USB Remote I/O Protocol Adapter MUNTS-0015 User Guide

Revision 2
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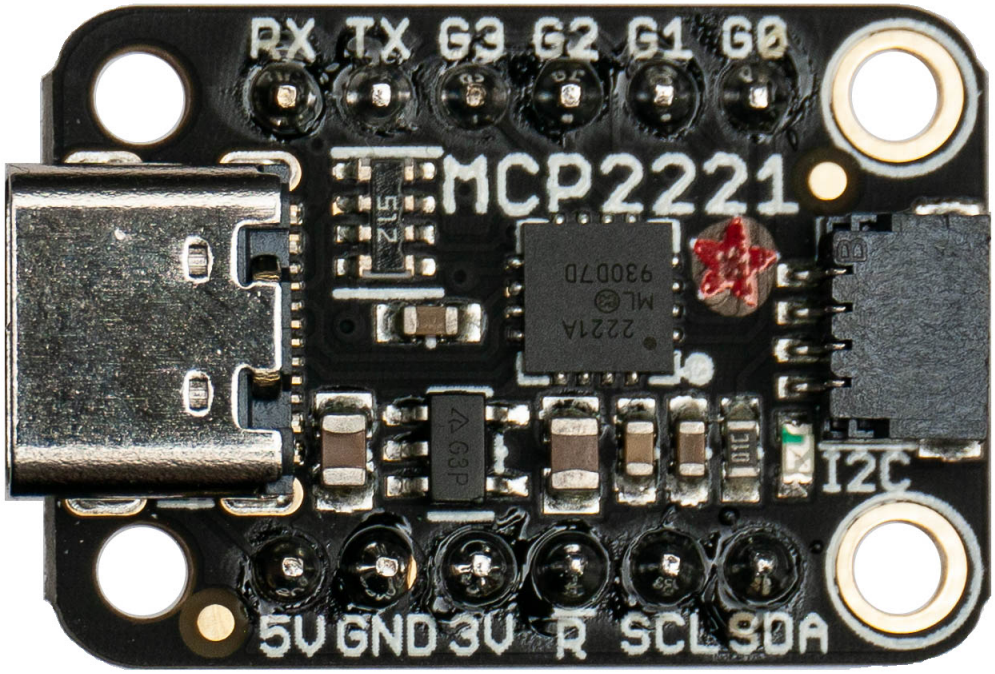
Contents

Introduction

The Munts Technologies ***USB Remote I/O Adapter*** (P/N ***MUNTS-0015***) consists of an Adafruit MCP2221A Breakout that has been reprogrammed to act as a USB raw HID Remote I/O Protocol server. The Microchip MCP2221A is in fact a low cost PIC16F1455 microcontroller from Microchip that comes programmed with firmware that enables it to act as a USB to I^2C and serial port bridge.



We have replaced the MCP2221A firmware program with one that enables the microcontroller to act as a Remote I/O Protocol server. Note that the star under the `MCP2221` label has been colored red to indicate the device has been reprogrammed.

Flexible I/O Pin Functions

MUNTS-0015 USB Remote I/O Adapter Flexible I/O Pin Functions

Pin	GPIO	A/D	I²C	SPI
G0	GPIO0			
G1	GPIO1	AIN0		
G2	GPIO2	AIN1		$\overline{SS}$
G3	GPIO3	AIN2		MOSI
TX	GPIO4			
RX	GPIO5			
SDA	GPIO6	AIN3[1]	SDA	MISO
SCL	GPIO7	AIN4[1]	SCL	SCLK

[1]Must be driven from a low impedance source to overcome I²C pull-up resistor.

Software Installation

Software support for the MUNTS-0015 USB Remote I/O Protocol Adapter is available on GitHub, as part of the ***Linux Simple I/O Library*** project at https://github.com/pmunts/libsimpleio.

You can checkout the source code tree with the following `git` command:

```
git clone https://github.com/pmunts/libsimpleio.git
```

Or you can download a .zip file containing the source code tree from:

https://github.com/pmunts/libsimpleio/archive/master.zip

Additional Online Documentation

Linux Simple I/O Library Project Home:
https://github.com/pmunts/libsimpleio

Remote I/O Protocol Specification:
http://git.munts.com/libsimpleio/doc/RemoteIOProtocol.pdf

Adafruit MCP2221A Breakout
https://www.adafruit.com/product/4471

PIC16F1455 Microcontroller
https://www.microchip.com/wwwproducts/en/PIC16F1455

Revision History

Revision 1, 16 November 2020 -- Initial revision.

Revision 2, 22 April 2021 -- Added "User Guide" to the title.