Atlas Scientific™
Environmental Robotics

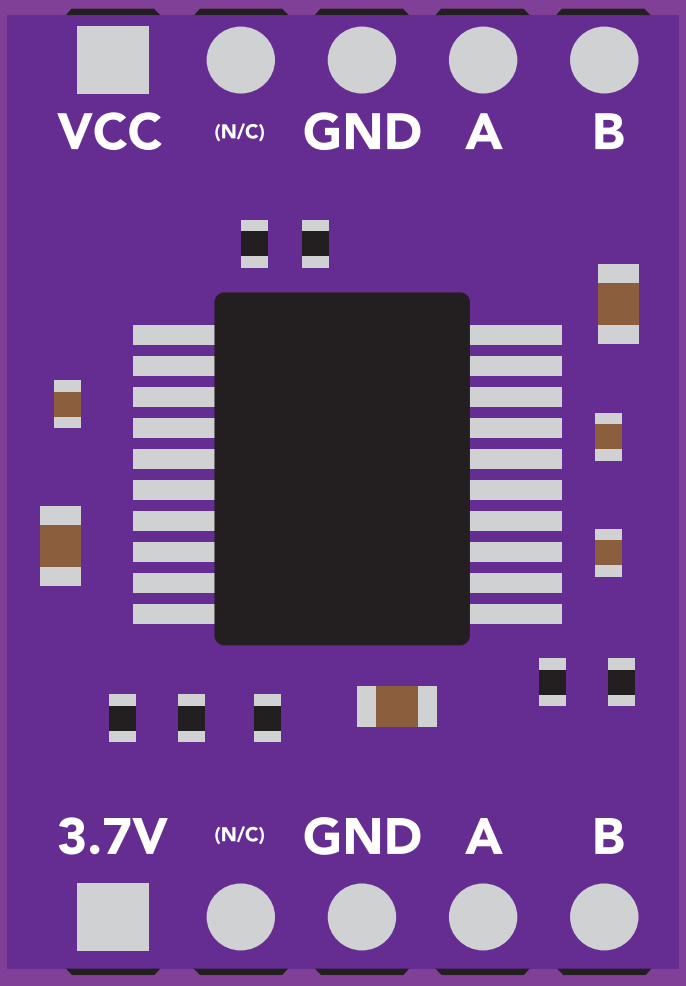
V 1.4

Revised 3/1/17

Basic EZO™

Inline Voltage Isolator

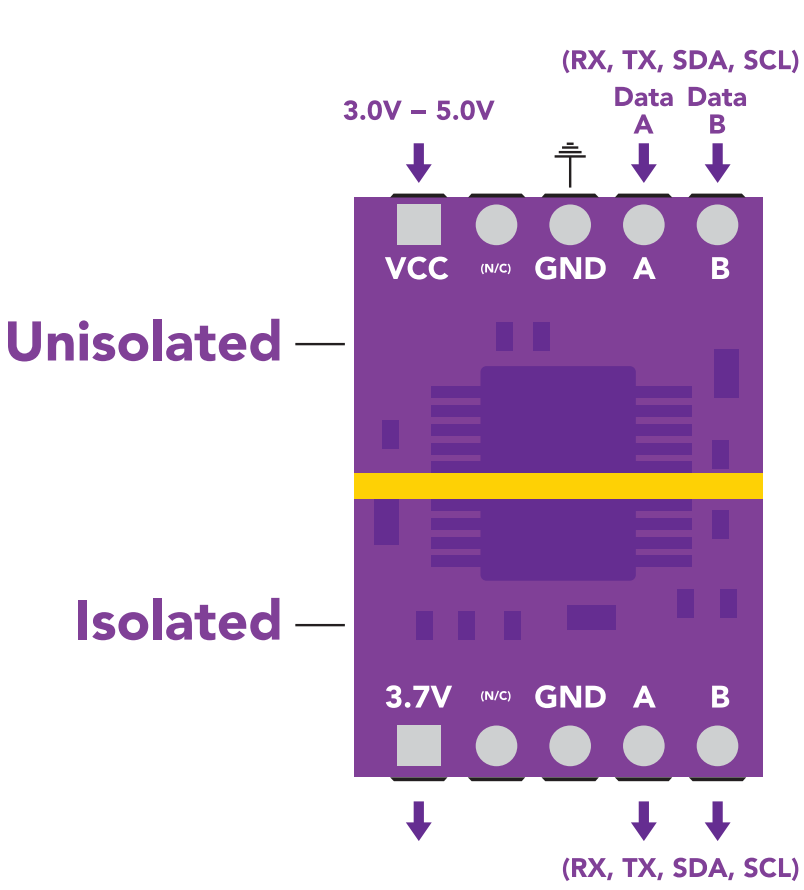
Voltage input		**3.0V – 5.0V**
Data input		**UART, I²C and SMBus**
Max data rate		**1 MHz**
Current consumption	**5V**	**16.3 mA**
	3.3V	**20 mA**
Output voltage		**3.7V ± .07**

