Molecular Property Spectrometer™ (MPS™) Flammable Gas Sensor

Sensor Testing Without the MPS Evaluation Unit

Instructions

NevadaNano recommends using the MPS Gas Sensor Evaluation Unit to test and evaluate the performance of the MPS Flammable Gas Sensor. In the event this is not feasible or desired and another method will be used to connect the sensor to a Windows computer over USB, the following guidelines need to be followed to ensure proper operation of the sensor and the MPS Sensor Interface Test Application:

1. Power to the sensor:
    a. The sensor needs to be powered from a stable DC source between 3.3-5.0 Volts ±5%
2. Serial Communication:
    a. The sensor Rx pin needs to be connected to the host system Tx signal
    b. The sensor Tx pin needs to be connected to the host system Rx signal
    c. The serial communication signals are LVTTL levels
3. Electro-Mechanical Interface:
    a. NevadaNano does NOT recommend soldering wires directly to the pins of the MPS Flammable Gas Sensor. If the customer does not have a PCB with receptacles to plug the sensor into, we recommend using individual receptacle sockets with wires soldered to the sockets and then plugging the sockets onto the pins of the sensor. Compatible receptacle sockets readily available from numerous distributors are:
        Mill-Max 9401-0-15-15-23-27-10-0 (This socket has a closed bottom.)
        Mill-Max 0384-0-67-80-23-27-10-0 (This socket has an open bottom.)
4. USB-to-serial converters:
    a. There are many manufacturers of USB-to-serial converter devices. The MPS Sensor Interface Test Application searches for a specific USB device ID for an FTDI FT230x series USB-to-serial converter IC contained on the MPS Flammable Gas Sensor Evaluation Unit. Use of non-FTDI USB-to-serial converter devices will result in the MPS Flammable Gas Sensor not being recognized by the MPS Sensor Interface Test Application.
    b. If the customer is developing their own test software, any USB-to-serial converter IC may be used to communicate with the MPS Flammable Gas Sensor over USB and the customer's own test software. The MPS communication protocol is indicated in the MPS Flammable Gas Sensor User Manual, Section 2.1.