

EE894

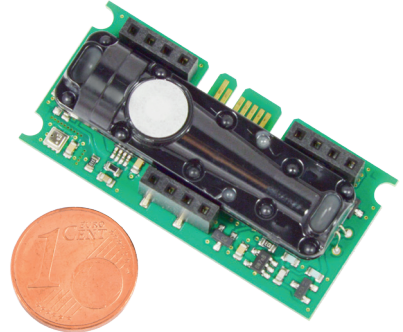
Digital Sensor Module for CO₂, Temperature, Humidity and Ambient Pressure

The EE894 module is ideal for demand controlled ventilation and building automation. It incorporates the E+E dual wavelength NDIR CO₂ sensor, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability. Beside CO₂, the module measures also relative humidity (RH), temperature (T) and ambient pressure (p).

A multiple point CO₂ and T factory adjustment procedure leads to excellent CO₂ measurement accuracy over the entire T working range. The pressure compensation minimizes the impact of altitude and ambient pressure variations onto the CO₂ measured data.

The measured data, with a range of up to 1% CO₂, is available on the I²C 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 CO₂, RH, T and p measurement. The CO₂ 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

CO₂

Measurement principle	Dual wavelength NDIR (non-dispersive infrared technology)
Working range	0...2000 / 5000 / 10000 ppm
Accuracy at 25 °C and 1013 mbar ¹⁾ (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...1% (0...10000 ppm): < ± (100 ppm +5% of the measured value)
Response time t ₉₀	105 s with measured data averaging (smooth output) 60 s without measured data averaging ²⁾
Temperature dependency	typ. ± (1 + CO ₂ 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 ³⁾	>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) and 20...80% RH, incl. hysteresis, typ.	± 3 % 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)

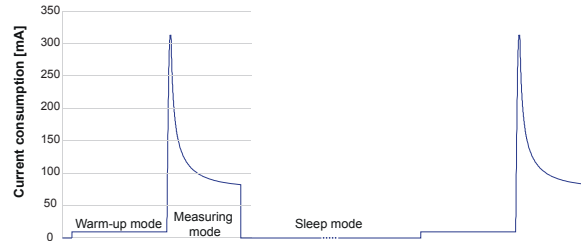
1) With data averaging (smooth output) for averaging output.

2) Available only for I²C.

3) Recommended under normal operating conditions in building automation.

General

Digital interface	I ² C or E2
Supply voltage	4.75 - 7.5 V DC
Average current ⁴⁾	420 µA (at 1 h sampling interval)
at 25 °C (77 °F) and 5 V supply	3.2 mA (at 15 s sampling interval)
Peak Current	

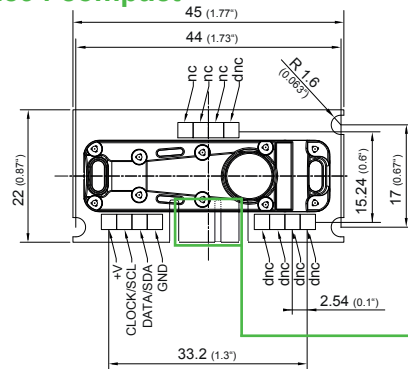


Electrical connection	contact pins and edge card socket
Working and storage conditions	-40...60 °C (-40...140 °F)
	0...95 % RH (not condensating)
	700...1100 mbar (10.15...15.95 psi)

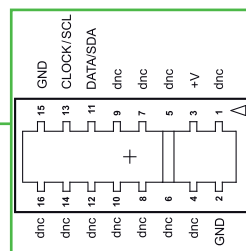
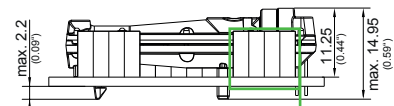
4) The average current depends on the CO₂ sampling interval.

