

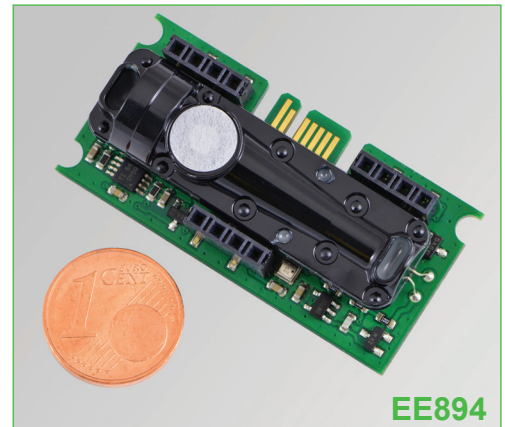
# EE894

## Digital Sensor Module for CO<sub>2</sub>, Temperature, Humidity and Ambient Pressure

The EE894 module is ideal for demand controlled ventilation and building automation. It incorporates the E+E dual wavelength NDIR CO<sub>2</sub> sensor, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability. Beside CO<sub>2</sub>, the module measures also relative humidity (RH), temperature (T) and ambient pressure (p).

A multiple point CO<sub>2</sub> and T factory adjustment procedure leads to excellent CO<sub>2</sub> measurement accuracy over the entire T working range. The pressure compensation minimizes the impact of altitude and ambient pressure variations onto the CO<sub>2</sub> measured data.

The measured data, with a range of up to 1% CO<sub>2</sub>, is available on the I<sup>2</sup>C or the E2 digital interface. The EE894 is available in two sizes and with electrical connection via contact pins and pads, which facilitate the design-in.



An optional kit for the E2 interface facilitates easy configuration of the module and the adjustment of the CO<sub>2</sub>, RH, T and p measurement. The CO<sub>2</sub> measurement interval can be set according to the application requirements; by this the average current consumption can be reduced to 420 µA, ideal for battery-operated devices.

### Typical Applications

Demand controlled ventilation  
Building automation  
Data loggers and hand helds  
Wireless transmitters

### Key features

Autocalibration  
Outstanding long-term stability  
Temperature and pressure compensated  
Low power consumption  
Small size

### Technical Data

#### Measured values

##### CO<sub>2</sub>

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> (77 °F and 14.69 psi)	0...2000 ppm:	< ± (50 ppm +2% of the measured value)
	0...5000 ppm:	< ± (50 ppm +3% of the measured value)
	0...10000 ppm:	< ± (100 ppm +5% of the measured value)
Response time t <sub>90</sub>	105 s with measured data averaging (smooth output) 60 s without measured data averaging <sup>2)</sup>	
Temperature dependency	typ. ± (1 + CO <sub>2</sub> concentration [ppm] / 1000) ppm/°C (-20...45 °C) (-4...113 °F)	
Pressure dependency	0.014 % of the measured value / mbar (ref. to 1013 mbar)	
Calibration interval <sup>3)</sup>	>5 years	
Sampling interval	from 15 s (factory setup) up to 1 h; user selectable	

##### Relative humidity

Working range	0...95 % RH (non condensing)
Accuracy at 25 °C (77 °F)	typ. ± 3 % RH (20...80% RH)

##### Pressure

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

##### Temperature

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 (smooth output) for averaging output.

2) Available only for I<sup>2</sup>C.

