AMS 5812 AN02
Arduino Nano Kit for AMS 5812 Pressure Sensors

In this application note Analog Microelectronics presents the AMS 5812 Arduino Nano Kit. It provides an easy way to connect the board-mount pressure sensor AMS 5812 [1] to an Arduino Nano development board [2] and to read data from the I2C interface of an AMS 5812 pressure sensor.

The Arduino Nano is an easy to use microcontroller platform and often used to read data from sensors. It features an Atmega microcontroller and several I/O-pins including an I2C port, which can be used to read data from the board level pressure sensor AMS 5812.

To interface an AMS 5812 pressure sensor with an Arduino Nano Analog Microelectronics provides the AMS 5812 Arduino Nano kit [3] (available at www.analog-micro.com). This kit consists of two PCBs - the AMS Arduino Nano Shield and the AMS 5812 Mini PCB - and a ribbon cable. By mounting the Arduino Nano on the Shield and the AMS 5812 on the Mini PCB and connecting both PCBs to each other using the ribbon cable the system is ready to use without any soldering. (see *Figure 1*).

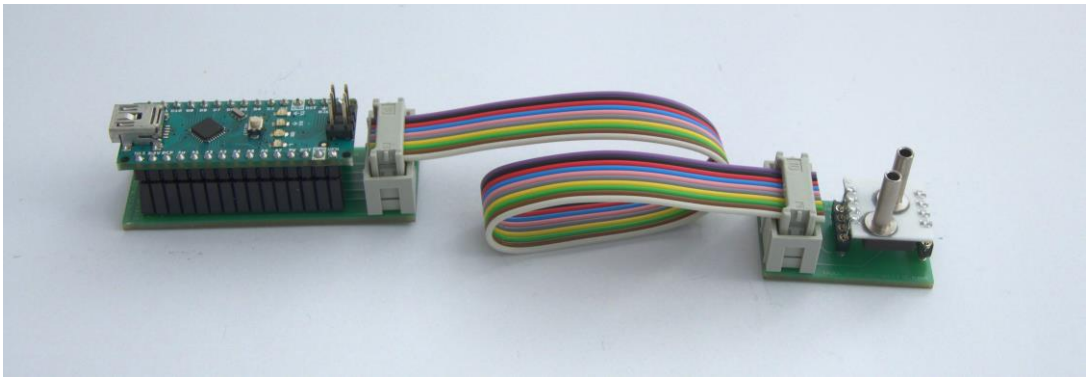

Figure 1: **The assembled Arduino Nano Kit along with an Arduino Nano and an AMS 5812**

The principle electrical connections needed to read I2C data from AMS 5812 using an Arduino Nano are established by the AMS 5812 Arduino Nano kit and are illustrated in *Figure 2*.

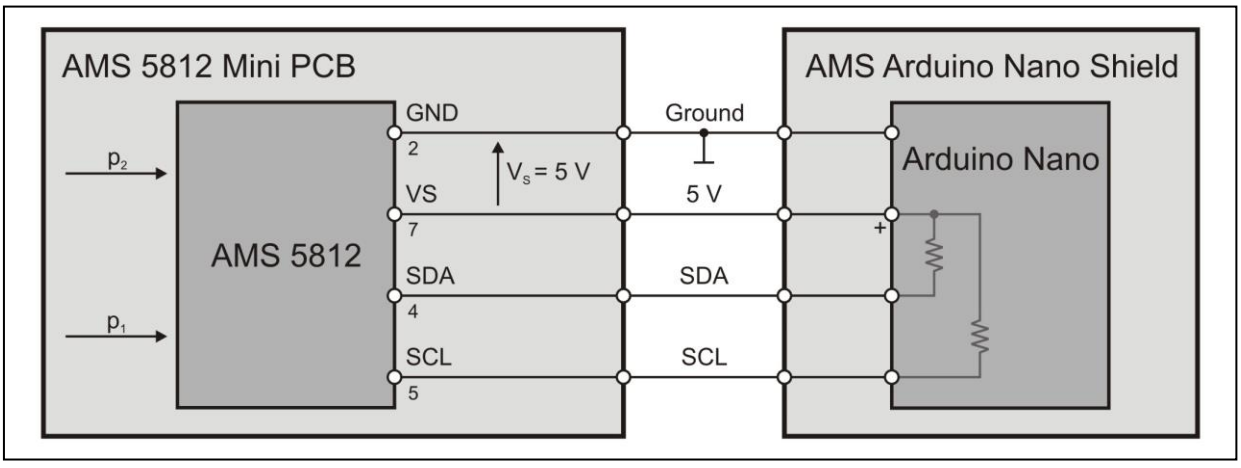

Figure 2: **Connecting an AMS 5812 to an Arduino Nano**

Due to Arduino's internal pull-up resistors AMS 5812's SDA and SCL pins are connected directly to Arduino's corresponding SDA and SCL ports on the AMS Arduino Nano Shield PCB. Arduino's 5 V voltage source and GND are also connected to AMS 5812's corresponding pins directly.

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To simplify programming Arduino Nano to read data from AMS 5812's I2C interface Analog Microelectronics has developed the AMS Arduino library [4] for Arduino's integrated development environment (IDE) [5]. It is described in the document "Arduino library for AMS 5812, AMS 5915, AMS 6915" [6] and can be downloaded for free from www.analog-micro.com. With this library the digital pressure and temperature values can easily be read via I2C as soon as the electrical connection between AMS 5812 and Arduino Nano is established and the Arduino Nano is powered. Following the description in the library reference [6] it is only necessary to adjust the pressure range in the initialization sequence to the sensor's pressure range and the sensor's I2C address.

References:

1.) AMS 5812's data sheet
(see https://www.analog-micro.com/products/pressure-sensors/board-mount-pressure-sensors/ams5812/ams5812-datasheet.pdf)
2.) Arduino Nano (https://www.arduino.cc/en/Main/ArduinoBoardNano)
3.) AMS 5812 Arduino Nano kit (available at https://www.analog-micro.com)
4.) AMS Arduino library "AMS.zip" (see https://www.analog-micro.com/products/pressure-sensors/board-mount-pressure-sensors/ams5812/AMS.zip)
5.) Aduino's IDE (https://www.arduino.cc/en/Main/Software)
6.) AMS Arduino library reference
(available at https://www.analog-micro.com/products/pressure-sensors/board-mount-pressure-sensors/ams5812/AMS_arduino_lib.pdf)