

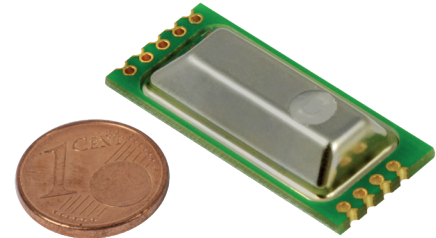
# EE895

## Miniature Sensor Module for CO<sub>2</sub> 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.

### CO<sub>2</sub> Measurement Performance

The CO<sub>2</sub> 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 CO<sub>2</sub> and temperature factory adjustment procedure leads to excellent CO<sub>2</sub> measurement accuracy over the entire temperature working range.



### Versatile: 3 in 1

Besides CO<sub>2</sub>, 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 CO<sub>2</sub> measured data.

### Digital Interfaces

The CO<sub>2</sub>, temperature and pressure measured data is available on the I<sup>2</sup>C or the UART digital interface.

### Configurable

The EE895 can be configured via digital interface. The CO<sub>2</sub> 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 CO<sub>2</sub> measurement
- Very low power consumption and peak current
- I<sup>2</sup>C or UART interface

## Technical Data

### Measurands

<b>CO<sub>2</sub></b>	
Measurement principle	Dual wavelength NDIR (non-dispersive infrared technology)
Working range	0...2000 / 5000 / 10000 ppm
Accuracy at 25 °C and 1013 mbar <sup>1)</sup>	0...2000 ppm < ± (50 ppm + 2 % of the measured value)
(77 °F and 14.69 psi)	0...5000 ppm < ± (50 ppm + 3 % of the measured value)
	0...10000 ppm < ± (100 ppm + 5 % of the measured value)
T and p compensation of the CO <sub>2</sub> reading	With on-board sensors
Initialisation time (power on)	< 1 s
Response time t <sub>63</sub>	140 s with measured data averaging (smooth output) 75 s without measured data averaging
Temperature dependency, typ.	± (1 + CO <sub>2</sub> concentration [ppm] / 1000) ppm/°C (-20...45 °C) (-4...113 °F)
Residual pressure dependency <sup>2)</sup> , typ.	± 0.014 % of the measured value / mbar (ref. to 1013 mbar)
Calibration interval <sup>3)</sup>	5 years
Sampling interval	User configurable from 10 s up to 1 h; factory setup = 15 s
<b>Pressure</b>	
Working range	700...1100 mbar (10.15...15.95 psi)
Accuracy at 25 °C (77 °F), typ.	± 2 mbar (20...80 % RH)
Temperature dependency	± 0.015 mbar/K
<b>Temperature</b>	
Working range	-40...60 °C (-40...140 °F)
Accuracy at 25 °C (77 °F), typ.	± 0.5 °C (± 0.9 °F)

1) With data averaging for smooth output signal.

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.

## General

### Digital interface (pin-selectable)

I<sup>2</sup>C

Up to 100 kbit/s

UART

9600 Baud, 8 bits, no parity, 1 stop bit

### Module control

Enable pin

Continuous operation / power down

Data ready pin

Indication of valid data

Supply voltage

3.3 - 5 V DC  $\pm$  5 %

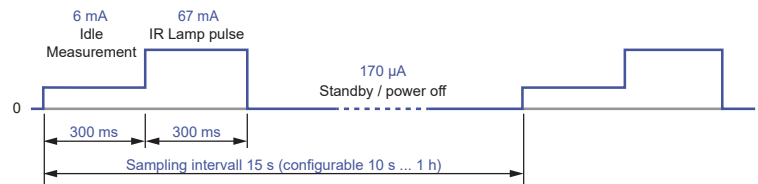
Average current consumption for supply voltage 5 V, typ.

1.6 mA at 15 s sampling interval

177  $\mu$ A at 1 h sampling interval with standby between measurements

7  $\mu$ A at 1h sampling interval with power down between measurements

Current profile for supply voltage 5 V, typical values



Electrical connection

Side plated contacts and solder pads,  $\varnothing$  1 mm (0.04")

Working and storage conditions

-40...60 °C (-40...140 °F)

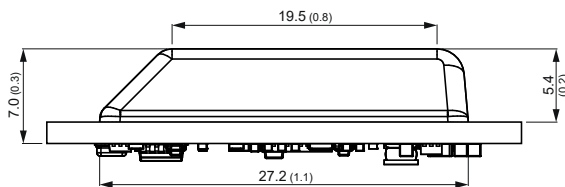
0...95 % RH (non-condensing)

700...1 100 mbar (10...16 psi)

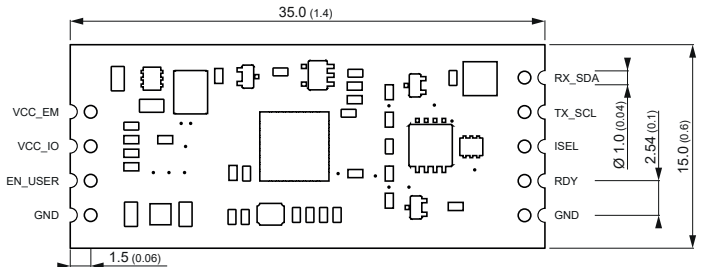
## Dimensions

Values in mm (inch)

Side view

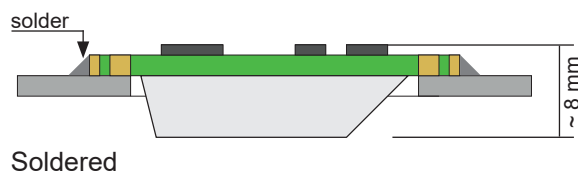


Bottom view

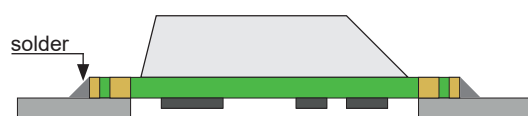


## Mounting Examples

### Via side plated contacts

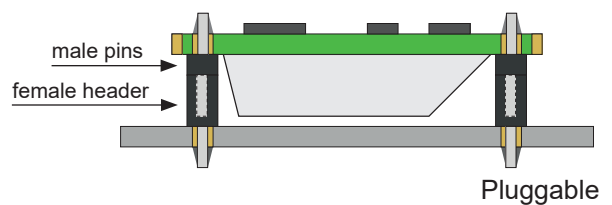


Soldered

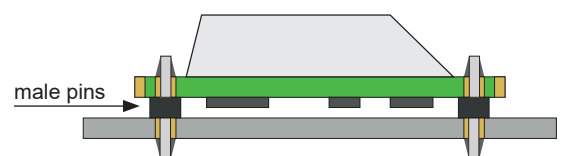


Soldered

### Via solder pads



Pluggable



Soldered single pin header

## Accessories (see also the EE895 Evaluation Board Quick Guide)

EE895 Evaluation Board

HA011019

## Ordering Guide

		EE895
Model	CO <sub>2</sub> + T + p	M16
CO <sub>2</sub> measuring range	0...2000 ppm	HV1
	0...5000 ppm	HV2
	0...10000 ppm	HV3

## Order Example

**EE895-M16HV1**

Model: CO<sub>2</sub> + T + p  
CO<sub>2</sub> measuring range: 0...2000 ppm

## Support Literature

[www.epluse.com/EE895](http://www.epluse.com/EE895)