



EVALUATION BOARD MANUAL

ABSOLUTE PRESSURE SENSOR

Evaluation board order code	Sensor order code
2511223013391	2511020213301

VERSION 1.0

JUNE 24, 2019

Revision history

Manual version	Product version	Notes	Date
1.0	1.0	<ul style="list-style-type: none">Initial release of the manual	June 2019

Abbreviations

Abbreviation	Description
I ² C	Inter integrated circuit
MEMS	Micro electro mechanical system
LSB	Least significant bit

Contents

1	General description	4
1.1	Introduction	4
2	Functional description	5
2.1	Evaluation board in operation	6
2.1.1	Pin header connection	6
2.1.2	Through hole connection	7
3	Evaluation board	8
3.1	Schematic diagram	8
4	Important notes	9
4.1	General customer responsibility	9
4.2	Customer responsibility related to specific, in particular safety-relevant applications	9
4.3	Best care and attention	9
4.4	Customer support for product specifications	9
4.5	Product improvements	10
4.6	Product life cycle	10
4.7	Property rights	10
4.8	General terms and conditions	10
5	Legal notice	11
5.1	Exclusion of liability	11
5.2	Suitability in customer applications	11
5.3	Usage restriction	11
6	License terms for Würth Elektronik eiSos GmbH & Co. KG sensor product software and source code	13
6.1	Limited license	13
6.2	Usage and obligations	13
6.3	Ownership	14
6.4	Disclaimer of warranty	14
6.5	Limitation of liability	14
6.6	Applicable law and jurisdiction	14
6.7	Severability clause	15
6.8	Miscellaneous	15

1 General description

1.1 Introduction

The evaluation board of the absolute pressure sensor provides an opportunity to verify the sensor performance and develop a prototype using an external processor e.g. Amber Pi design kit (Part No: 2609017281001). It can be directly plugged to Amber Pi design kit using the mounted I²C interface pins. It can also be placed on a bread board using through hole pin header connections. The absolute pressure sensor (Part No: 2511020213301) is a 24-bit compact piezo-resistive digital pressure sensor with an I²C digital interface.

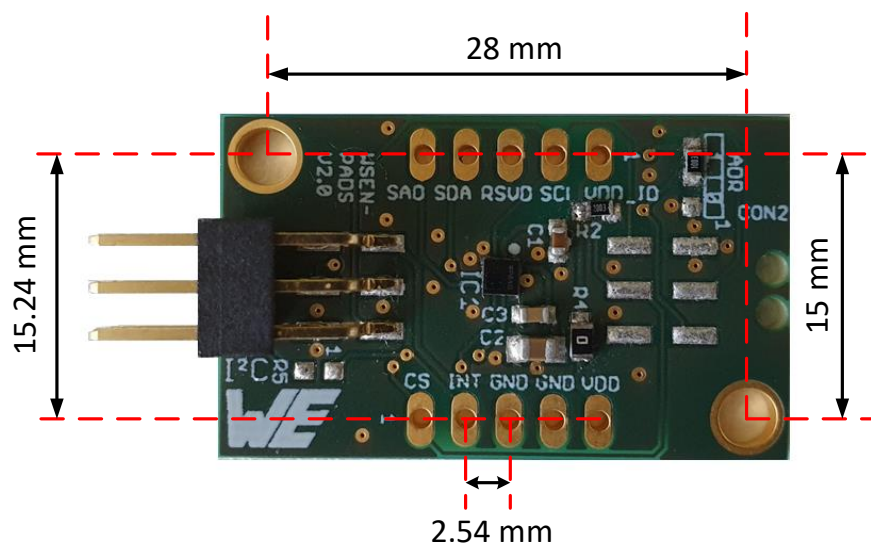


Figure 1: Evaluation board for the absolute pressure sensor

2 Functional description

The absolute pressure sensor evaluation board supports the standard I²C communication interface.

- A positive supply voltage is applied to the sensor through *VDD* pin and I/O supply voltage for digital interface through *VDD_IO* pin. The *VDD* and *VIO* pins on the board are connected together using 0Ω resistor R1.
- The I²C communication is enabled by connecting *CS* pin to *VDD_IO*. The *CS* pin is connected to *VDD_IO* using 100kΩ resistor R3. The I²C address of the sensor can be configured using the *SAO* pin.
- The 7-bit slave address of the absolute pressure sensor is 101110xb. LSB of the 7-bit slave address can be modified using the *SAO* pin.