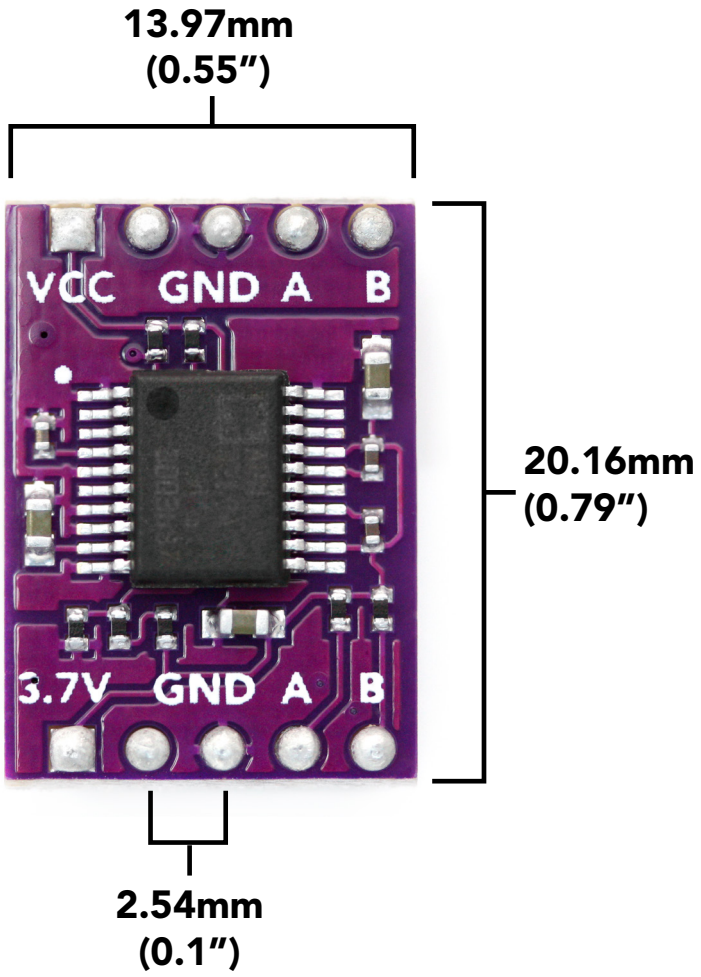


RoHS COMPLIANT

Written by Jordan Press
Designed by Noah Press

This is an evolving document, check back for updates.





Input voltage vs Output current

Input	Output current *(V = 3.7 always)*	
3.0V	10 mA	
3.3V	20 mA	
3.7V	37 mA	
4.2V	42 mA	
5.0V	50 mA	*62°C

