

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

KEEP IT SIMPLE! SENSE WITH **MEMS**



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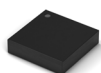
MEMS Sensor Portfolio & Customer Service

Sensors are an integral part of every future application. Measuring temperature, humidity, pressure or acceleration has never been easier. Take advantage of services like our Software Development Kit and Evaluation Boards available off-the-shelf. Detailed documentations as well as the direct support by trained engineers will leave no questions open. With excellent measuring accuracy and long-term stability, the sensors provide high precision and accurate output values with intelligent on-chip interrupt functions.

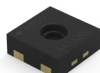
Combine sensors and wireless connectivity – start your IoT application today:

www.we-online.com/sensors

- Support by engineers within 24 h
- Cut&Tape: No MOQ and small packing units
- Long term availability
- Small size
- Low power consumption
- Excellent measuring accuracy
- Factory calibrated & ready to use
- SPI & I²C digital interfaces



Temperature Sensor IC
WSEN-TIDS



Humidity
WSEN-HIDS



3 Axis Acceleration
WSEN-ITDS



6 Axis Acceleration
WSEN-ISDS

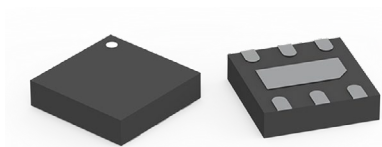


Absolute Pressure
WSEN-PADS



Differential Pressure
WSEN-PDUS

#SensewithMEMS

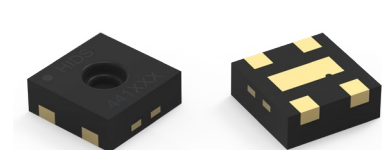


WSEN-TIDS
Temperature Sensor IC



- Silicon based digital temperature sensor
- High accuracy (up to ± 0.25 °C typ.)
- Fully calibrated 16 bit temperature output
- Low current consumption of 1.75 μ A typ
- Size: 2 x 2 x 0.55 mm
- Selectable output data rate up to 200 Hz
- I²C digital communication interface
- Programmable temperature threshold and interrupt
- 2 selectable I²C addresses

Order Code	T _{RANGE min} (°C)	T _{RANGE max} (°C)	RES _T (bits)	ODR _{min} (Hz)	ODR _{max} (Hz)	V _{DD min} (V)	V _{DD max} (V)
2521020222501	-40	125	16	25	200	1.5	3.6
T _{RANGE} : Measurement range [min.]; RES _T : Resolution [typ.]; ODR _{min} : Output data rate [min.]; ODR _{max} : Output data rate [max.]; V _{DD min} : Operating supply voltage [min.]; V _{DD max} : Operating supply voltage [max.]							

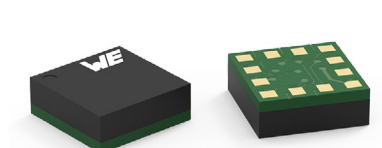


WSEN-HIDS
Humidity Sensor with integrated
Temperature Sensor



- MEMS based capacitive sensing principle
- Relative humidity range 0% to 100%
- Humidity accuracy: $\pm 1.8\%$ rH, (20 to 80% rH); $\pm 3\%$ rH, (0 to 100% rH)
- Fully calibrated 16 bit humidity and temperature output
- Size: 1.5 x 1.5 x 0.5 mm
- I²C communication interface
- Selectable output data rate up to 1 Hz
- Operating temperature range: -40 °C to 125 °C
- Temperature accuracy T_{ACC}: ± 0.2 - ± 0.6 °C

Order Code	H _{RANGE min} (% rH)	H _{RANGE max} (% rH)	RES _T (bits)	ODR 1Hz	V _{DD min} (V)	V _{DD max} (V)
2525020210002	0	100	16	1	1.08	3.6
H _{RANGE min} : Measurement range [min.]; H _{RANGE max} : Measurement range [max.]; RES _T : Resolution [typ.]; ODR: Output data rate; V _{DD min} : Operating supply voltage [min.]; V _{DD max} : Operating supply voltage [max.]						