By default the 7-bit slave address of the absolute pressure sensor on the evaluation board is 1011101b (0x5D). i.e. *SAO* pin of the sensor is connected to *VDD_IO* using 100kΩ resistor ADR.



The 7-bit slave address of the absolute pressure sensor can be changed to 1011100b (0x5C) by removing 100kΩ resistor ADR from '1' part and mounting it on the '0' part of the evaluation board. i.e. *SAO* pin is connected to *GND* using 100kΩ resistor ADR.

Pin No.	Name	Function	I/O	Comments
1	<i>VDD_IO</i>	Positive supply voltage for I/O pins	Supply	
2	<i>SCL</i>	I ² C serial clock	Input	Internal pull-up disconnected by default
3	<i>RSVD</i>	Reserved	Input	Connect to ground
4	<i>SDA</i>	I ² C serial data	Input/Output	Internal pull-up disconnected by default
5	<i>SAO</i>	I ² C device address selection	Input	High: device address LSB is 1 Low: device address LSB is 0
6	<i>CS</i>	I ² C enable/disable	Input	High: I ² C enable
7	<i>INT</i>	Interrupt	Output	Do not connect if not used
8	<i>GND</i>	Negative supply voltage	Supply	
9	<i>GND</i>	Negative supply voltage	Supply	
10	<i>VDD</i>	Positive supply voltage	Supply	

Table 1: Pin description



Please refer to the data sheet of the absolute pressure sensor (Part No: 2511020213301) for more information about the electrical properties.

2.1 Evaluation board in operation

2.1.1 Pin header connection

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

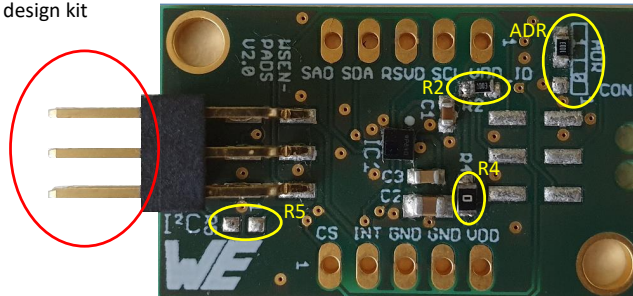
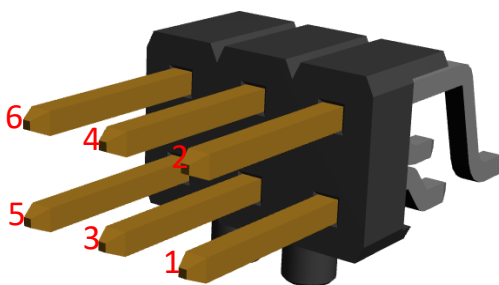


Figure 2: Pin header connection to the external boards. e.g. Amber Pi design kit



No	Description
1	<i>GND</i>
2	<i>SCL</i>
3	<i>SDA</i>
4	<i>GND</i>
5	<i>INT</i>
6	<i>VDD</i>

Table 2: Pin header to the external boards



When the evaluation board is connected to Amber Pi design kit using I²C interface pins, INT interrupt pin function will not be available.

Resistor	Description
R2	I ² C enabled. CS is connected to VDD_IO
R4	VDD and VDD_IO pins are connected together
R5	Open. It should be connected if the interrupt function on INT pin is necessary
ADR	I ² C address of the sensor is 1011101b. SAO is connected to the VDD_IO

