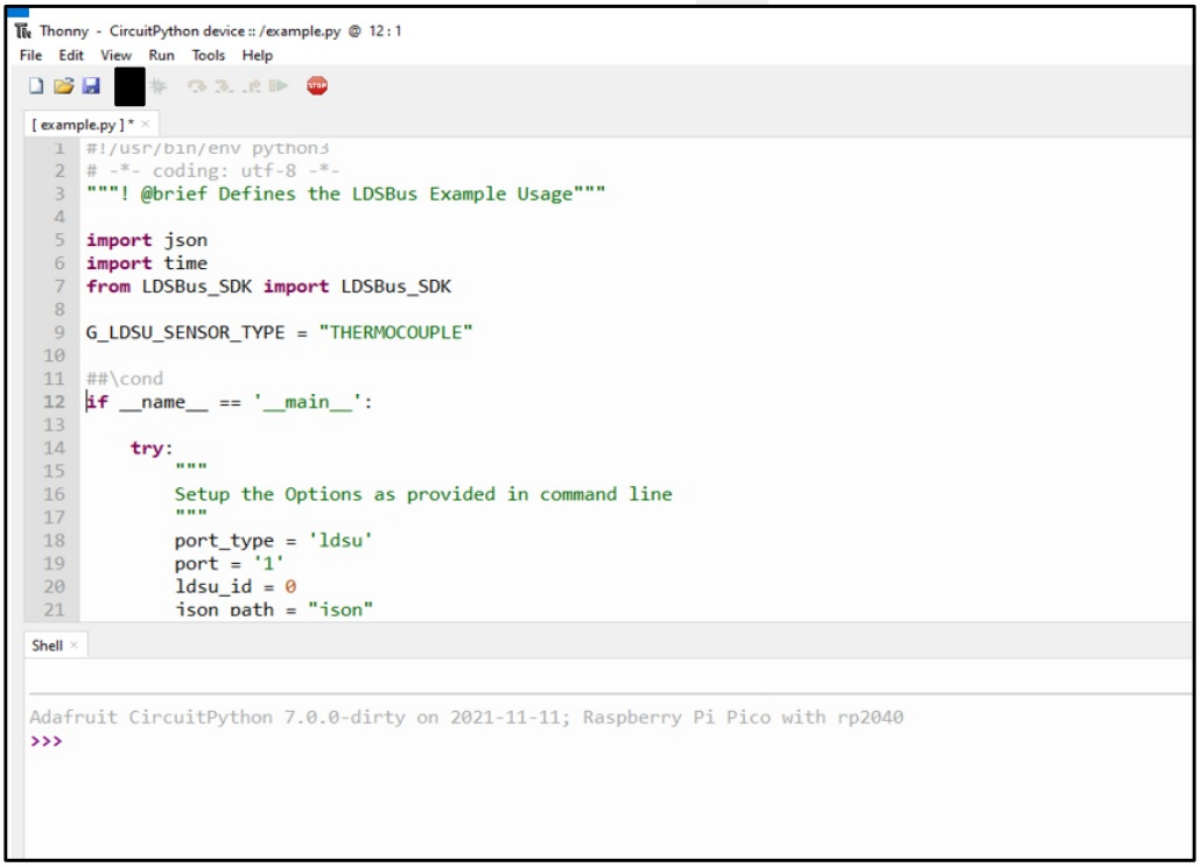
Note: When sample code is saved to “code.py” then every time it reboots, it will begin running “code.py”. In order to avoid this, specify a different name.



