



USER MANUAL

EVALUATION BOARD FOR HUMIDITY
SENSOR HIDS

2525020210092

VERSION 1.0

SEPTEMBER 13, 2023

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

Revision history

Manual version	Product version	Notes	Date
1.0	1.0	<ul style="list-style-type: none">Initial release of the manual	September 2023

Abbreviations

Abbreviation	Description
I ² C	Inter Integrated Circuit
LSB	Least Significant Bit
MEMS	Micro Electro Mechanical System
SMD	Surface Mount Device

Contents

1	General description	4
1.1	Introduction	4
1.2	Pin header compatibility	4
2	Functional description	5
2.1	Evaluation board in operation	6
2.1.1	I ² C connection (CON1)	6
2.1.2	Through-hole connection	7
3	Evaluation board	8
3.1	Schematic diagram	8
3.2	Layout	9
3.3	Bill of materials	10
4	Important notes	11
4.1	General customer responsibility	11
4.2	Customer responsibility related to specific, in particular safety-relevant applications	11
4.3	Best care and attention	11
4.4	Customer support for product specifications	11
4.5	Product improvements	12
4.6	Product life cycle	12
4.7	Property rights	12
4.8	General terms and conditions	12
5	Legal notice	13
5.1	Exclusion of liability	13
5.2	Suitability in customer applications	13
5.3	Usage restriction	13
6	License terms for Würth Elektronik eiSos GmbH & Co. KG sensor product software and source code	15
6.1	Limited license	15
6.2	Usage and obligations	15
6.3	Ownership	16
6.4	Disclaimer of warranty	16
6.5	Limitation of liability	16
6.6	Applicable law and jurisdiction	16
6.7	Severability clause	17
6.8	Miscellaneous	17

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. sensor shield for Arduino (Part No. 2501000101291). It can be directly plugged into a sensor shield for Arduino using the mounted I²C pins. The evaluation board can also be mounted on a bread board using through-hole pin header connections. The humidity sensor (Part No: 2525020210002) is a 16-bit digital ultra-low-power module with an integrated temperature sensor.



Figure 1: Evaluation board of the humidity sensor

1.2 Pin header compatibility

6-pin right angle headers mounted on this evaluation board can be directly plugged into the sensor shield for Arduino. This provides a plug-and-play solution to quickly take the evaluation board into operation.



Sensor shield for Arduino is a stackable extension board for Arduino UNO and DUE to connect the sensor evaluation boards. More information can be found on our website [here](#).

2 Functional description

The humidity sensor evaluation board supports I²C communication interfaces.

- A positive supply voltage is applied to the sensor through the *VDD* pin and negative supply voltage through the *GND* pin.

