

ROHM Multi-Sensor Shield Evaluation Board



For use with ROHM Sensor Platform Kit

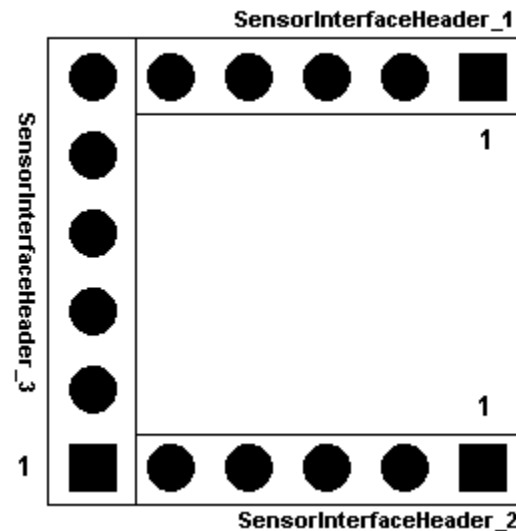
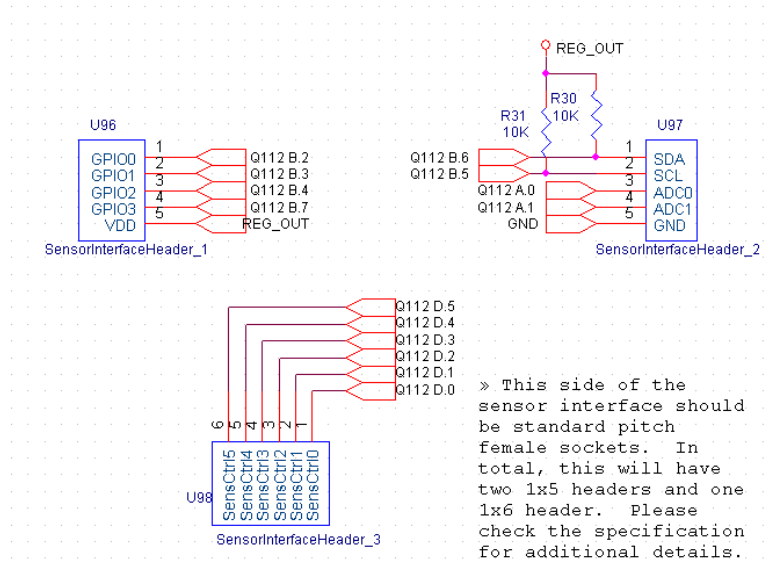
Specification

General Requirements

- Overview
 - The Sensor platform board is now built and available; however, there are aspects that we can improve.
 - One major point we would like to address is the ability to use multiple sensors at once. This can be used as a general evaluation board of ROHM's portfolio of sensors as well as a development environment for sensor fusion based applications
- Target Audience
 - Customers looking to evaluate ROHM's sensor portfolio
 - Customers/Engineers Looking to develop sensor fusion algorithms with multiple sensor products
- Sensors to Cover
 - Hall IC
 - Ambient Light Sensor/Proximity all-in-one combo IC
 - RGB Color Sensor
 - UV Sensor
 - MEMS Sensors – Accel, Accel+Mag, Gyro
 - Temperature Sensor
 - Pressure Sensor