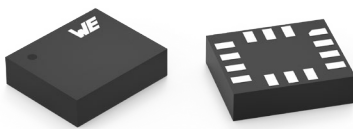


WSEN-ITDS
3 Axis Acceleration Sensor



- MEMS based capacitive sensing principle
- 14 bit output resolution
- Full scale ± 2 g, ± 4 g, ± 8 g, ± 16 g
- Output data rate up to 1600 Hz
- 32 level FIFO buffer
- Size: 2 x2 x 0.7 mm
- Embedded temperature sensor
- I²C and SPI communication interface
- Temperature range: -40 °C up to +85 °C

Order Code	a _{RANGE}	RES _a (bits)	ODR _{max} (Hz)	f _{BW} (Hz)	V _{DD min} (V)	V _{DD max} (V)
2533020201601	$\pm 2/ \pm 4/ \pm 8/ \pm 16$ g	14	1600	400	1.7	3.6
a _{RANGE} : Acceleration range [typ.]; RES _a : Resolution [max.]; ODR _{max} : Output data rate [max.]; f _{BW} : Bandwidth [max.]; V _{DD min} : Operating supply voltage [min.]; V _{DD max} : Operating supply voltage [max.]						

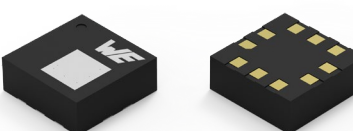


WSEN-ISDS
6 Axis Acceleration Sensor



- MEMS based capacitive sensing principle
- Application specific functionality: Free-fall, wake-up, tap, activity, motion, tilt and orientation detection
- Fully calibrated 16 bit output
- Acceleration full scale: ± 2 g, ± 4 g, ± 8 g, ± 16 g
- Output data rate: 6.6 kHz
- Size: 3 x 2.5 x 0.86 mm
- Gyroscope full scale: ± 125 dps up to ± 2000 dps
- Embedded temperature sensor
- Temperature range: -40 °C up to +85 °C
- I²C and SPI digital communication interface

Order Code	a _{RANGE}	g _{RANGE}	RES _a (bits)	RES _g (bits)	ODR _{max} (Hz)	V _{DD min} (V)	V _{DD max} (V)
2536030320001	$\pm 2/ \pm 4/ \pm 8/ \pm 16$ g	$\pm 125/ \pm 250/ \pm 500/ \pm 1000/ \pm 2000$ dps	16	16	6664	1.71	3.6
a _{RANGE} : Acceleration range [typ.]; RES _a : Resolution [max.]; ODR _{max} : Output data rate [max.]; f _{BW} : Bandwidth [max.]; V _{DD min} : Operating supply voltage [min.]; V _{DD max} : Operating supply voltage [max.]							

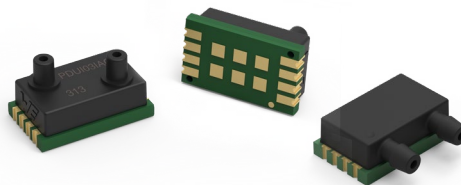


WSEN-PADS
Absolute Pressure Sensor



- MEMS based piezo-resistive sensing principle
- 24 bit pressure output resolution
- Selectable output data rate up to 200 Hz
- 128 level FIFO buffer
- Low current consumption of 0.9 μ A typ.
- Size: 2 x 2 x 0.8 mm
- Embedded temperature sensor (16 bit / ± 1.5 °C)
- I²C and SPI communication interface
- Application specific interrupt event setting
- Temperature range: -40 °C up to +85 °C (16-bits)
- ± 1 mbar absolute accuracy

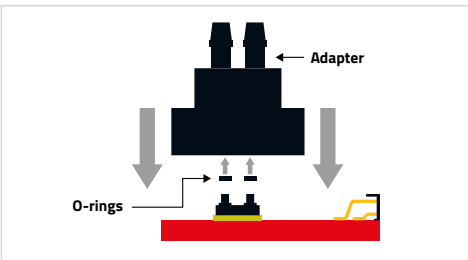
Order Code	P _{RANGE min} (kPa)	P _{RANGE max} (kPa)	RES _p (bits)	ODR _{min} (Hz)	ODR _{max} (Hz)	V _{DD min} (V)	V _{DD max} (V)
2511020213301	26	126	24	1	200	1.7	3.6
P _{RANGE min} : Measurement range [min.]; P _{RANGE max} : Measurement range [max.]; RES _p : Resolution (ADC) [typ.]; ODR _{min} : Output data rate [min.]; ODR _{max} : Output data rate [max.]; V _{DD min} : Operating supply voltage [min.]; V _{DD max} : Operating supply voltage [max.]							