Connection Diagram / Dimensions in mm (inch)

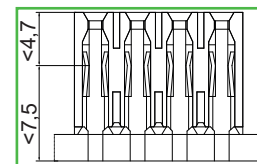
EE894 compact



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



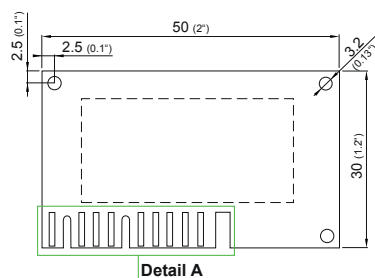
edge card socket
(e.g. MEC1-108-02, Samtec)



Female connector strip for 0.64 pins
contact spacing 2.54 mm (0.1")

EE894 standard

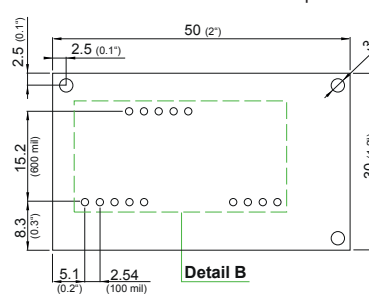
Contact Pads



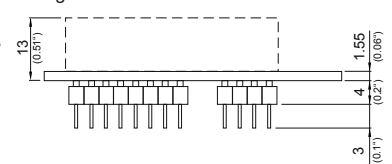
Detail A

Contact Pins

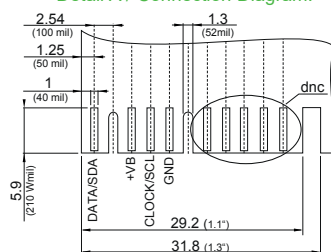
for DIP-28 wide IC socket 28-pin or for soldering



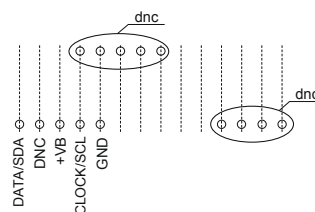
Detail B



Detail A / Connection Diagram:

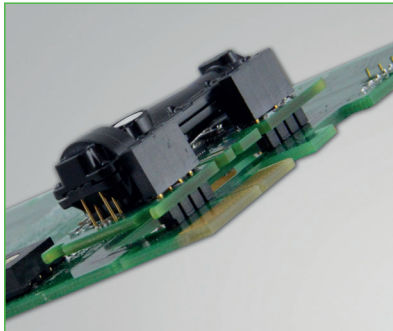


Detail B / Connection Diagram:

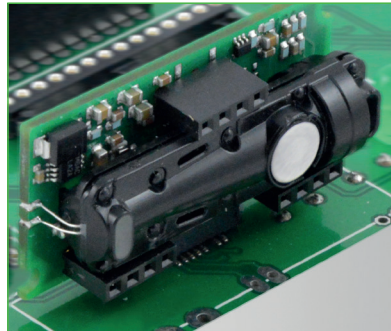


nc..... not connected
dnc..... do not connect

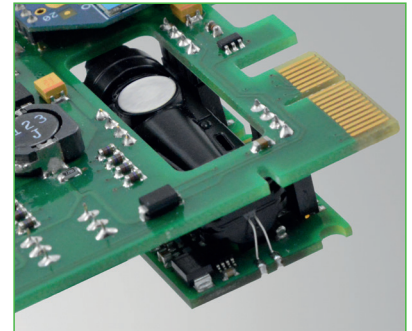
Mounting Examples



Top mount



Connection with edge card socket



Space saving assembly

Accessories (see also data sheet "Accessories")

E2 Test and Configuration Adapter
 E+E Product Configuration Software

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

Ordering Guide

		EE894	
Model	CO ₂ + T + RH + p	no code	
CO ₂ measuring range	0...2000 ppm	HV1	
	0...5000 ppm	HV2	
	0...1% (0...10000 ppm)	HV3	
Size	compact	no code	PCB8
	standard		
Connection	contact pads		E25
	contact pins		E26
Interface	I ² C	no code	
	E2	J2	

Order Example

EE894-HV1J2

Model: CO₂ + T + RH + p
 CO₂ measuring range: 0...2000 ppm
 Size: compact
 Interface: E2

EE894-HV2PCB8E25

Model: CO₂ + T + RH + p
 CO₂ measuring range: 0...5000 ppm
 Size: standard
 Connection: contact pads
 Interface: I²C

Support Literature

www.epluse.com/EE894