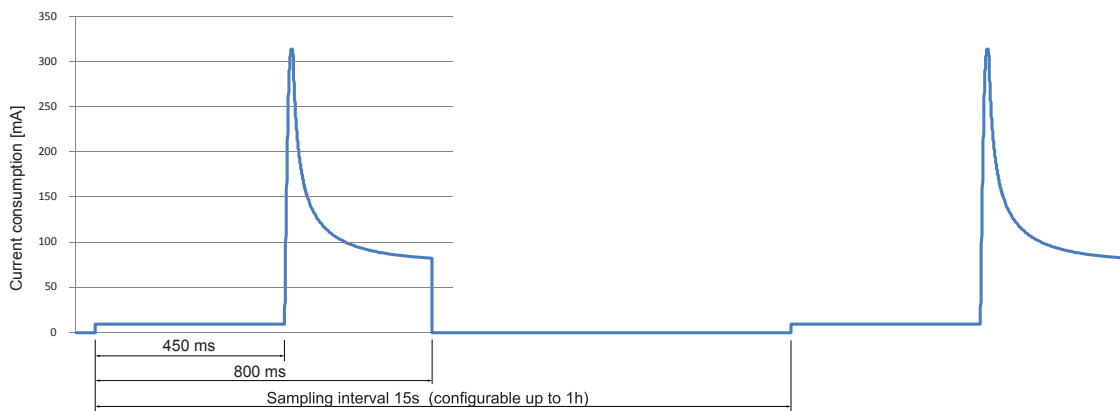
3) Recommended under normal operating conditions in building automation.

### General

Digital interface	I <sup>2</sup> C or E2
Supply voltage	4.75 - 7.5 V DC
Average current <sup>4)</sup> at 25 °C (77 °F) and 5 V supply	420 µA (at 1 h sampling interval) 3.2 mA (at 15 s sampling interval)
Electrical connection	contact pins and edge card socket
Working and storage conditions	-40...60 °C (-40...140 °F) 0...95 % RH (not condensating) 700...1100 mbar (10.15...15.95 psi)

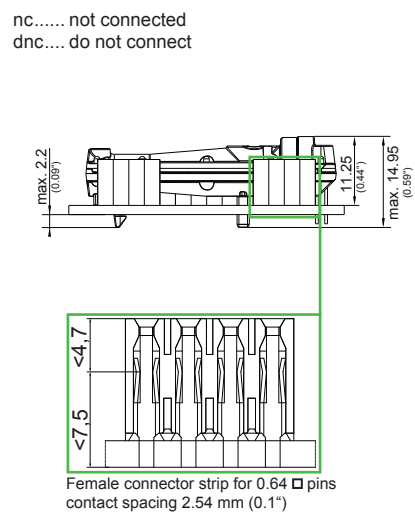
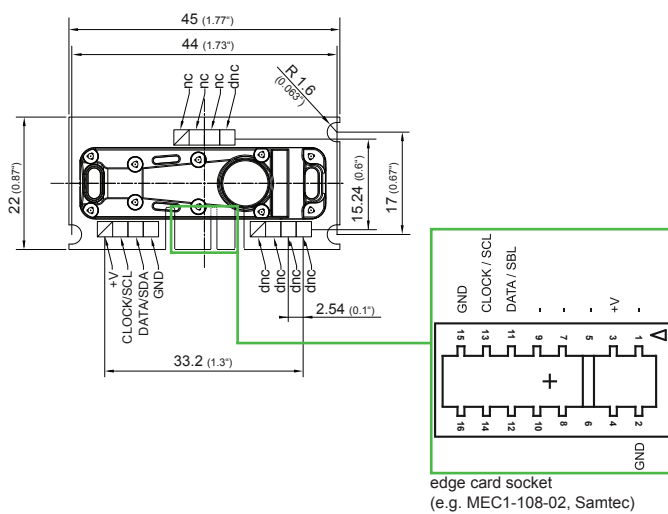
4) The average current depends on the CO<sub>2</sub> sampling interval.

### Power Consumption / Peak Current



### Connection Diagram / Dimensions in mm (inch)

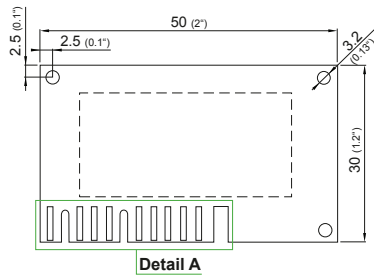
#### EE894 compact



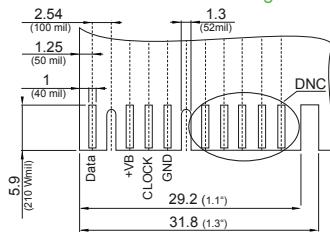
## Connection Diagram / Dimensions in mm (inch)

