

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)	0...2000ppm:	< ± (50ppm +2% of measuring value)
and 1013mbar	0...5000ppm:	< ± (50ppm +3% of measuring value)
Response time t ₉₀	< 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)
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Relative Humidity

Measurement principle	capacitive	
Sensor element	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
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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 / Protection class	PC / 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)

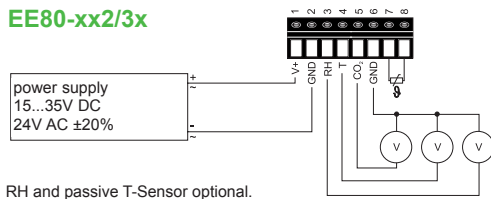


1) U_v=24V DC and R_i=250 Ω for version with current output 2) refer to the working range of the humidity sensor HC103!
3) warm up time for performance according specification

Connection Diagram

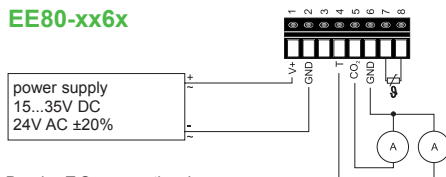
Analogue Output

EE80-xx2/3x



RH and passive T-Sensor optional.

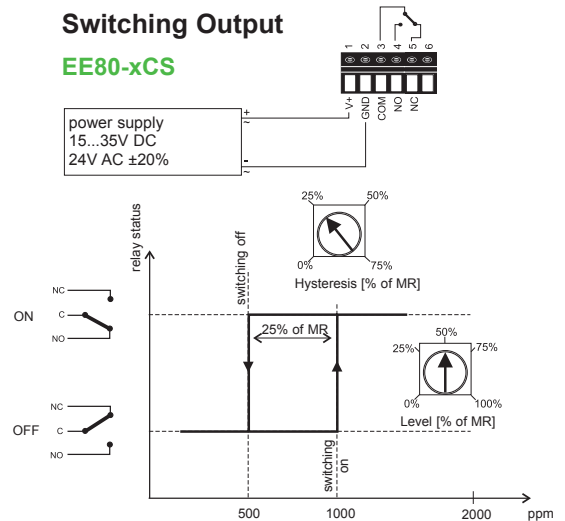
EE80-xx6x



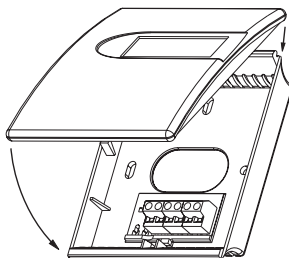
Passive T-Sensor optional.

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
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 ³⁾ (6)					32...122 (T76)
							other (Txx)

EE80-
3) current output (6) not available for model CTF

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)