

SEN-39002: “Emulator” Sheild for AS3935 Lightning Sensor

USER GUIDE

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1.0 General Notes

SEN-39002 is a “shield” designed to be installed on Arduino Uno R3 and Mega R3 form factor Arduinos. It is only intended to be used with the AS3935 lightning sensor by AMS, and will probably not work with other lightning sensors. This is due to the means by which lightning is detected by different technologies.

2.0 Quick Setup Guide

- a) Begin by unpacking your SEN-39002 board from its shipping packaging
- b) Next, break header strip (included in package) into segments properly sized for an Arduino Uno R3 Shield install. This gives a 6, 10 and two 8-pin segments. The ICSP header is NOT used with this shield
- c) Install (solder) headers into the respective locations on the shield, using the Arduino female headers to guide the installation. Use proper soldering techniques to ensure all connections have good conductivity
- d) Install shield on your Arduino, fully seating shield in pins
- e) Download SEN-39002 software from the PWFusion github site (also requires the MCP4725 libraries):
https://github.com/PlayingWithFusion/PWFusion_Lightning_Emulator AND
https://github.com/PlayingWithFusion/PWFusion_MCP4725
- f) Plug in your Arduino and install the PWFusion_Lightning_Emulator software from step e
- g) As soon as the install is complete, the three LEDs next to the pushbuttons on the emulator should light up in sequence a few times then turn off
- h) You're ready to use the emulator! Place the AS3935 antenna somewhere between 4 and 10 cm from the inductor on the emulator board. Pressing the buttons will emulate far, mid-range and near lightning strikes, giving different absolute readings and distance estimates from the lightning sensor

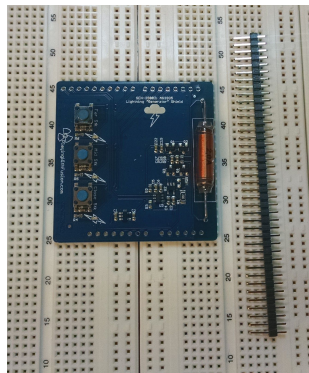
If you have issues above, please continue on to the detailed setup guide on the next couple of pages. It has pictures for reference and answers to several potential questions.

3.0 Detailed Setup Guide

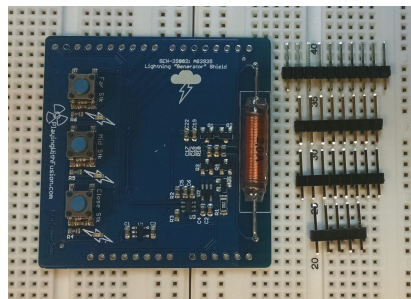
- a) Begin by unpacking your SEN-39002 board from its shipping packaging



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- b) Next, break header strip (included in package) into segments properly sized for an Arduino Uno R3 Shield install. This gives a 6, 10 and two 8-pin segments. The ICSP header is NOT used with this shield



Note: Pins required for this board are as follows

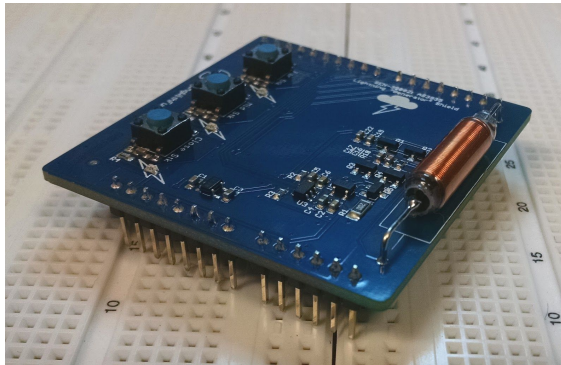
Uno R3 Layout SCL and SDA (I2C comm)

Power: 5.0V, 3.3V, and all GND pins

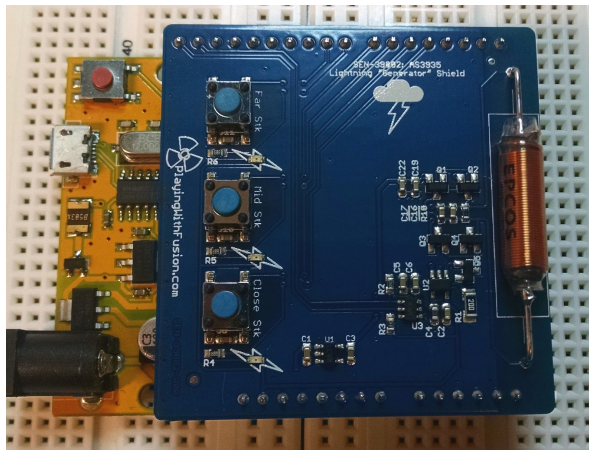
Pushbuttons: D9, D7, D5

LEDs: D8, D6, D4

- c) Install (solder) headers into the respective locations on the shield, using the Arduino female headers to guide the installation. Use proper soldering techniques to ensure all connections have good conductivity

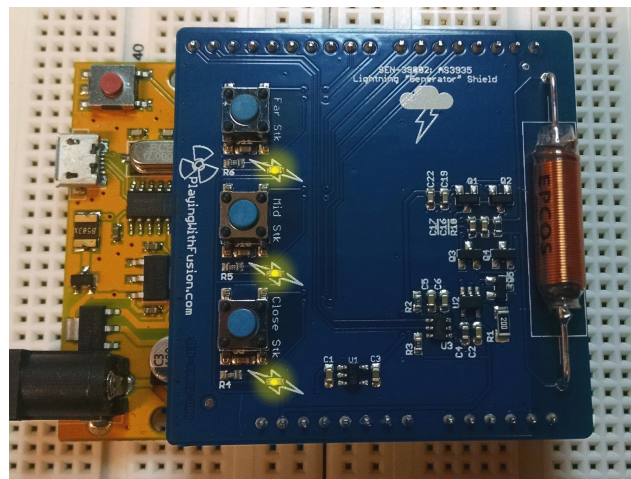


- d) Install shield on your Arduino, fully seating shield in pins



- e) Download SEN-39002 software from the PWFusion github site (also requires the MCP4725 libraries):
https://github.com/PlayingWithFusion/PWFusion_Lightning_Emulator AND
https://github.com/PlayingWithFusion/PWFusion_MCP4725
- f) Plug in your Arduino and install the PWFusion_Lightning_Emulator software from step e

- g) As soon as the software install is complete, assuming the shield is installed, the three LEDs next to the pushbuttons on the emulator should light up in sequence a few times then turn off



- h) You're ready to use the emulator! Place the AS3935 antenna somewhere between 4 and 10 cm from the inductor on the emulator board. Pressing the buttons will emulate far, mid-range and near lightning strikes, giving different absolute readings and distance estimates from the lightning sensor. The LEDs next to the button you just pressed should light for approximately 1 second.