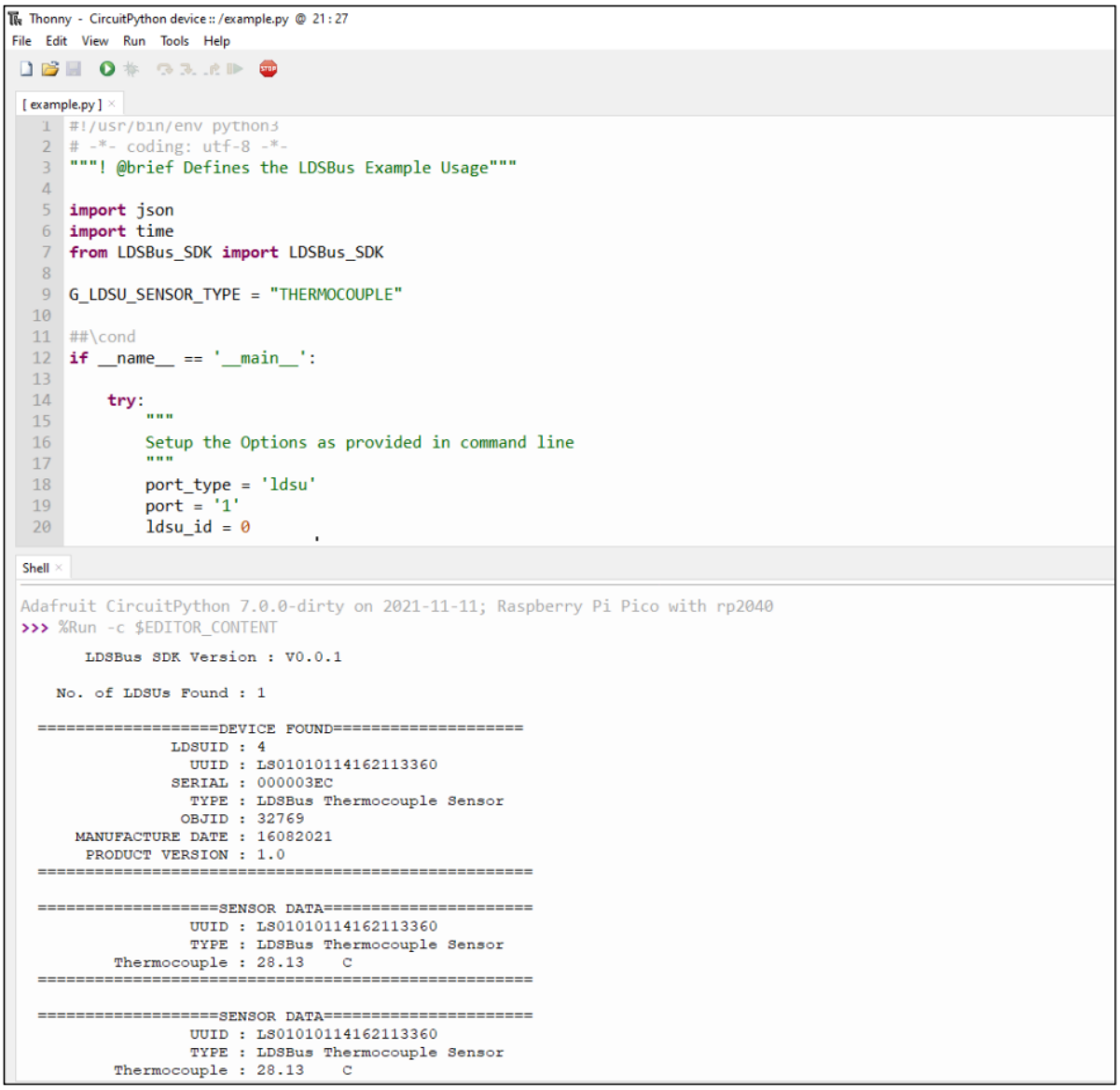
f. The file will be saved to “CIRCUITPY” drive.



g. To run the example from Thonny Editor, click  (Run current script).

