

# EE21 Series

## High-Precision Humidity / Temperature Transmitter for HVAC Applications

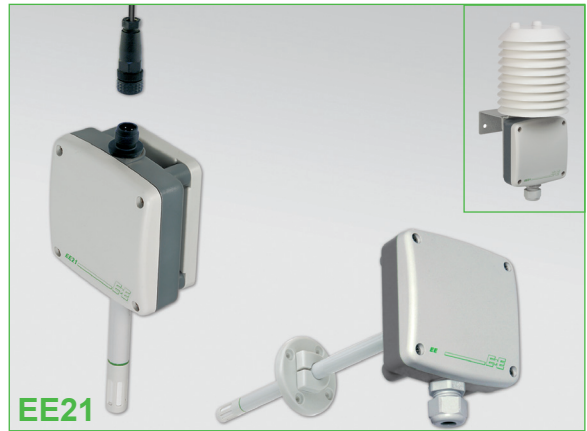
Transmitters of the EE21 series have been developed for high-precision measurement of relative humidity and temperature.

EE21 transmitters are available for wall and duct mounting with or without the very useful snap-in-mounting kit, which allows a quick and easy exchange of the transmitter. Outputs can be selected between voltage and current.

An optional radiation shield providing a forced ventilation is recommended for use in outdoor applications.

Special protection coating for the sensing element (code - HC) permits the permanent use in very polluted environments.

High humidity calibration is recommended for applications in high lasting humidities > 90% RH (Code - CA01).



### Humidity Two-point Adjustment

With an easy routine via the push-buttons "UP" and "DOWN" on the circuit board the user can perform a fast and accurate two-point adjustment of relative humidity.



### Typical Applications

- green houses
- storage rooms
- swimming halls
- meteorology

### Features

- measuring range 0...100% RH
- accuracy  $\pm 2\%$  RH
- traceable calibration
- working range  $-40...60^{\circ}\text{C}$  ( $-40...140^{\circ}\text{F}$ )
- wettable
- excellent long term stability

### Technical Data

#### Measuring values

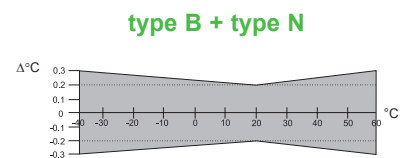
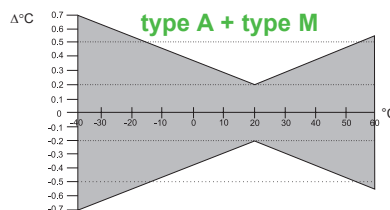
##### Relative Humidity

Sensor	HC1000 or HC1000C (with coating)	
Analogue output appropriate 0...100% RH	0-1V	$-0.5\text{mA} < I_L < 0.5\text{mA}$
	0-5V / 0-10V	$-1\text{mA} < I_L < 1\text{mA}$
	4-20mA (two wires)	$R_L < 500 \text{ Ohm}$
Working range <sup>1)</sup>	0...100% RH	
Accuracy at 20°C (68°F)	$\pm 2\%$ RH (0...90%)	$\pm 3\%$ RH (90...100%)
	Traceable to international standards, administrated by NIST, PTB, BEV...	
Hysteresis 10% - 80% - 10%	< 2% RH	
Temperature dependence of electronics	typ. 0.03% RH/°C	(0.02% RH/°F)
Temperature dependence of probe	typ. 0.03% RH/°C	(0.02% RH/°F)

##### Temperature

Sensor	Pt1000 (tolerance class A, DIN EN 60751)	
Analogue output $-40...60^{\circ}\text{C}$ ( $-40...140^{\circ}\text{F}$ )	0-1V	$-0.5\text{mA} < I_L < 0.5\text{mA}$
	0-5V / 0-10V	$-1\text{mA} < I_L < 1\text{mA}$
	4-20mA (two wires)	$R_L < 500 \text{ Ohm}$

##### Accuracy



Temperature dependence of electronics	typ. 0.01°C / °C
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## General

