

EE80

HVAC Room Transmitter and Switches for CO₂, Relative Humidity and Temperature

EE80 series set new standards in CO₂ measurements for HVAC. The transmitters resp. switches combine CO₂, relative humidity (RH) and temperature (T) measurement in one modern and user-friendly housing. The basic EE80 version for CO₂ and T can be easily extended with a RH plug-in module.

The CO₂ measurement is based on the infrared principle. A patented auto-calibration procedure compensates for the aging of the infrared source and ensures outstanding long term stability. EE80 provides analogue outputs (in V or mA). The optional display indicates sequentially the actual measuring data. As one more option a switching output with adjustable switching point and hysteresis is available.

A wide variety of models ensures an optimal adjustment for customised requirements. Two different housing designs ensure professional appearance according to regional standards.



EE80

Typical Applications

building management for residential and office areas
 ventilation control

Features

CO₂ / RH / T measurement in one device
 RH output with plug-in module
 analogue or switching output
 modern design
 optional display
 easiest installation
 long-term stable

Technical Data

Measuring values

CO₂	
Measurement principle	Non-Dispersive Infrared Technology (NDIR)
Sensor	E+E Dual Source Infrared System
Working range	0...2000 / 5000ppm
Accuracy at 25°C (77°F) and 1013mbar	0...2000ppm: < ± (50ppm +2% of measuring value) 0...5000ppm: < ± (50ppm +3% of measuring value)
Response time t ₆₃	< 195s
Temperature dependence	typ. 2ppm CO ₂ /°C
Long term stability	typ. 20ppm / year
Sample rate	approx. 15s
Temperature	
Accuracy ¹⁾ at 20°C (68°F)	±0.3°C (±0.54°F) version with current output 4 - 20mA: ±0.7°C (±1.26°F)
Relative Humidity	
Measurement principle	capacitive
Sensor element ²⁾	HC103
Working range ²⁾	10...90% RH
Accuracy ¹⁾ at 20°C (68°F)	±3% RH (30...70% RH) ±5% (10...90% RH)
Temperature (passive output)	
Type of T-Sensor	please see ordering guide

Outputs

Analogue Output	
0...2000 / 5000ppm	0 - 5V -1mA < I _L < 1mA
0...100% RH / 0...50°C (32...122°F)	0 - 10V -1mA < I _L < 1mA
	4 - 20mA R _L < 500 Ohm
Switching Output	
Max. switching voltage	50V AC / 60V DC
Max. switching load	0.7A at 50V AC 1A at 24V DC
Min. switching load	1mA at 5V DC
Contact material	Ag+Au clad

General

Supply voltage	24V AC ±20% 15 - 35V DC
Current consumption	typ. 10mA + output current max. 0.5A for 0.3s
Warm up time ³⁾	< 5 min
Housing material	Polycarbonat
	US Version: UL94V-0 approved / EU Version: UL94HB approved
Protection class	IP30

Display	LC display: alternating CO ₂ (ppm) / T (°C or °F) / RH (% RH)
Electrical connection	screw terminals max. 1.5 mm ² (AWG16)
Electromagnetic compatibility	EN61326-1 FCC Part 15 EN61326-2-3 ICES-003 ClassB
Working temperature range	0...90% RH (non condensing) / -20...60°C (-4...140°F)
Storage temperature range	0...90% RH (non condensing) / -20...60°C (-4...140°F)

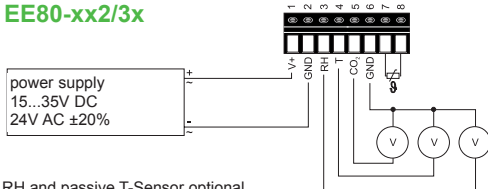


1) U_v=24V DC and R_i=250 Ω for version with current output 2) refer to the working range of the humidity sensor HC103!
3) warm up time for performance according specification

Connection Diagram

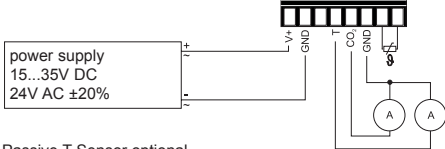
Analogue Output

EE80-xx2/3x



RH and passive T-Sensor optional.

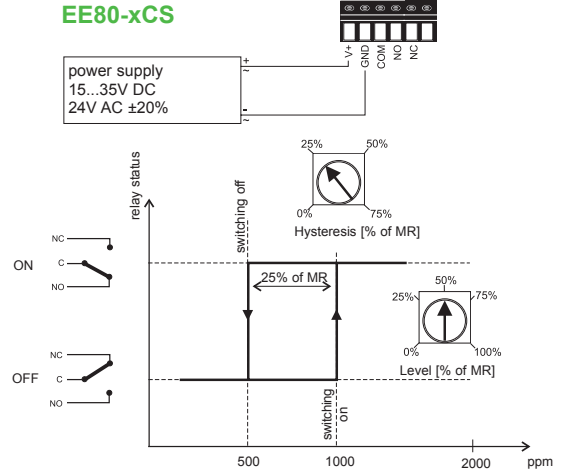
EE80-xx6x



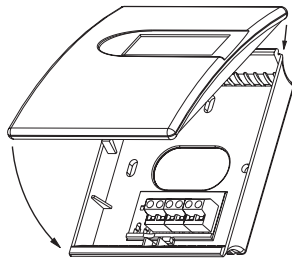
Passive T-Sensor optional.

Switching Output

EE80-xCS



Housing Dimensions (mm)



Colour of housing: Cover: RAL 9003 (signal white)
Back: RAL 7035 (light grey)

Europe: W x H x D = 85 x 100 x 26mm (3.3 x 3.9 x 1")
USA: W x H x D = 85 x 136 x 26mm (3.3 x 5.4 x 1")

Ordering Guide

EE80 voltage / current output:

WORKING RANGE	MODEL	OUTPUT	T-SENSOR (only passive)	DISPLAY	HOUSING	T-UNIT	T-SCALE ²⁾
0...2000ppm (2)	CO ₂ + T (CT)	0-5V (2)	Pt 100 DIN A (A)	without Display (-)	Europe (-)	°C (-)	0...50 (T04)
0...5000ppm (5)	CO ₂ + T _{passive} (CP)	0-10V (3)	Pt 1000 DIN A (C)	with Display (D04)	USA (US)	°F (E01)	-5...55 (T31)
	CO ₂ + T + rF (CTF)	4-20mA ¹⁾ (6)					0...40 (T55)
							20...120 (T15)
							32...122 (T76)
							32...132 (T96)

1) current output (6) not available for model CTF 2) other scaling upon request

EE80 switching output:

WORKING RANGE	MODEL	OUTPUT	DISPLAY	HOUSING
0...2000ppm (2)	CO ₂ (C)	switching output (S)	without Display (-)	Europa (-)
0...5000ppm (5)			with Display (D04)	USA (US)

Order Example

EE80-2CT3D04/T04

Version with voltage output:
Working range: 0...2000ppm
Model: CO₂ + T
Output: 0-10V
Display: with display
T-Unit: °C
T-Scale: 0...50°C (32...122°F)

Accessories

- humidity plug-in module (HA011003)

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