Caveatron Rev C - Wire Harness Assembly

Version: 2023-01-03

CAUTION: Do not pay attention to wire colors except where noted below. Pre-wired connectors are usually wired with arbitrary wire colors so will not be consistent. Be especially careful with two wire connectors to be sure you are not wiring it backwards (sometimes the black wire on these pre-wired connectors is in the positive position!)

Connectors, Pin Conventions, and General Notes

These connectors are used in the wire harnesses and the pin number convention is shown below:

- JST XH 2.54 5-pin connectors are used on the Laser Rangefinder (LRF) and the Power Switch.
- JST XH 2.54 2-pin connectors are used for USB Power/Data and the Piezo Buzzer.
- For RPLIDAR A1M8 Only: JST GH 1.25 4-pin connector is used on the LIDAR main PCB connector.
- For RPLIDAR A1M8 Only: JST GH 1.25 3-pin connector is used on the LIDAR main motor connector.
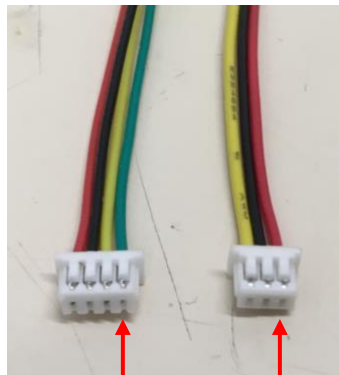
JST XH (2.54 mm)
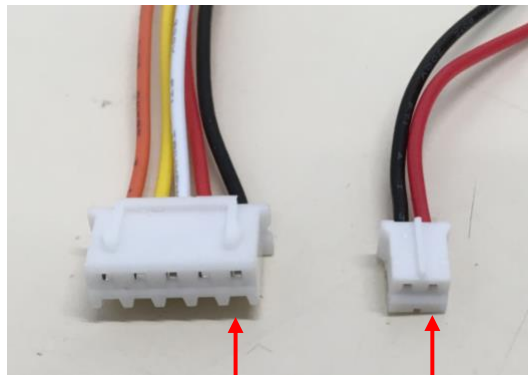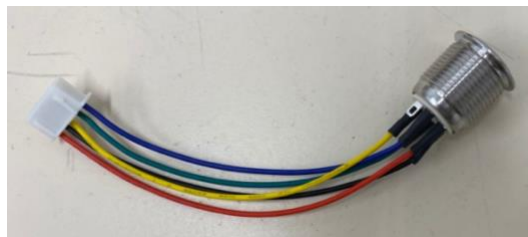

Pin 1   Pin 1

JST Micro GH (1.25 mm)

Pin 1   Pin 1

Used for RPLIDAR A1M8 only. All other LIDARs use their included cable.