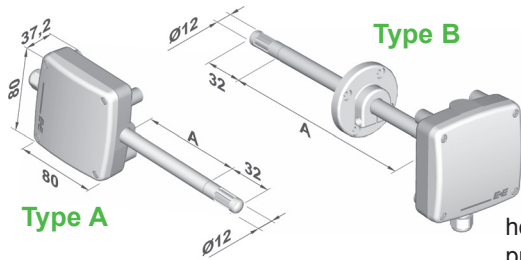
Supply	for 0 - 1V for 0 - 5V for 0 - 10V for 4 - 20mA	10 - 35V DC 12 - 35V DC 15 - 35V DC 10V + R <sub>L</sub> x 0,02 < U <sub>v</sub> < 35V DC; R <sub>L</sub> < 500 Ohm	or	9 - 29V AC 15 - 29V AC 15 - 29V AC
Current consumption		for DC supply: typ. 5mA		for AC supply: typ. 15mA <sub>eff</sub>
Electrical connection		screw terminals max. 1.5 mm <sup>2</sup> (AWG 16)		
Cable gland		M16x1.5 or connection plug (only snap-in models N + M) cable Ø 4.5 - 10 mm (0.18 - 0.39")		
Sensor protection		membrane filter, sintered stainless steel filter, metal grid filter, PTFE filter		
Electromagnetic compatibility		EN61326-1	EN61326-2-3	ICES-003 ClassB FCC Part15 ClassB
Temperature ranges		working temperature probe: working temperature electronics: storage temperature:		-40...60°C (-40...140°F) -40...60°C (-40...140°F) -25...60°C (-13...140°F)



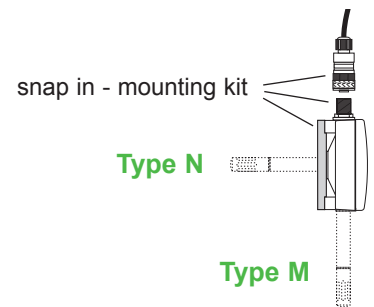
1) Please refer to working range of HC1000!

## Dimensions (mm)

1 mm = 0.03937" / 1" = 25.4 mm

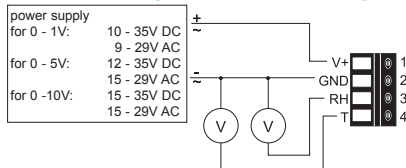


housing: PC  
protection class: IP65, Nema 4

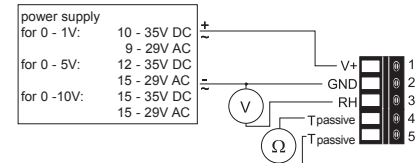


## Connection Diagram

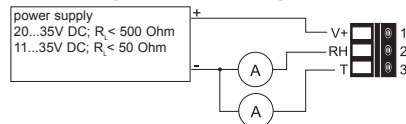
### EE21-FT1/2/3xxx / EE21-F1/2/3xxx



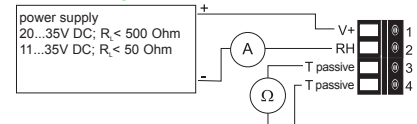
### EE21-FP3xxx



### EE21-FT6xxx / EE21-F6xxx



### EE21-FP6xxx



## Ordering Guide

MODEL	OUTPUT	T-SENSOR	HOUSING TYPE	PROBE LENGTH	FILTER
humidity + temperature (FT)	0 - 1 V (1)	Pt 100 DIN A (A)	wall mounting (A)	50 mm (1.9") (2)	membrane filter (1)
humidity (F)	0 - 5 V (2)	Pt 1000 DIN A (C)	duct mounting (B)	200 mm (7.9") (5)	sintered stainless steel filter (3)
humidity+temp. passive (FP)	0 - 10 V (3) 4 - 20 mA (6)		snap in - wall mounting <sup>1)</sup> (M) snap in - duct mounting <sup>1)</sup> (N)		metal grid filter (6)
<b>EE21-</b>					

COATING	T-UNIT	SCALING OF T-OUTPUT
no (no code)	°C (no code)	-40...60 (T02) -40...140 (T83)
yes (HC01)	°F (E01)	-30...70 (T08) 0...176 (T86) -20...80 (T24) 32...132 (T96) other (Txx)

1) Combination snap - in mounting and model FP is not possible

## Order Example

### EE21-FT3A26/T24

model: RH/T transmitter  
output: 0 - 10V  
housing type: wall mounting  
probe length: 50 mm (7.9")  
filter: metal grid filter  
sensor coating: no  
calibration: standard  
T-unit: °C  
Scaling of T-output: -20...80°C

## Accessories

- radiation shield (HA010501) - filter caps (HA0101xx)