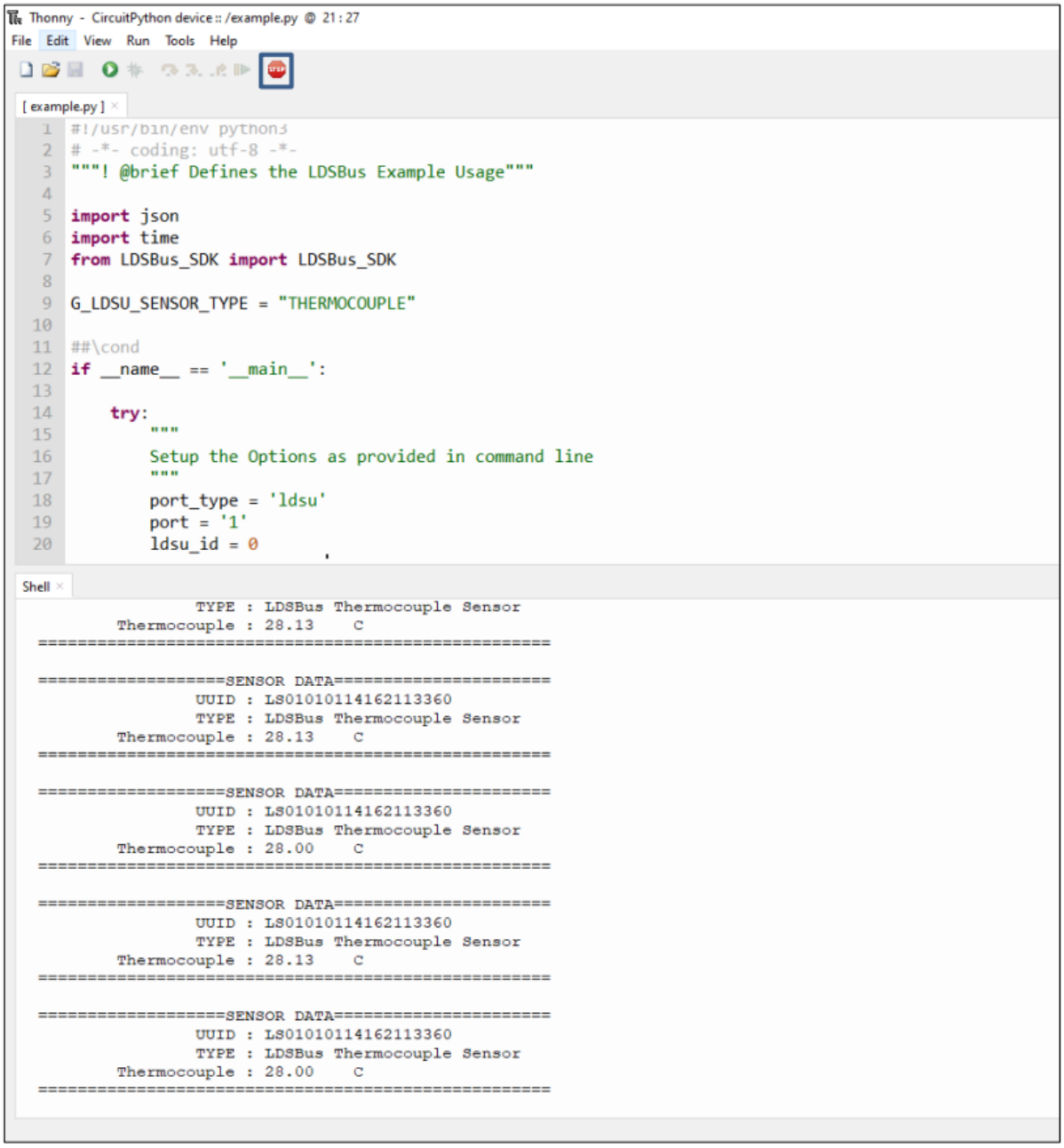


h. The Circuitpy LDSU example will run to scan the bus and start reporting the sensor data.

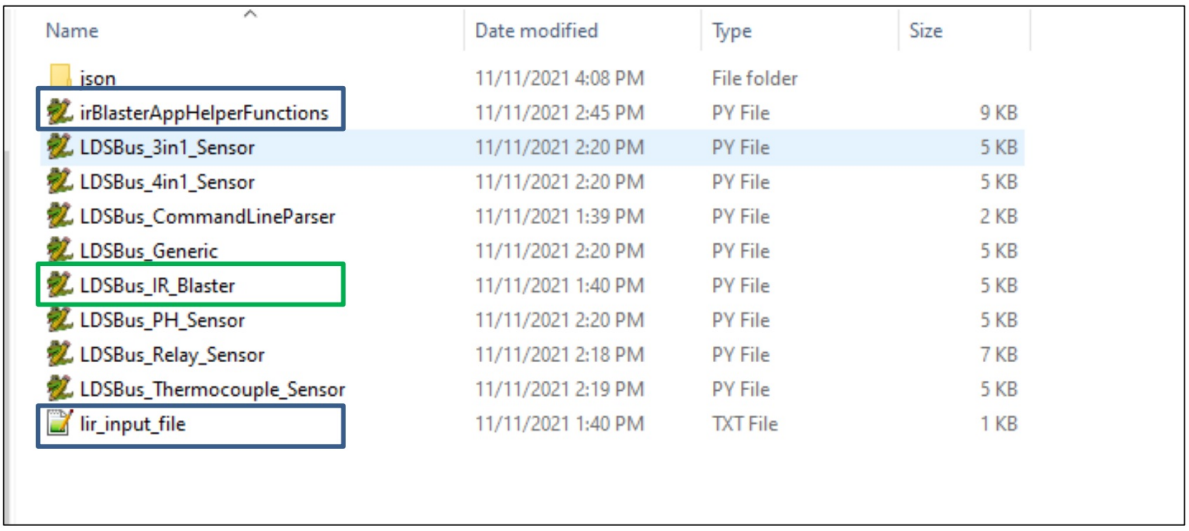


i. To stop the execution, click  (Stop). Users can update the code as required or can copy/paste another example to try in the Thonny editor.

Note: Upon making any changes to the script file, remember to Save and Run the script.



j. Remember to copy the following files – “irBlasterAppHelperFunctions” and “lir_input_file.txt” before trying the LDSBus_IR_Blaster.py example.



Refer to BRT_AN_078_LDSU IR Blaster_Application for more details on “LDSBus_IR_Blaster.py” example.

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Appendix A – References

Document References

BRT_API_002_LDSBus_Python_SDK_Guide
BRT_AN_078_LDSU IR Blaster_Application

Acronyms and Abbreviations

Terms	Descripti
HVT	High Voltage T-Junction
IDE	Integrated Development Environment
LDSBus	Long Distance Sensor B
USB	Universal Serial Bu

Appendix B – List of Tables & Figures

List of Tables
NA
List of Figures

Appendix C – Revision History

Document Title: BRT_AN_080 LDSBus Python SDK on IDM2040 User Guide
Document Reference No.: BRT_000378
Clearance No.: BRT#187
Product Page: http://brtchip.com/product/
Document Feedback: SendFeedback

Revision	Changes	Date
1.0	Initial Release	29-11-2021

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Documents / Resources

	Bridgetek IDM2040 LDSBus Python SDK [pdf] User Guide IDM2040 LDSBus Python SDK, IDM2040, LDSBus Python SDK, Python SDK, SDK

References

- Contact Us - IC & Module
- Product Change Notifications - IC & Module
- Thonny, Python IDE for beginners