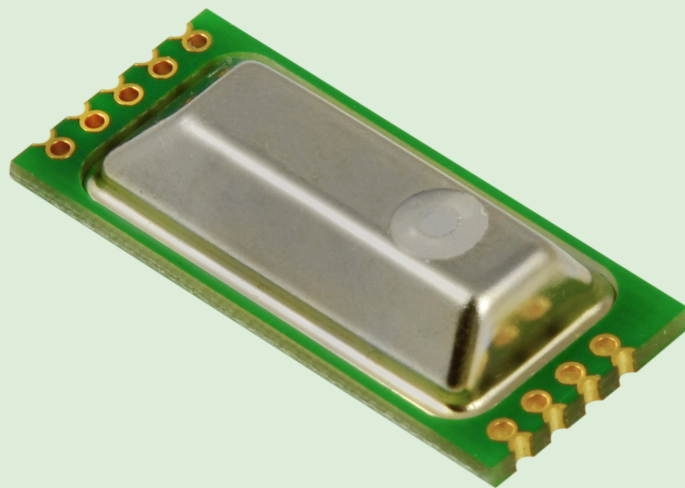


+ Datasheet EE895

**Miniature Sensor Module for CO₂,
Temperature and Barometric Pressure**



EE895

Miniature Sensor Module for CO₂, Temperature and Barometric Pressure

The EE895 is the ideal measurement module for sensors and transmitters used in demand controlled ventilation, building automation and process control. Due to the low power consumption, the module is also suitable for battery operated devices such as handhelds, data loggers and wireless transmitters.

CO₂ Measurement Performance

The CO₂ measurement is based on the dual wavelength NDIR principle, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability. A multiple point CO₂ and temperature factory adjustment procedure leads to excellent CO₂ measurement accuracy over the entire temperature working range.

Versatile: 3 in 1

Besides CO₂, the EE895 also measures temperature (T) and barometric pressure (p). The temperature and pressure compensation with on-board sensors minimizes the impact of altitude and ambient conditions onto the CO₂ measured data.

Digital Interfaces

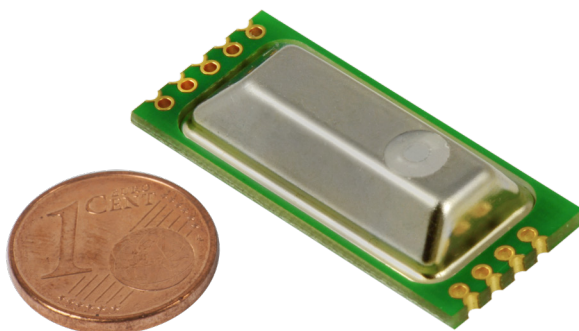
The CO₂, temperature and pressure measured data is available on the I²C or the UART digital interface.

Configurable

The EE895 can be configured via digital interface. The CO₂ measurement interval can be set according to the application and the power requirements.

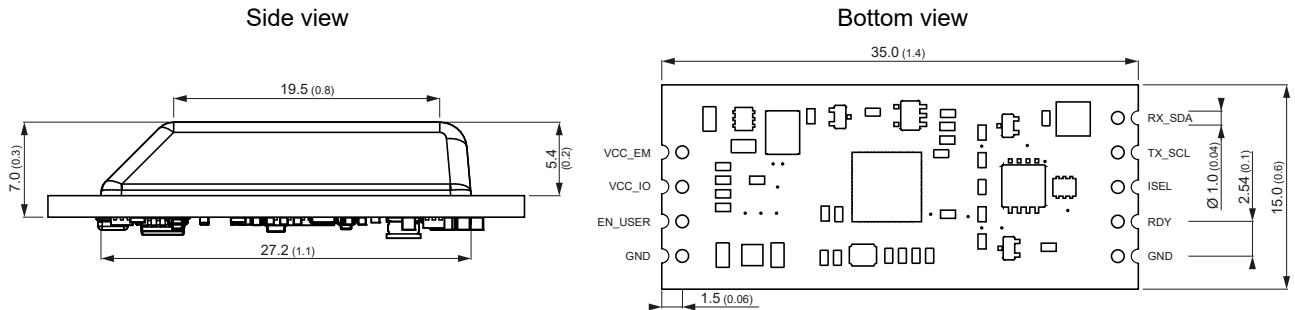
Key Features

- Dual wavelength NDIR with autocalibration
- Temperature and pressure compensation of the CO₂ measurement
- Very low power consumption and peak current
- I²C or UART interface