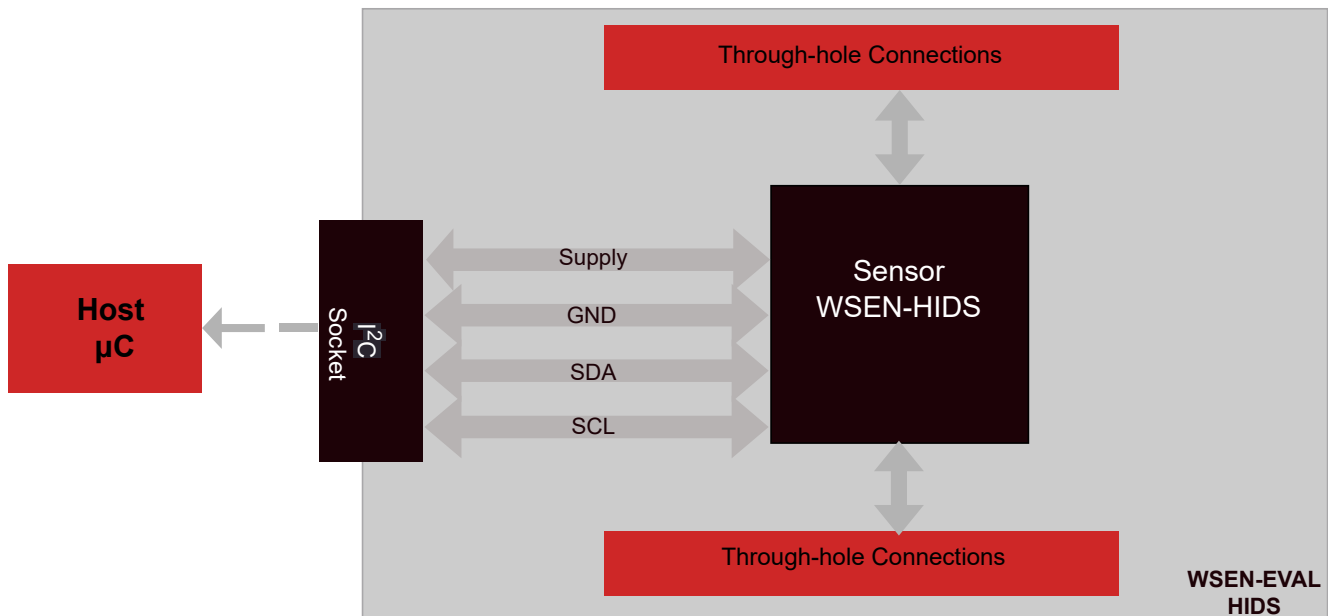


Figure 2: Block diagram



The 7-bit slave address of the humidity sensor is 1000100b (0x44)



Please refer to the datasheet and the user manual of the humidity sensor (Part No: 252502021002) for information about the electrical properties.

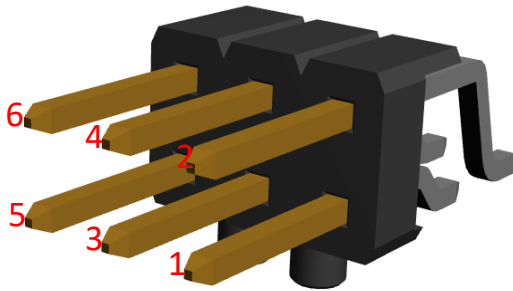
2.1 Evaluation board in operation

2.1.1 I²C connection (CON1)

The pinning of connector CON1 provides an I²C communication interface which fits directly into the sensor shield for Arduino in section 1.2.



Figure 3: Pin header connection to the external boards



Pin No	I ² C Pins (CON1)
1	<i>GND</i>
2	<i>SCL</i>
3	<i>SDA</i>
4	<i>NC</i>
5	<i>NC</i>
6	<i>VDD</i>

Table 1: Pin header to external boards



Please ensure to set pull-up resistors on the SDA and SCL bus lines on the master side.

2.1.2 Through-hole connection

The through-hole pin header connection gives direct access to each sensor pin. To use I²C via these through-hole connections, the SDA and SCL pins must be connected to VDD via pull-up resistors. Please refer to Table 2 for the pin description of the evaluation board.

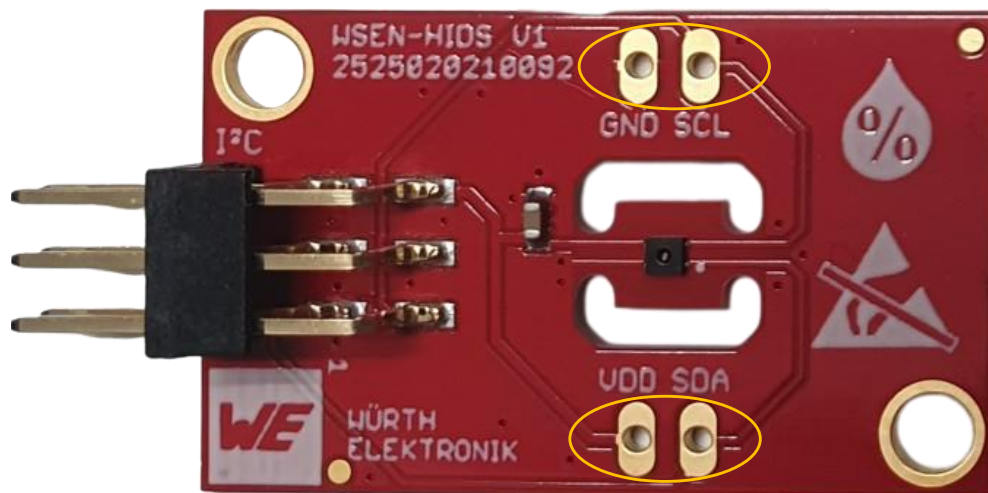


Figure 4: Through-hole connection

Pin No.	Evaluation board pins	Description	Input/Output
1	<i>GND</i>	Negative supply voltage	Supply
2	<i>SCL</i>	I ² C serial clock	Input
3	<i>VDD</i>	Positive supply voltage	Supply
4	<i>SDA</i>	I ² C serial data	Input/Output

