

## USER MANUAL

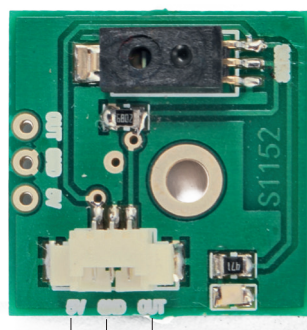
AUGUST 2016

### ANALOG HUMIDITY SENSOR BOARD

MM102

This breakout board is equipped with a hygrometric sensor, thus it lends itself to detect the moisture found in the environment it is placed in. It operates at a very low voltage (it correctly operates at up to 5.5 Vcc) and typically absorbs 200 microamperes: it is thus ideal even in applications that are battery powered, and in which a minimal absorption is required.

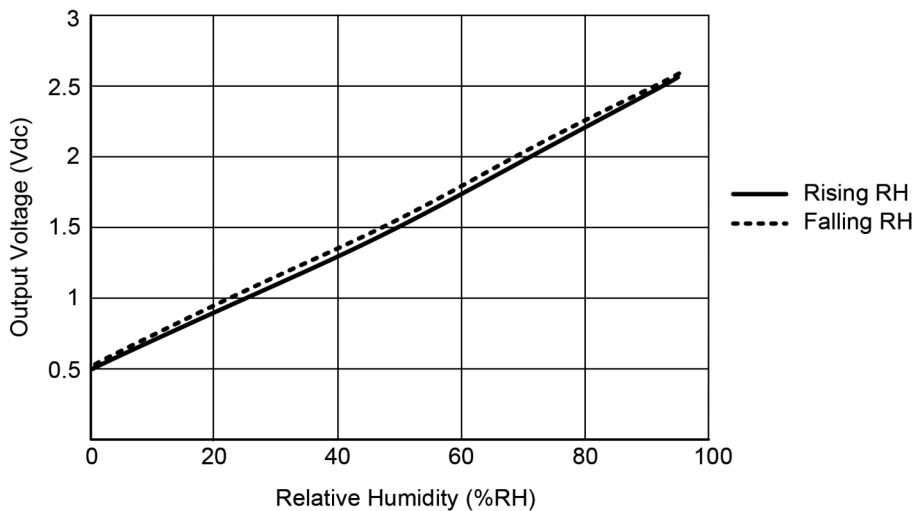
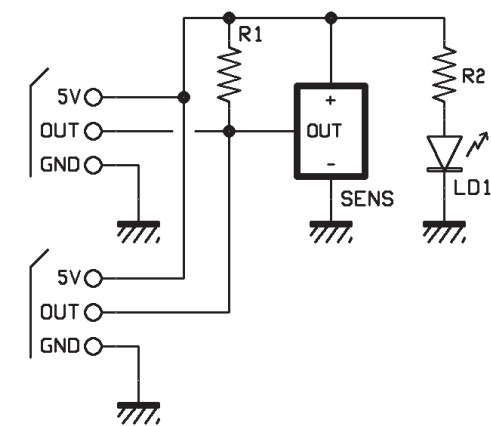
The HIH-5030-001 sensor has the great virtue of supplying an analog output signal, consisting in a DC voltage that varies in an almost linear manner, as the relative humidity (RH) varies; thus it may be interfaced both to analog circuits that check the air flow of a dehumidifier installation, and it may be read by an A/D converter or by a microcontroller's input that is supplied with an analog/digital converter.



Red wire 5V positive power supply  
Black wire GND negative power supply  
Yellow wire Humidity output / data request

The device's sensor component is of the capacitive kind, and it is composed of thermosetting polymers that have been cut with a laser. The signal's conditioning circuitry, integrated on a chip, is found in the integrated circuit. The multilayer construction of the sensitive element provides an excellent resistance to the greatest part of the risks coming from applications such as, for example, condensation, dust, filth, oils and common chemical products found in the measurement environment.

The measurement accuracy is  $\pm 3\%$ , given that the relative humidity is between 11% and 89%; the response time to the humidity variations is of about 5 seconds. The variation curve for the device's output voltage, as a function of the relative humidity (having a 3.3 V power supply and an environmental temperature of 25° C) is shown in **Fig. 1**. The component's output is an high impedance one, and may pilot circuits having an impedance of no less than 65 kohms; otherwise the voltage supplied as a function of the humidity may not react to the curve shown in **Fig. 1**, but will vary in a different manner. In addition to the A/D converter, the device's output may be connected to a microampere meter having a pointer, or to an opportunely calibrated voltmeter, so to create a veritable hygrometer, from which to obtain a direct indication of the relative humidity.



*HIH-5030-001 sensor's output voltage, as a function of the detected relative humidity.*

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