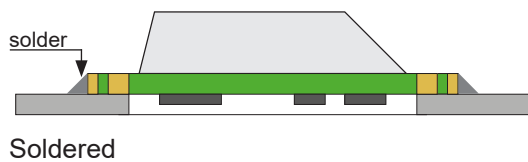
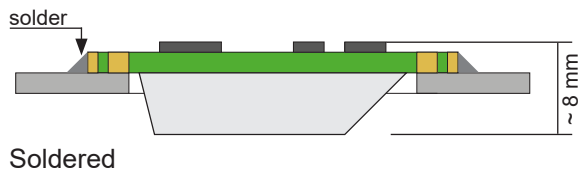
Dimensions

Values in mm (inch)

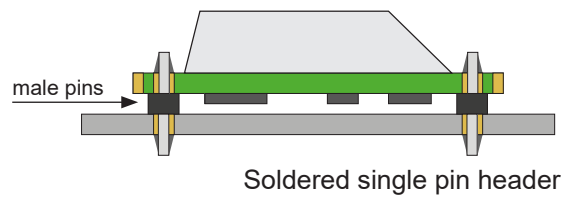
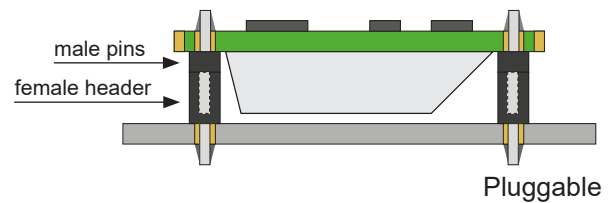


Mounting Examples

Via side plated contacts



Via solder pads



Technical Data

Measurands

CO₂

Measurement principle	Dual wavelength non-dispersive infrared technology (NDIR)
Measuring range	0...2000 / 5000 / 10000 ppm
Accuracy¹⁾ @ 25 °C (77 °F) and 1013 mbar (14.7 psi) 0...2000 ppm 0...5000 ppm 0...10000 ppm	< ±(50 ppm +2 % of measured value) < ±(50 ppm +3 % of measured value) < ±(100 ppm + 5 % of measured value)
T and p compensation of the CO₂ reading	With on-board sensors
Temperature dependency, typ.	±(1 + CO ₂ concentration [ppm] / 1000) ppm/°C (-20...45 °C) (-4...113 °F)
Residual pressure dependency²⁾, typ.	±0.014 % of the measured value / mbar (ref. to 1013 mbar)
Initialisation time (power on)	< 1 s
Response time t₆₃	140 s with measured data averaging (smooth output) 75 s without measured data averaging
Sampling interval	User configurable from 10 s up to 1 h; factory setup = 15 s
Calibration interval³⁾	5 years

1) With data averaging for smooth output signal. Operation without measured data averaging or in short-time mode might lead to additional measurement uncertainty.

2) The pressure dependency of a device without pressure compensation: 0.14 % of measured value / mbar.

3) Recommended under normal operating conditions in building automation.

Pressure (p)

Working range	700...1100 mbar (10.15...15.95 psi)
Accuracy, typ. @ 25 °C (77 °F)	±2 mbar (20...80 %RH)
Temperature dependency, typ.	±0.015 mbar/K

Temperature (T)

Measuring range	-40...60 °C (-40...140 °F)
Accuracy @ 24 V DC, 20 °C (68 °F)	±0.5 °C (±0.9 °F)

General

Digital interface (pin-selectable)	I²C UART	Up to 100 kbit/s 9600 Baud, 8 bits, no parity, 1 stop bit
Module control	Enable pin Data ready pin	Continuous operation / power down Indication of valid data
Supply voltage		3.3 - 5 V DC ± 5 %
Average current consumption , typ. for supply voltage 5 V		1.6 mA at 15 s sampling interval 196 µA at 1 h sampling interval with standby between measurements 8 µA at 1h sampling interval with power down between measurements
Current profile CO₂ typical values for supply voltage 5 V		<p>6 mA Idle Measurement 67 mA IR Lamp pulse 188 µA Standby / power off 300 ms 300 ms Sampling interval 15 s (configurable 10 s ... 1 h)</p>
Electrical connection		Side plated contacts and solder pads, Ø 1 mm (0.04")
Working and storage conditions		-40...60 °C (-40...140 °F) 0...95 %RH (non-condensing) 700...1100 mbar (10...16 psi)