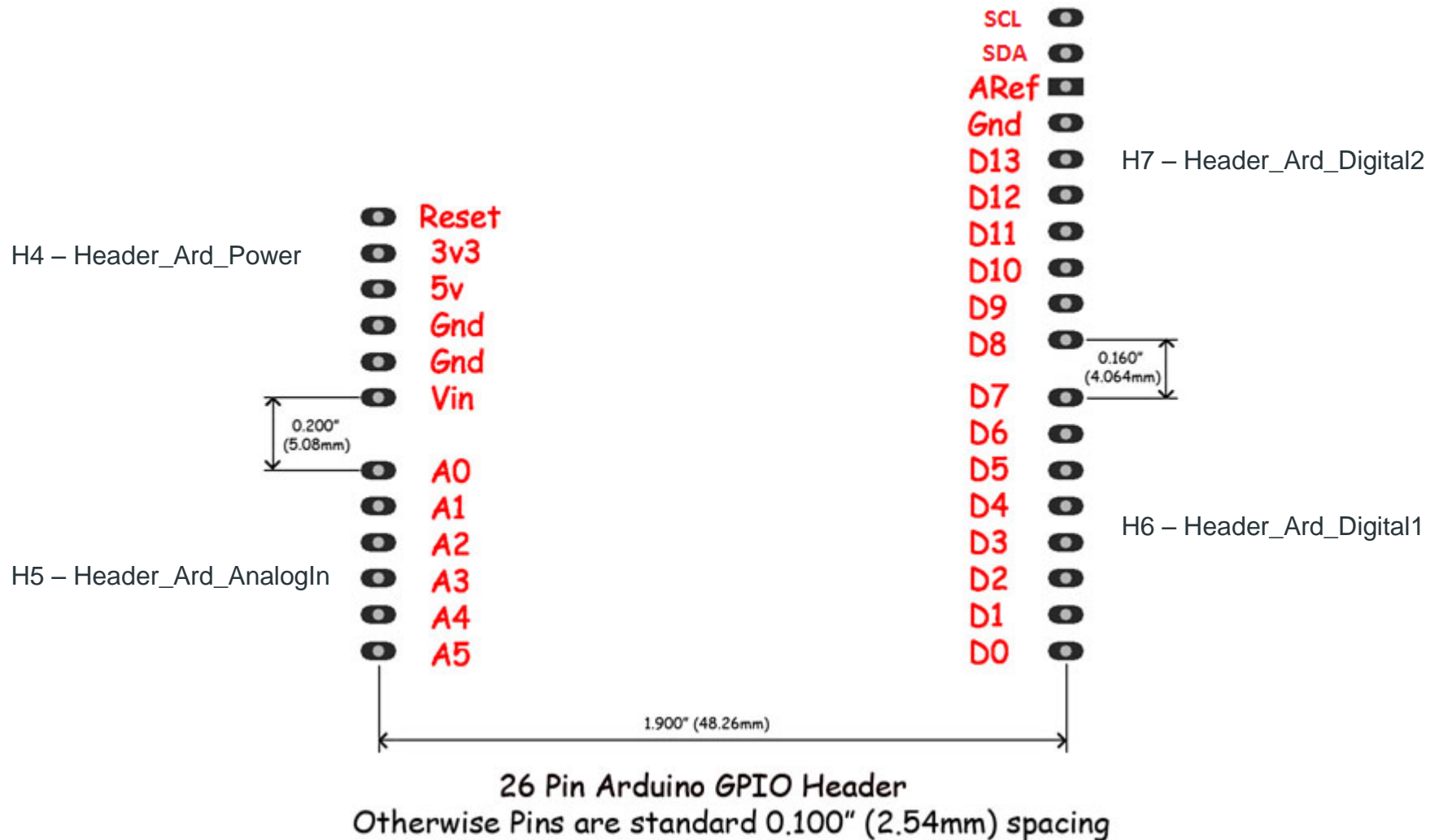
Schematic Details – Sensor Interface

Sensor Breakout Board Interface

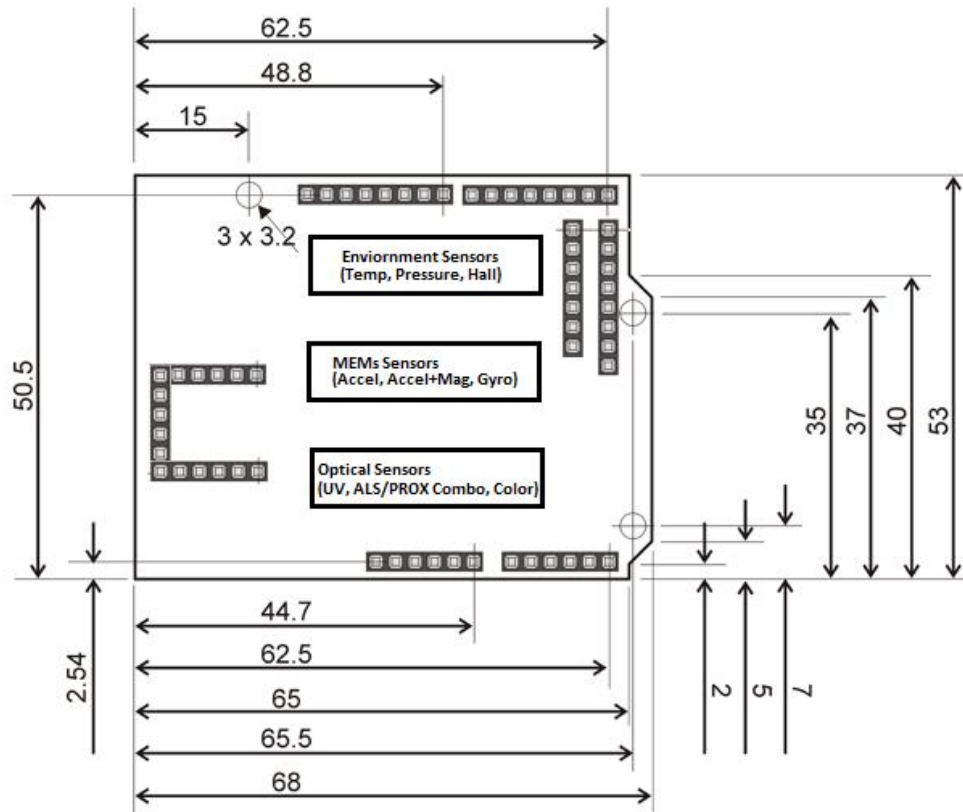


*Please confirm pin 1 placements against sensor platform base board we made with you previously