### EE894 standard

#### Contact Pads

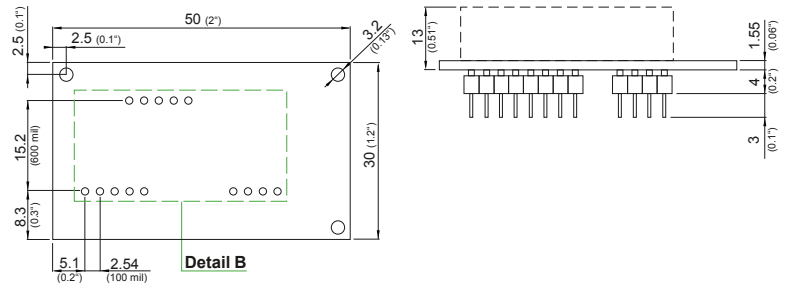


#### Detail A / Connection Diagram:

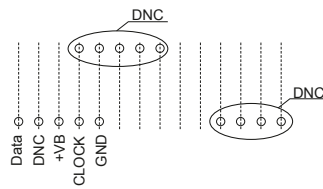


#### Contact Pins

for DIP-28 wide IC socket 28-pin or for soldering

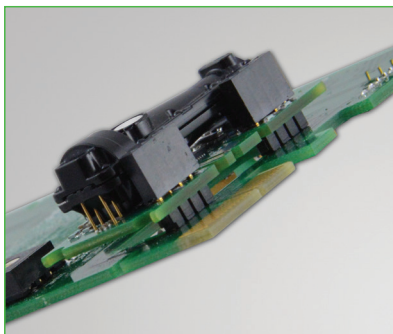


#### Detail B / Connection Diagram:

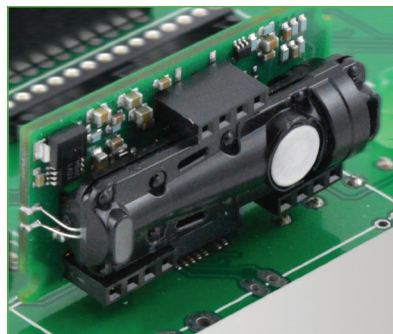


nc..... not connected  
 dnc..... do not connect

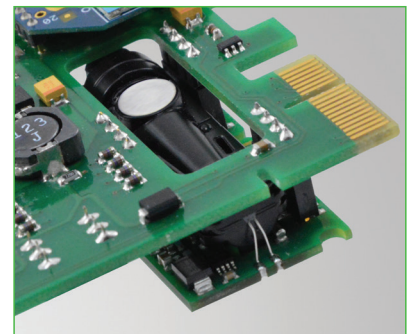
## Mounting Examples



Mounting from the top



Mounting with edge card socket



Mounting from the bottom  
 (space saving)

## Accessories (see also data sheet "Accessories")

E2 Test and Configuration Adaptor  
 E+E Product Configuration Software

HA011010  
 EE-PCS (Download: [www.epluse.com/Configurator](http://www.epluse.com/Configurator))

## Ordering Guide

		EE894
Model	CO <sub>2</sub> + T + RH + p	no code
CO <sub>2</sub> measuring range	0...2000 ppm	HR2000
	0...5000 ppm	HR5000
	0...10000 pm	HR1
Size	compact	no code
	standard	PCB8
Connection (only for standard size)	contact pads	E25
	contact pins	E26
Output	I <sup>2</sup> C interface	no code
	E2 interface	J2

## Order Example

### EE894-HR2000J2

Model: CO<sub>2</sub> + T + RH + p  
 CO<sub>2</sub> measuring range: 0...2000 ppm  
 Size: compact  
 Output: E2 interface

### EE894-HR5000PCB8E25

Model: CO<sub>2</sub> + T + RH + p  
 CO<sub>2</sub> measuring range: 0...5000 ppm  
 Size: standard  
 Connection: contact pads  
 Output: I<sup>2</sup>C interface