EZO™ class circuits current consumption at 3.7V

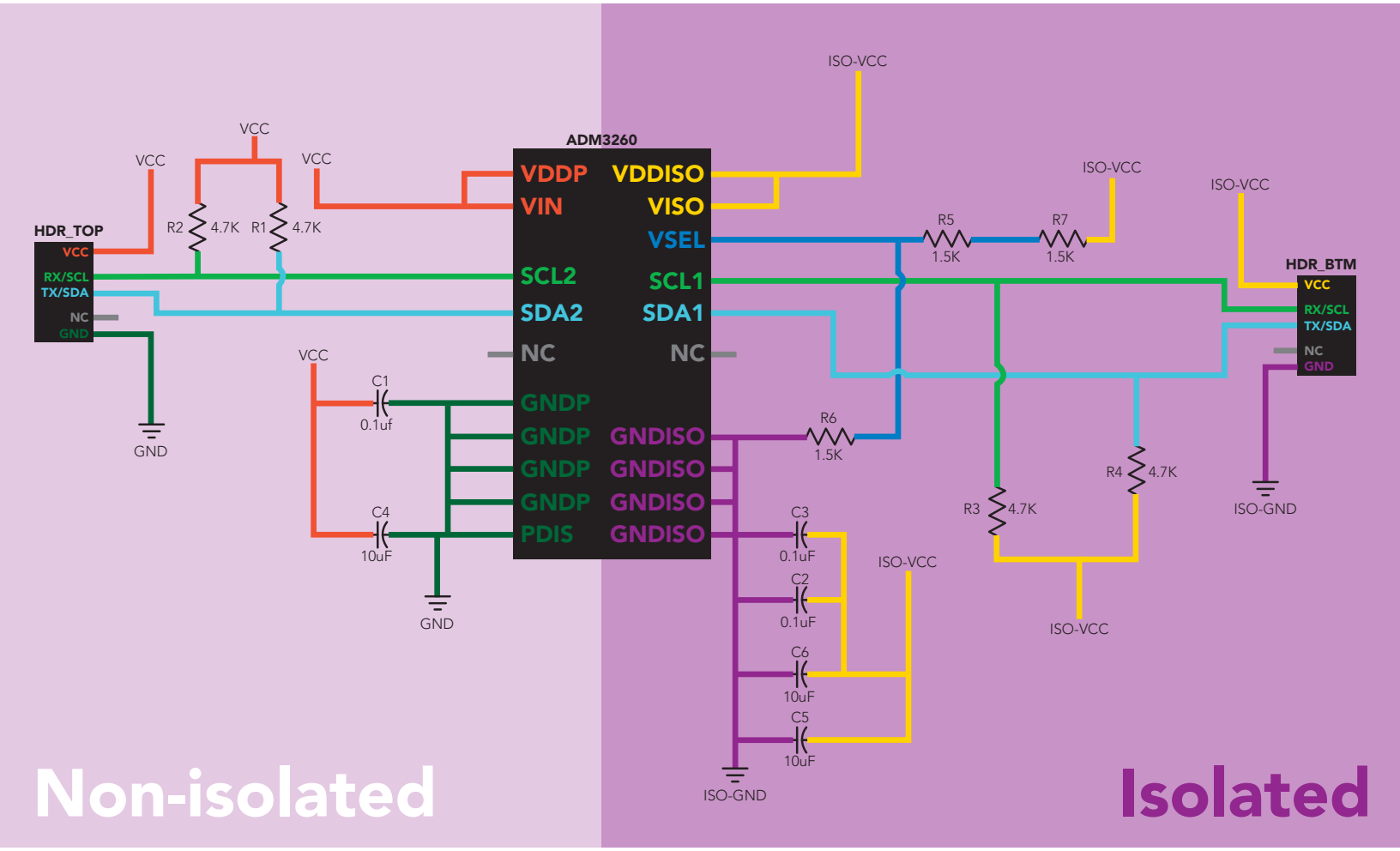
EZO™ pH	13.9 mA
EZO™ ORP	13.3 mA
EZO™ Dissolved Oxygen	13.9 mA
EZO™ Conductivity	37 mA