Table 2: Pin description

3.1 Schematic diagram



3.2 Layout

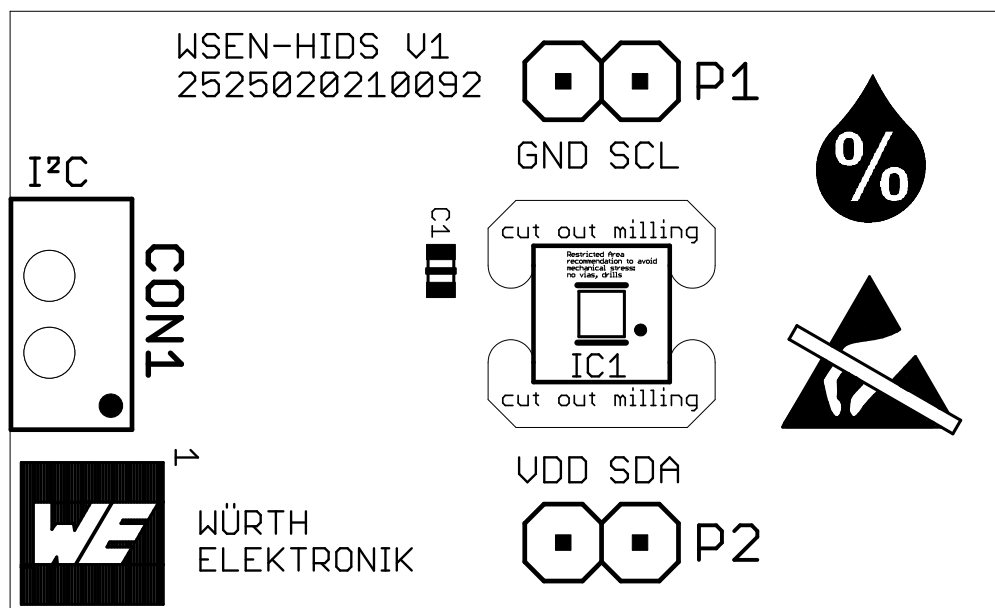


Figure 6: Assembly diagram

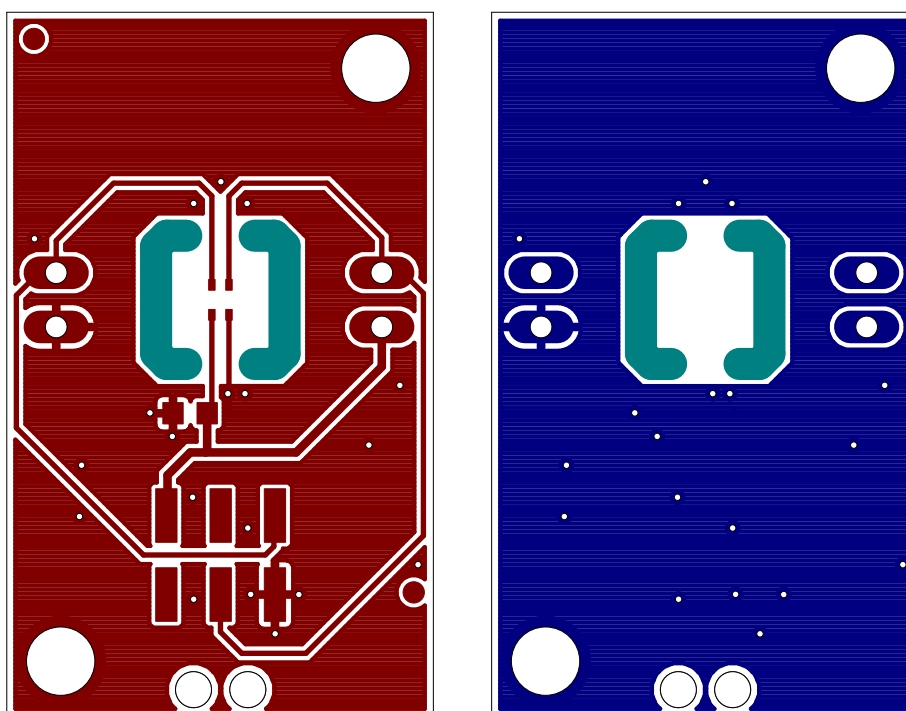


Figure 7: Top layer (left), bottom layer (right)

3.3 Bill of materials

Part	Value	Pack	Manufacturer	NR
C1	100nF	0603	Würth Elektronik eiSos	885012206095
CON1	2x3	SMT	Würth Elektronik eiSos	610106249121
IC1	WSENS-HIDS	SMT	Würth Elektronik eiSos	2525020210002
P1	n.m.	THT	n.m.	n.m.
P2	n.m.	THT	n.m.	n.m.

Table 3: Bill of materials



You can order the parts P1 and P2 from our website and the order code is **61300211121**

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List of Figures

1	Evaluation board of the humidity sensor	4
2	Block diagram	5
3	Pin header connection to the external boards	6
4	Through-hole connection	7
5	Schematic diagram	8
6	Assembly diagram	9
7	Top layer (left), bottom layer (right)	9

List of Tables

1	Pin header to external boards	6
2	Pin description	7
3	Bill of materials	10

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