



EVALUATION BOARD MANUAL

HUMIDITY SENSOR WITH INTEGRATED TEMPERATURE SENSOR

Evaluation board order code	Sensor order code
2525020210091	2525020210001

VERSION 1.0

NOVEMBER 6, 2020

Revision history

Manual version	Product version	Notes	Date
1.0	1.0	<ul style="list-style-type: none">Initial release of the manual	September 2020

Abbreviations

Abbreviation	Description
I ² C	Inter integrated circuit
LSB	Least significant bit
MEMS	Micro electro mechanical system
SPI	Serial peripheral interface
SMD	Surface mount device

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1 General description

1.1 Introduction

The evaluation board of the humidity sensor provides the opportunity to verify the sensor performance and develop a prototype using an external processor e.g. Amber Pi design kit (Part No: 2609017281001). The evaluation board can be directly connected to Amber Pi design kit using the mounted I²C or SPI connectors. The evaluation board can also be mounted on a bread board using through hole pin header connections. The humidity sensor (Part No: 2525020210001) is a 16-bit digital ultra-low-power with an integrated temperature sensor.

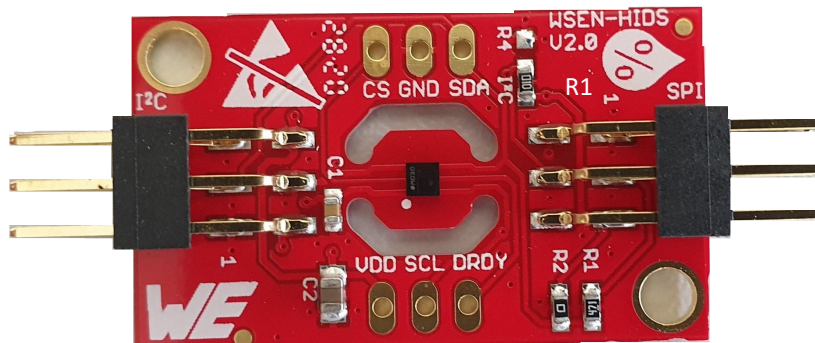


Figure 1: Evaluation board of the humidity sensor

2 Functional description

The humidity sensor evaluation board supports both the standard I²C and SPI communication interfaces.

- A positive supply voltage is applied to the sensor through *VDD* pin and negative supply voltage through *GND* pin.
- The I²C communication interface is enabled by connecting *CS* pin to *VDD*. The *CS* pin is connected to *VDD* using 100kΩ resistor R3.
- The SPI communication interface is enabled by removing the resistor R3 between *CS* pin to *VDD*.



I²C communication interface is enabled in the evaluation board by default. The 7-bit slave address of the humidity sensor is 1011111b (0x5F)

Pin No.	Evaluation board pins	Sensor pins	Description	Input/Output
1	<i>VDD</i>	<i>VDD</i>	Positive supply voltage	Supply
2	<i>SCL</i>	<i>SCL</i>	I ² C serial clock	Input
3	<i>INT</i>	<i>INT</i>	Data ready output signal	Output
4	<i>SDA</i>	<i>SDA</i>	I ² C serial data	Input/Output
5	<i>GND</i>	<i>GND</i>	Negative supply voltage	Supply
6	<i>CS</i>	<i>CS</i>	I ² C enable/disable	Input

Table 1: Pin description



SPI communication is enabled by removing the resistor R3



Refer to the data sheet of the humidity sensor (Part No: 252502021001) for information of the electrical properties.

I²C Interface to external boards
e.g. Amber Pi design kit

SPI Interface to external boards
e.g. Amber Pi design kit

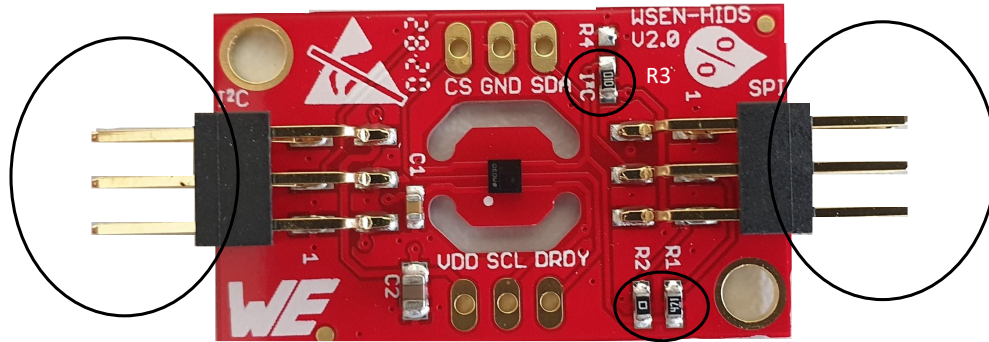
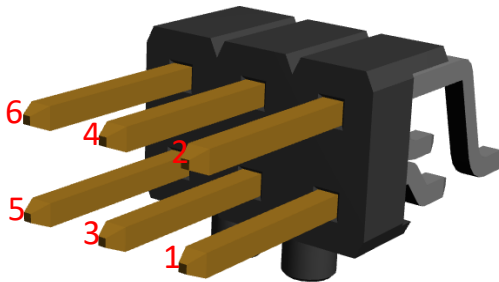


Figure 2: Pin header connection to the external boards. e.g. Amber Pi design kit

2.1 Evaluation board in operation

2.1.1 Pin header connection



Pin No	I ² C Pins	SPI Pins
1	<i>GND</i>	<i>GND</i>
2	<i>SCL</i>	<i>SCL</i>
3	<i>SDA</i>	<i>MOSI</i>
4	<i>GND</i>	<i>CS</i>
5	<i>NC</i>	<i>MISO</i>
6	<i>VDD</i>	<i>VDD</i>