Schematic Details – Arduino Headers



High Level Layout – MultiSensor Breakout Board



- Above is just general placement of the headers (Feel free to adjust as required)
- Only major point to have the MEMs sensors as close to the center of the board as possible

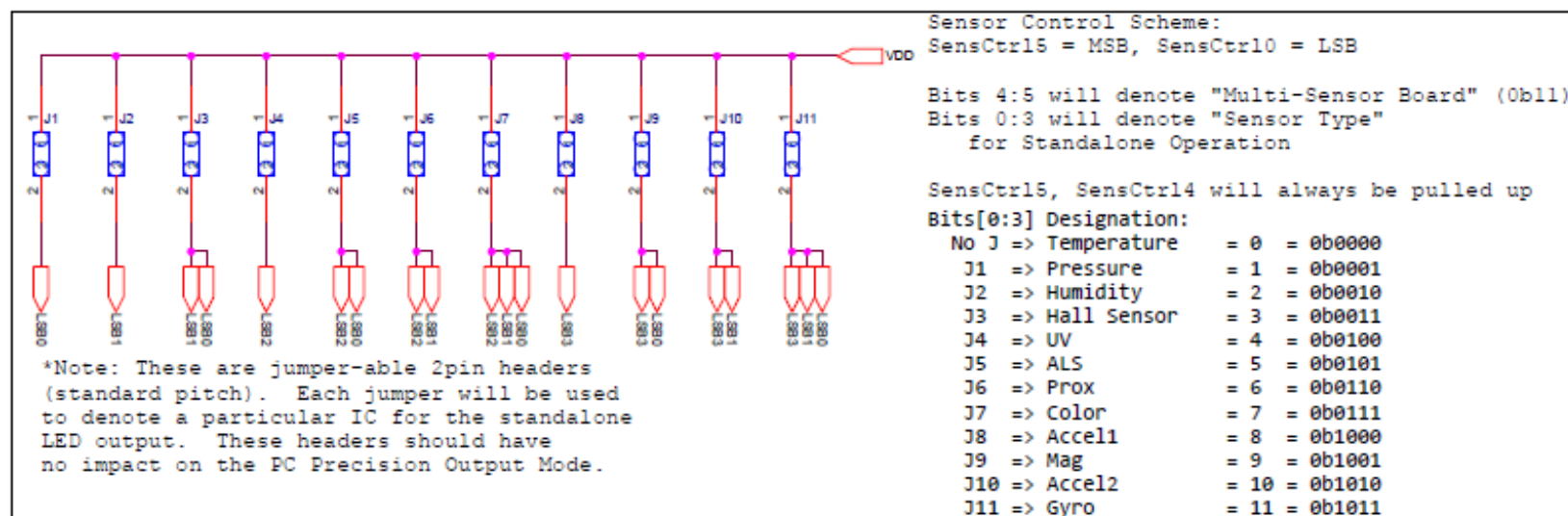
Included Sensors

- ROHM Sensors
 - **UV Sensor** (1 ADC)
 - ML8511
 - **Accel + Mag** (I2C)
 - KMX61
 - **Temperature Sensor** (1 ADC)
 - BDE0600G
- ROHM New Sensors
 - **Omnipolar Hall** (2 GPIO)
 - BU52014HFV
 - **ALS and Prox** (I2C)
 - RPR-0521
 - **Pressure** (I2C)
 - BM1383GLV
 - **Accel Only (I2C)**
 - KC122 (I2C)
 - **Color Sensor (I2C)**
 - BH1745NUC (I2C)
 - **Gyro (I2C)**
 - KXG03
- Total Pins/Outputs from the board
 - 6, I2C based device
 - 2, ADC based device
 - 1, GPIO based device

Operation Usage

- Standalone Mode (No PC usage):
 - Jumpers will be used to set the standalone mode output for the various sensors

Sensor Platform Control Header Pins (For Standalone Mode)



- High Precision Output Mode (UART Output to PC):
 - This mode will be very similar to the single sensor mode as we can add lines to the output stream corresponding to each of the sensor outputs

Requirements to Launch

- Need to route Layout
- Need to generate Application Note
- Need to code new Base Board Firmware to include this as a new sensor
 - Source available on Github
 - This revision should not break the operation of the existing firmware

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