Data isolation

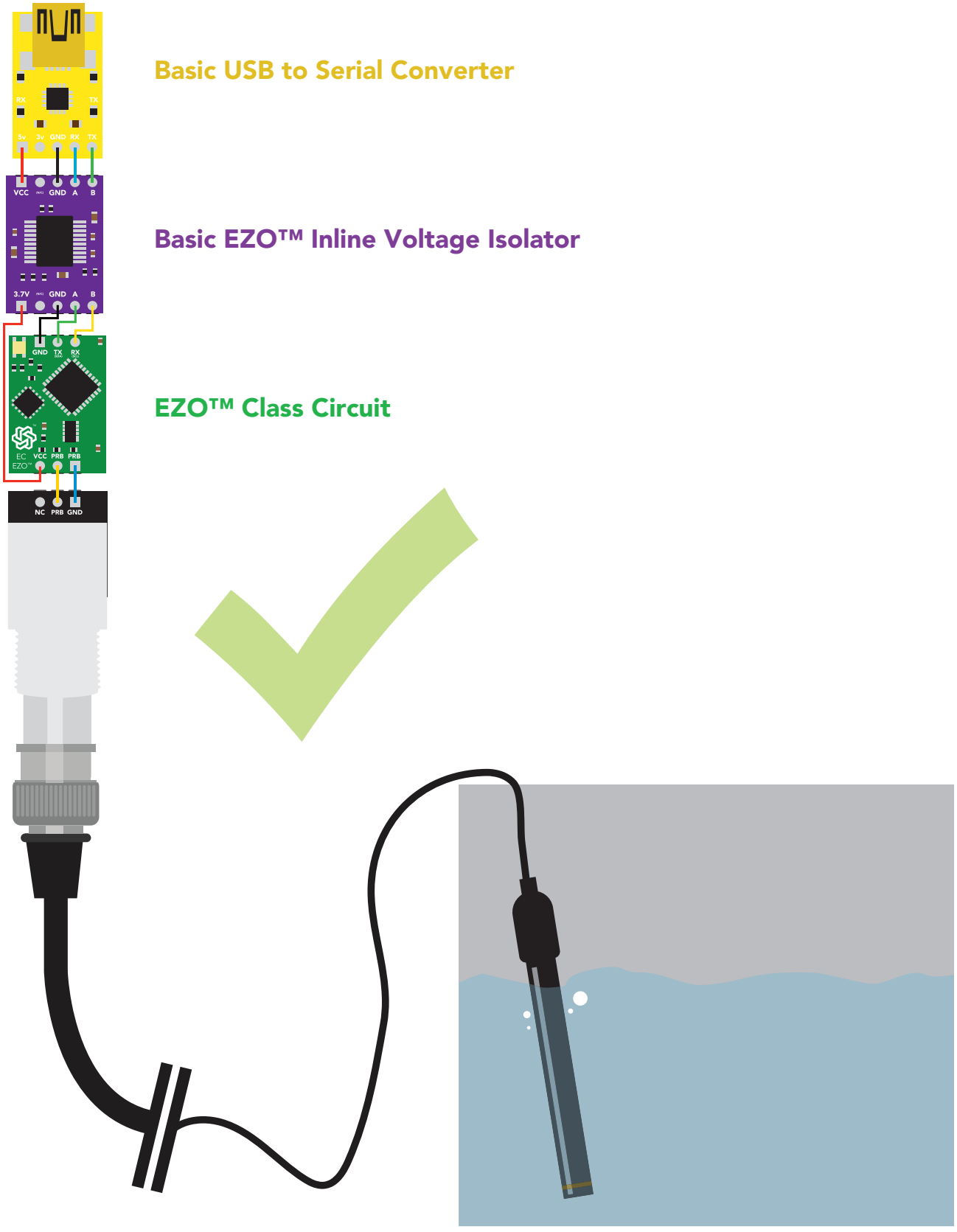
This schematic shows exactly how we isolate data and power using the *ADM3260* and a few passive components. The ADM3260 can output isolated power up to 150 mW and incorporates two bidirectional data channels.

This technology works by using tiny transformers to induce the voltage across an air gap. PCB layout requires special attention for EMI/EMC and RF Control, having proper ground planes and keeping the capacitors as close to the chip as possible are crucial for proper performance. The two data channels have 4.7kΩ pull up resistor on both the isolated and non-isolated lines (R1, R2, R3, and R4) The output voltage is set using a voltage divider (R5, R6, and R,7) this produces a voltage of 3.7V regardless of your input voltage.