Table 3: Functionality of the resistors on the evaluation board

2.1.2 Through hole connection

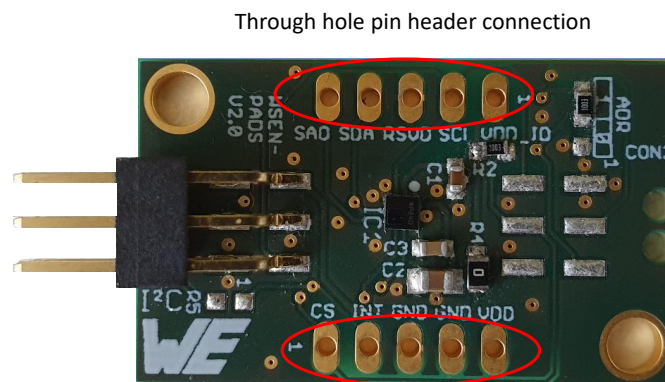


Figure 3: Through hole connection



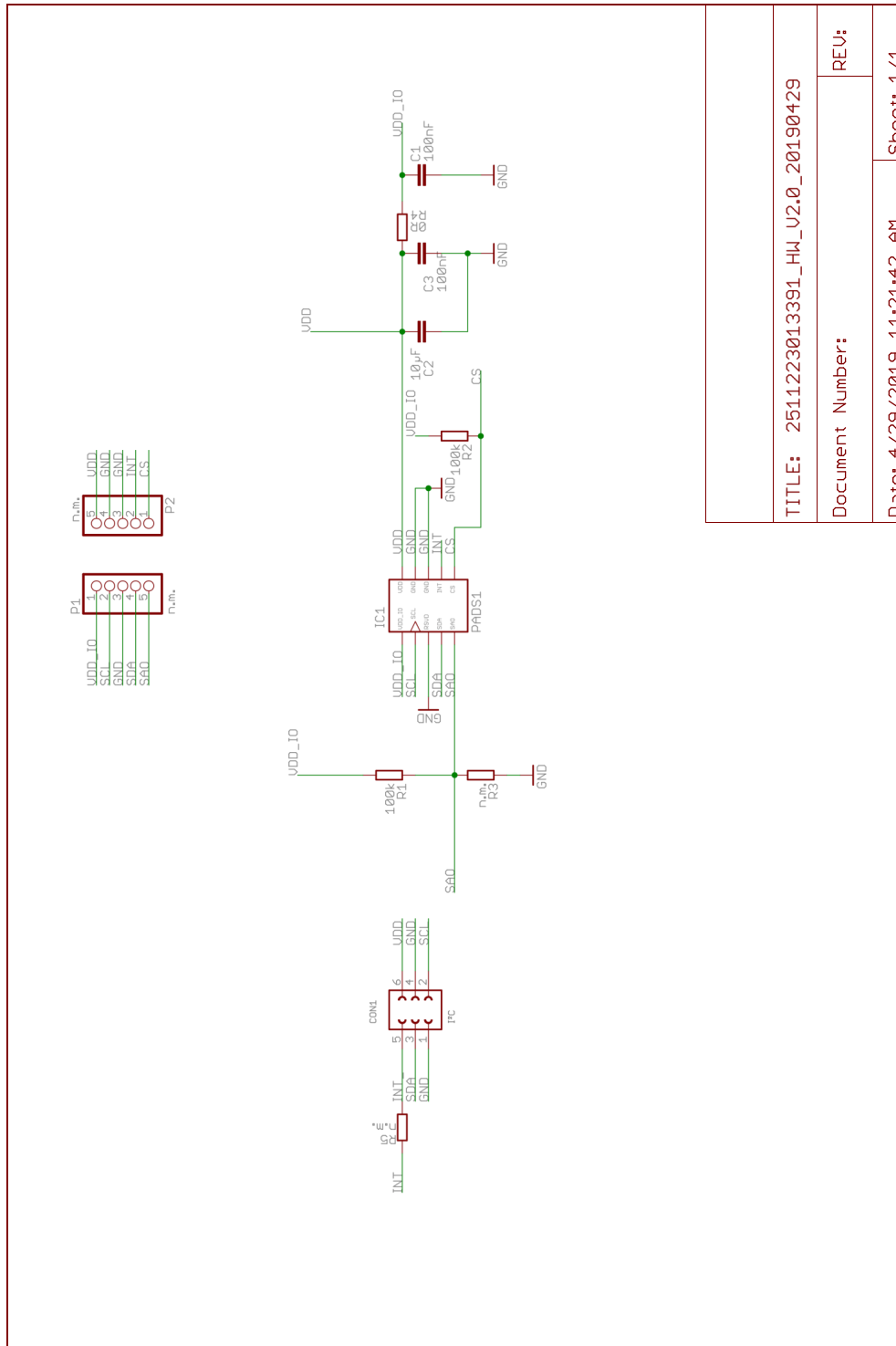
Pleaser refer to Table 1 for the pin description of the evaluation board.



Check if necessary for your configuration that R2, R4 and ADR resistors have to be removed before connecting the evaluation board to a processor.

3 Evaluation board

3.1 Schematic diagram



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Date: 4/29/2019 11:21:42 AM Sheet: 1/1

Figure 4: Schematic diagram

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List of Figures

1	Evaluation board for the absolute pressure sensor	4
2	Pin header connection to the external boards. e.g. Amber Pi design kit	6
3	Through hole connection	7
4	Schematic diagram	8

List of Tables

1	Pin description	5
2	Pin header to the external boards	6
3	Functionality of the resistors on the evaluation board	7



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