WSEN-PDUS
Differential Pressure Sensor

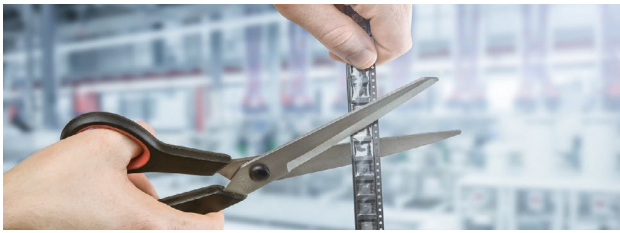


- MEMS based piezo-resistive sensing principle
- Very high accuracy (up to ± 0.25 % FSS tolerance)
- Different transfer functions from ± 0.1 kPa to 1 MPa
- 15 bit digital & 11 bit analog pressure output resolution
- Size: 13.8 x 8 x 7.55 mm
- Embedded temperature sensor
- Analog & I²C digital communication interface
- Temperature range: -25 °C up to +85 °C

Order Code	P _{RANGE min} (kPa)	P _{RANGE max} (kPa)	ACC _{p_TOT}	V _{DD min} (V)	V _{DD max} (V)	Nozzles	Adapters available	
2513130810001	-0.1	0.1	±2.5 %FSS	4.75	5.25	vertical	2500281615401	Adapter, o-rings, mounting material
2513130810101	-1	1	±0.75 %FSS				2500281615402	Adapter, o-rings
2513130810201	-10	10	±0.75 %FSS					
2513130810401	-100	1000	±0.25 %FSS					
2513130810301	0	100	±0.25 %FSS					
2513130815401	0	1500	±0.25 % FSS	3	3.6	horizontal		
2513130810102	-1	1	±0.75 %FSS			vertical		
2513130810402	-100	1000	±0.25 %FSS			vertical		
P _{RANGE min} : Measurement range [min.]; P _{RANGE max} : Measurement range [max.]; ACC _{p_TOT} : Total accuracy [typ.]; V _{DD min} : Operating supply voltage [min.]; V _{DD max} : Operating supply voltage [max.]								

Other product properties available: E.g. measuring range, 3.3 V, SPI & horizontal nozzles

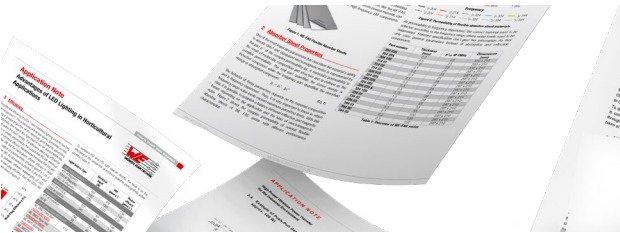
MORE THAN YOU EXPECT



CUT&TAPE: NO MOQ AND SMALL PACKING UNITS



ALL CATALOGUE PRODUCTS AVAILABLE EX STOCK



APPLICATION NOTES



COMPONENT LIBRARIES

MORE ADDED VALUES

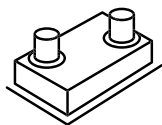


Long Term Availability



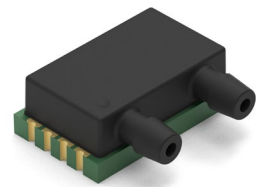
Technical Support –
Talk from Engineer to Engineer

Custom Sensor Characterization

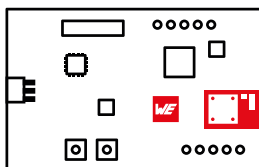


001101
010100
101101

1. PRESSURE RANGE
2. RESOLUTION
3. SUPPLY VOLTAGE
4. INTERFACE
5. NOZZLE VARIANT



Evaluation Kits and FeatherWings for easy and rapid prototyping

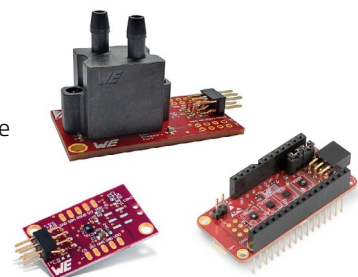


Eval Boards

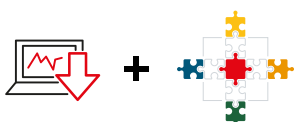
- Easy testing
- No problem with hand soldering of small sensors
- I²C and/or SPI directly accessible

FeatherWing

- Adafruit standard
- Easy connectable
- For complex system tests



APIs and Software Development Kits



SDK & Github Repositories:
github.com/WurthElektronik/



Zephyr Sensor Driver:
we-online.com/ANR034