The photos at left shows examples of two of the wiring harnesses used in the Caveatron (others are shown on subsequent pages). It is highly recommended that heat shrink tubing be used on all solder interfaces and as strain relief on soldered pins. Kapton tape and/or small cable ties can be used for additional strain relief. Be extra careful when wiring the battery to avoid allowing the wires to touch.
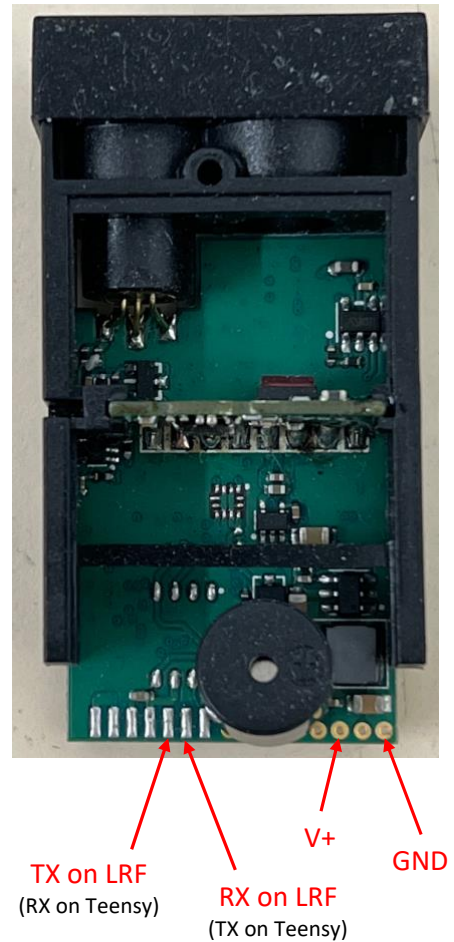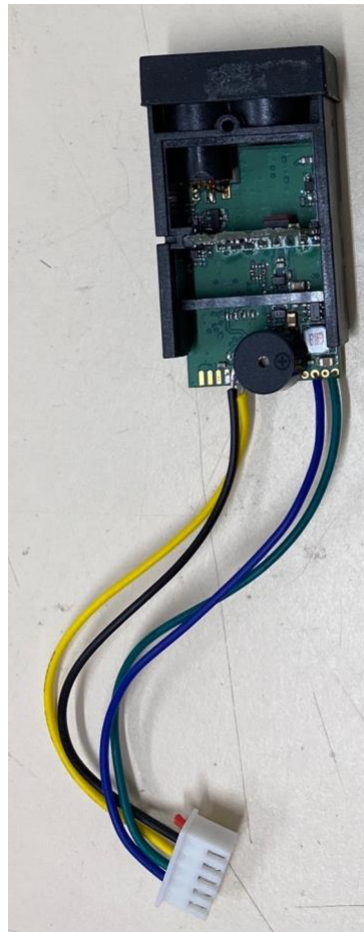
Laser Rangefinder

Pin on PCB Connector	Description
1	+3.0 V
2	GND
3	RX on Teensy / TX on LRF
4	TX on Teensy / RX on LRF
5	-

Length of Wire Harness: 5"

Top View   **Bottom View**

TX on LRF
(RX on Teensy)

RX on LRF
(TX on Teensy)

V+

GND

Power Switch

Pin on PCB Connector	Description
1	+5 V (C+)
2	Red LED Cathode
3	Green LED Cathode
4	Switch A
5	Switch B

(Switch A and B do not have a polarity and can be reversed)
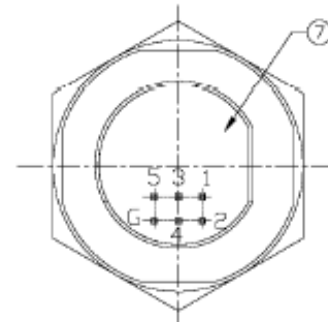
Length of Wire Harness: 3.5”
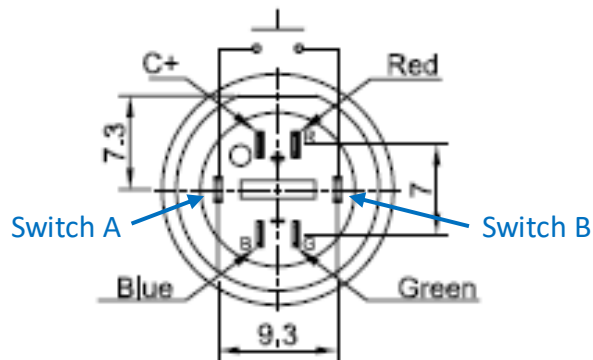
Piezo Buzzer