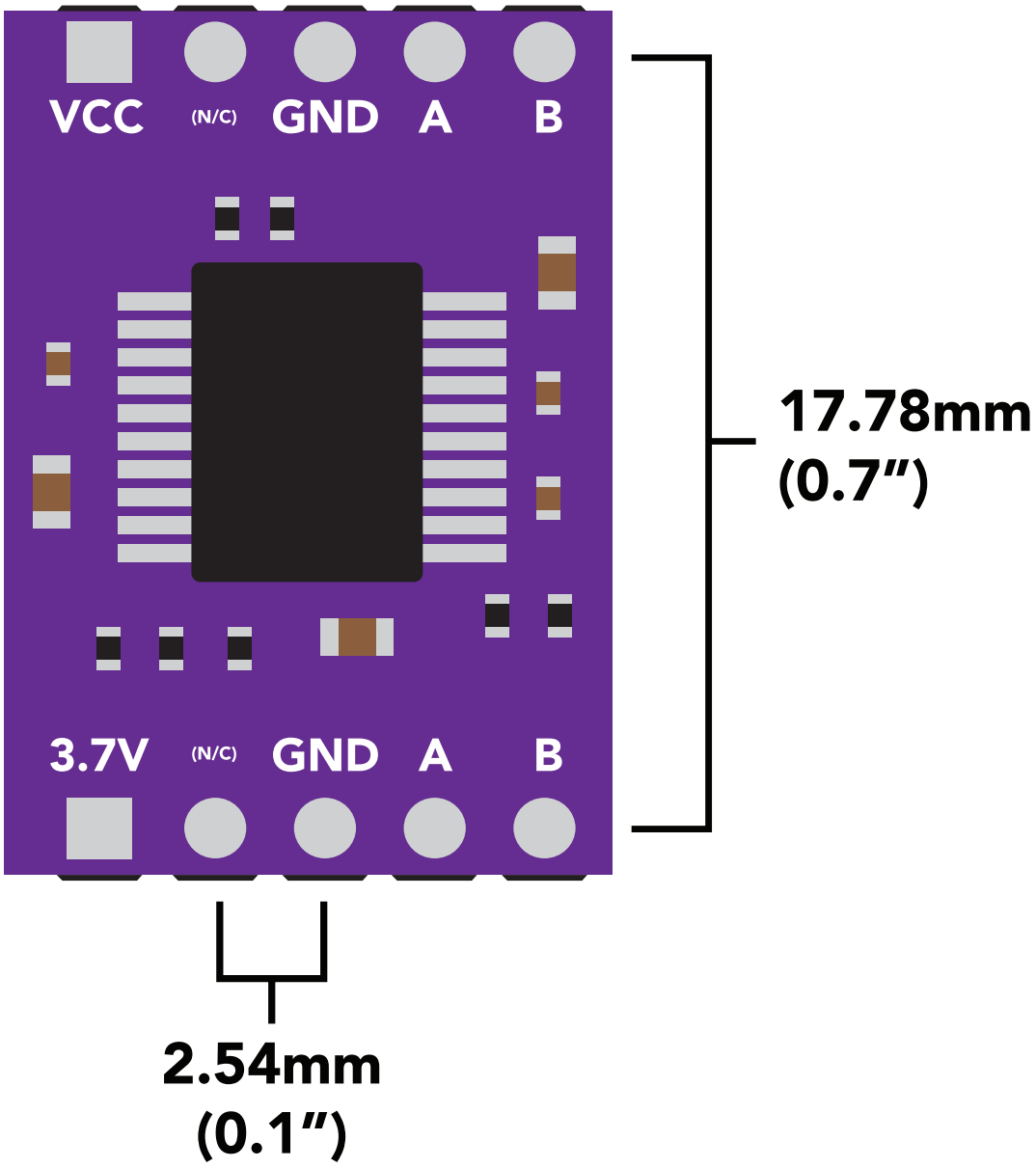
Isolated ground is different from non-isolated ground, these two lines should not be connected together.



Proper Wiring



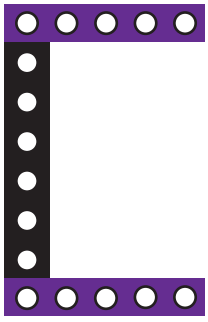
EZO™ circuit footprint

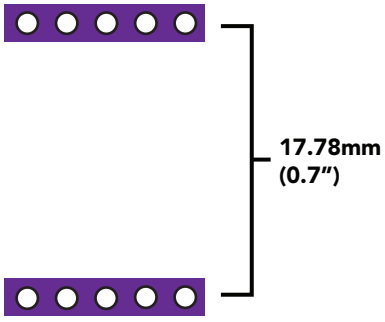


1 In your CAD software place an 8 position header.

2 Place a 5 position header at both top and bottom of the 8 position.

3 Delete the 8 position header. The two 5 position headers are now 17.78mm (0.7”) apart from each other.





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