Table 2: Pin header to external boards

Resistor	Description
R1	SDA to MOSI connection series resistor
R2	SDA to MISO connection series resistor
R3	I ² C enabled by default. CS is connected to VDD

Table 3: Functionality of resistors on the evaluation board

2.1.2 Through hole connection

Through hole pin header connections

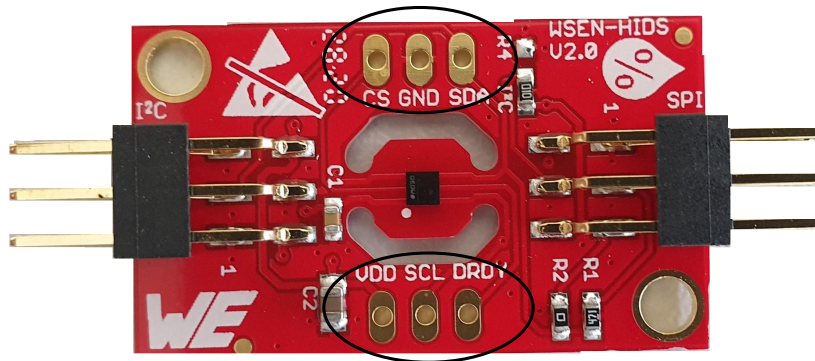


Figure 3: Through hole connection



Please refer to Table 1 for the pin description of the evaluation board.



Check if necessary for your configuration if the R1, R2 and R3 resistors have to be removed before connecting the evaluation board to a processor.

3 Evaluation board

3.1 Schematic diagram

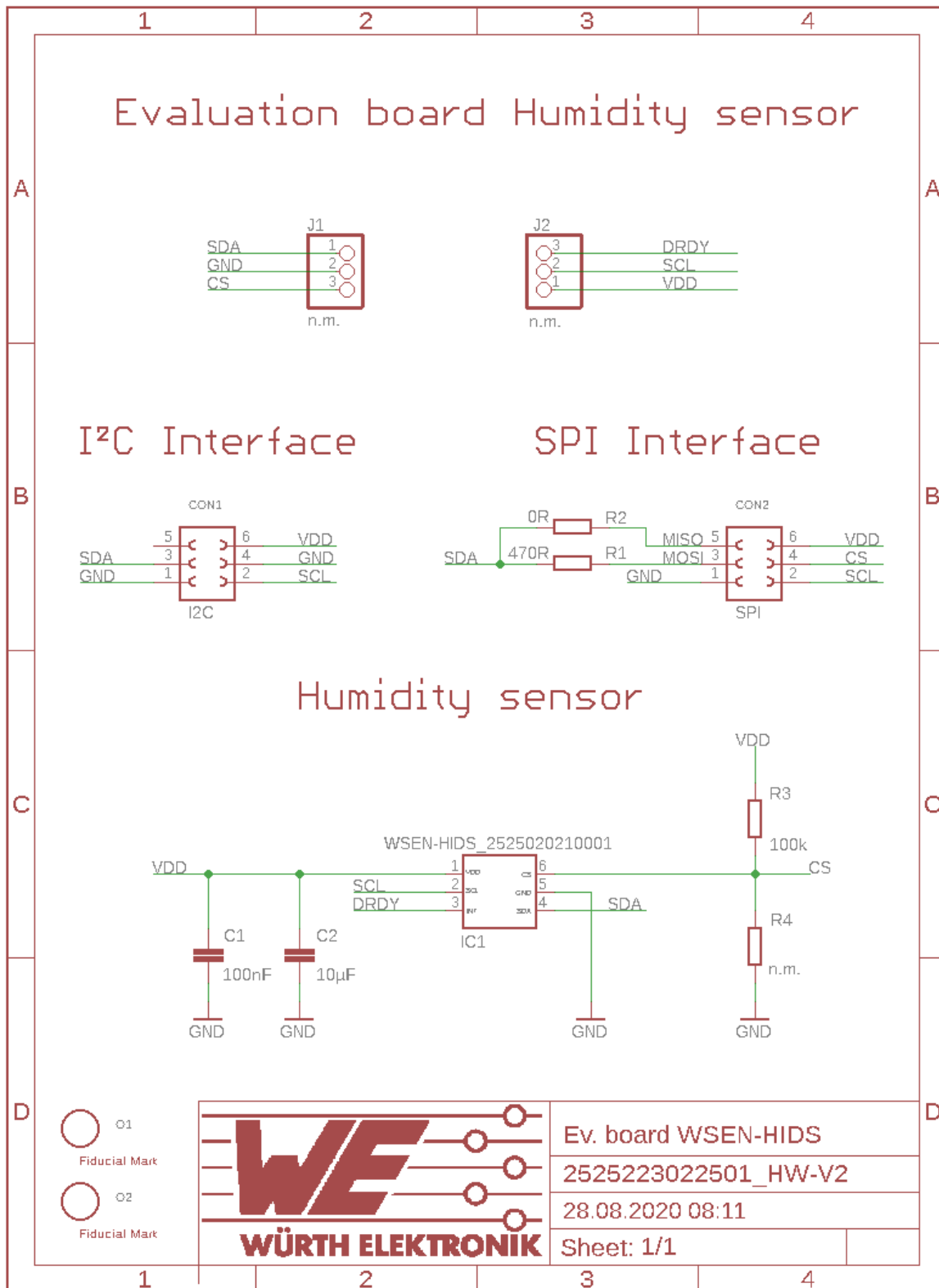


Figure 4: Schematic diagram

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