Ordering Guide

Feature	Description	Code
		EE895-
Model	CO ₂ + T + p	M16
CO₂ measuring range	0...2000 ppm	HV1
	0...5000 ppm	HV2
	0...10000 ppm	HV3

Order Example

EE895-M16HV1

Feature	Code	Description
Model	M16	CO ₂ + T + p
CO₂ measuring range	HV1	0...2000 ppm

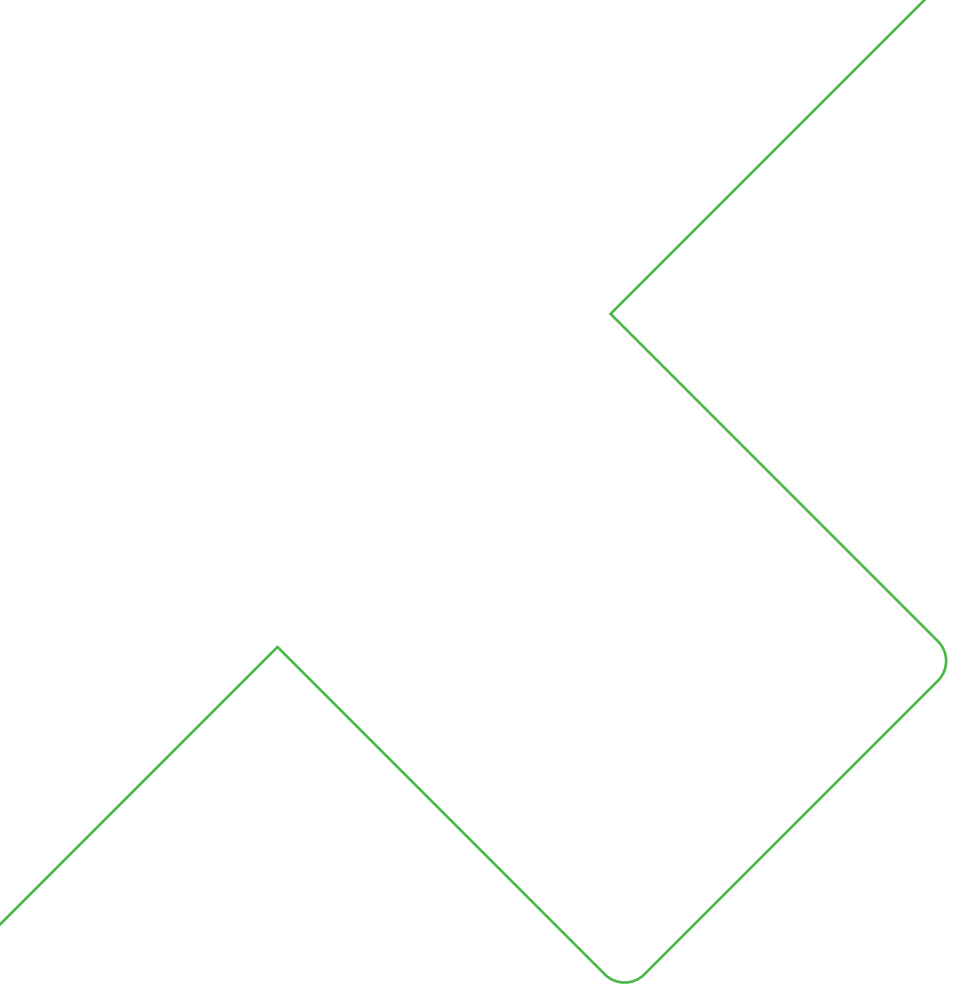
Accessories

Description	Code
EE895 Evaluation Board	HA011019

For further information see [datasheet Evaluation Board EE895](#) and [quick guide Evaluation Board EE895](#).

Support Literature

www.epluse.com/ee895



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