Pin on PCB Connector	Description	Piezo Buzzer Wire Color
1	+V	Red
2	GND	Black

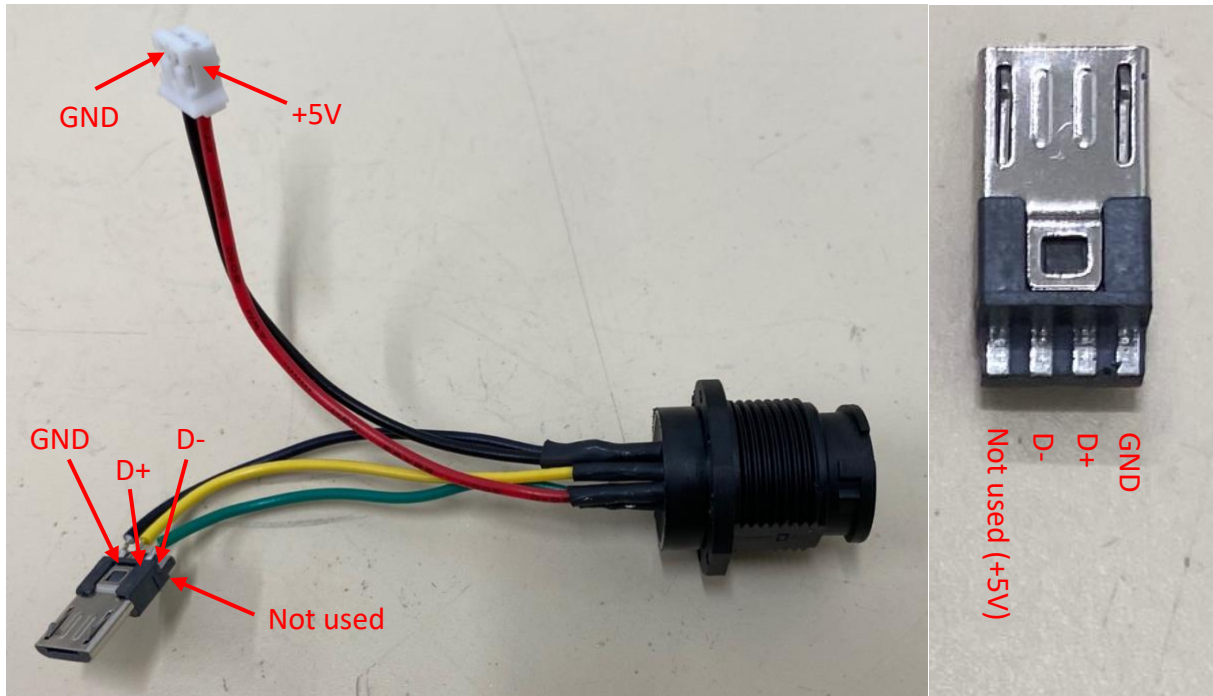Length of Wire Harness: 5”

USB Power/Data Connector

This Y-cable goes from the USB mini/micro external jack to a 2 pin JST and to a USB micro male connector.

Pin on USB Connector	Description	Pin on micro-USB Power Connector	Pin on 2-wire USB Data Connector
1	+5 V (VCC)	1	
2	D-		2
3	D+		1
4	-		
5	GND	2	
G	GND	2	

Length of each leg of wire harness (not including USB Micro): 2.5”

Battery (optional – only needed if battery is not pre-wired)

Pin on PCB Connector	Description	Battery Wire Color
1	+V	Red
2	GND	Black

Length of Wire Harness: 2.75"

LIDAR (optional – only needed with the RPLIDAR A1M8)

For other supported RPLIDAR modules, the LIDAR's built-in connector is plugged directly into the Caveatron PCB Connector.

Pin on PCB Connector	Description	4-Pin Connector on RPLIDAR A1M8	3-Pin Connector on RPLIDAR A1M8
1	+5 V (VCC_5, VMOTO)	2	1
2	TX on LIDAR / RX on Teensy	4	-
3	RX on LIDAR / TX on Teensy	3	-
4	GND	1	3
5	PWM Motor Controller (MOTOCTL)	-	2

Length of Wire Harness: 7.5"

TX
RX
VCC_5
GND

VMOTO
MOTOCTL
GND