

# EE80

## HVAC Room Transmitter and Switches for CO<sub>2</sub>, Relative Humidity and Temperature

EE80 series set new standards in CO<sub>2</sub> measurements for HVAC. The transmitters resp. switches combine CO<sub>2</sub>, relative humidity (RH) and temperature (T) measurement in one modern and user-friendly housing. The basic EE80 version for CO<sub>2</sub> and T can be easily extended with a RH plug-in module.

The CO<sub>2</sub> 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

CO<sub>2</sub> / 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

<b>CO<sub>2</sub></b>		
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 <sub>63</sub>	< 195s	
Temperature dependence	typ. 2ppm CO <sub>2</sub> /°C	
Long term stability	typ. 20ppm / year	
Sample rate	approx. 15s	
<b>Temperature</b>		
Accuracy <sup>1)</sup> at 20°C (68°F)	±0.3°C (±0.54°F)	version with current output 4 - 20mA: ±0.7°C (±1.26°F)
<b>Relative Humidity</b>		
Measurement principle	capacitive	
Sensor element <sup>2)</sup>	HC103	
Working range <sup>2)</sup>	10...90% RH	
Accuracy <sup>1)</sup> at 20°C (68°F)	±3% RH (30...70% RH)	±5% (10...90% RH)
<b>Temperature (passive output)</b>		
Type of T-Sensor	please see ordering guide	

#### Outputs

##### Analogue Output

0...2000 / 5000ppm	0 - 5V	-1mA < I <sub>L</sub> < 1mA
0...100% RH / 0...50°C (32...122°F)	0 - 10V	-1mA < I <sub>L</sub> < 1mA
	4 - 20mA	R <sub>L</sub> < 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 <sup>3)</sup>	< 5 min	
Housing material	Polycarbonat	
	US Version: UL94V-0 approved / EU Version: UL94HB approved	
Protection class	IP30	

Display	LC display: alternating CO <sub>2</sub> (ppm) / T (°C or °F) / RH (% RH)
Electrical connection	screw terminals max. 1.5 mm <sup>2</sup> (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)

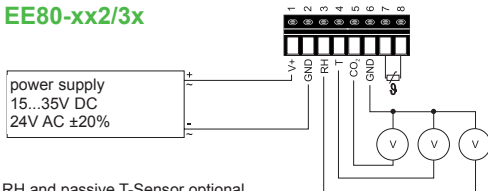


1) U<sub>v</sub>=24V DC and R<sub>i</sub>=250 Ω for version with current output 2) refer to the working range of the humidity sensor HC103!  
3) warm up time for performance according specification

## Connection Diagram

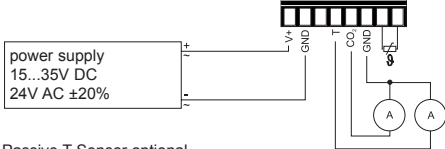
### Analogue Output

#### EE80-xx2/3x



RH and passive T-Sensor optional.

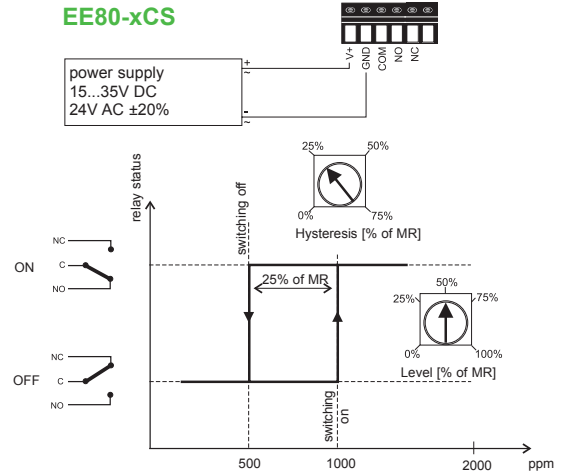
#### EE80-xx6x



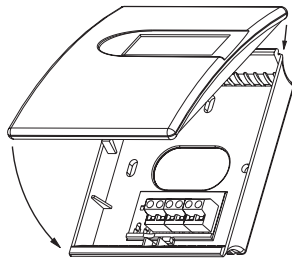
Passive T-Sensor optional.

### 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 <sup>2)</sup>
0...2000ppm (2)	CO <sub>2</sub> + T (CT)	0-5V (2)	Pt 100 DIN A (A)	without Display (-)	Europe (-)	°C (-)	0...50 (T04)
0...5000ppm (5)	CO <sub>2</sub> + T <sub>passive</sub> (CP)	0-10V (3)	Pt 1000 DIN A (C)	with Display (D04)	USA (US)	°F (E01)	-5...55 (T31)
	CO <sub>2</sub> + T + rF (CTF)	4-20mA <sup>1)</sup> (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 <sub>2</sub> (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: CO<sub>2</sub> + T  
Output: 0-10V  
Display: with display  
T-Unit: °C  
T-Scale: 0...50°C (32...122°F)

## Accessories

- humidity plug-in module (HA011003)

EE80 v2.2 / Modification rights reserved

151