

# EE22 Series

## Humidity / Temperature Transmitter with interchangeable probes

Specific for the EE22 series are the interchangeable sensing probes with connector.

The calibration data is stored in the probes, which are interchangeable and therefore probe replacement does not affect the performance of EE22.

The outstanding accuracy over the entire temperature range is based on very precise calibration methods and on the latest microprocessor technology. Well-proven E+E humidity sensor elements ensure excellent long-term stability.

For high temperature applications (up to +80°C / +176°F) or in case of limited space availability, the sensing probes can be connected to EE22 housing with cables (2m, 5m or 10m / 6.6ft, 16.4ft or 32.8ft) without any repercussions for the overall accuracy of the instrument.

Voltage 0 - 1 / 5 / 10V or current 4 - 20mA (2 wire) outputs are available, of which the temperature output can be scaled according to the application (see ordering code).

EE22 is suitable for direct wall mounting and for installation on rails according to DIN EN 50022.

The optional display indicates the actual RH and T values.



Modell A1

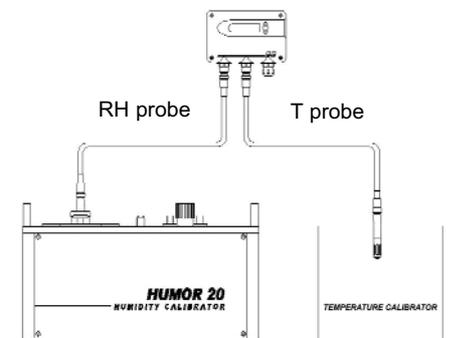


Modell A2

## Field calibration of humidity and temperature

In the pharmaceutical and biotechnology industry a Loop-Calibration of the RH and T outputs, recommended by the FDA (Food and Drug Administration), can easily be performed utilizing separate RH and T probes (Type: EE22-FTx2x).

The RH and T outputs can be adjusted with push buttons on the printed circuit board.



## Reference probes

**NEW**

The reference probes (incl. test report) are available as an accessory. They can be used for testing the function and accuracy of the transmitter.

The reference probes represent a fixed value for the humidity and temperature and have to be installed instead of the measuring probe(s).

One probe simulates a high humidity and low temperature, the other a low humidity and high temperature; to check the upper and lower ends of the analogue outputs.



## Typical Applications

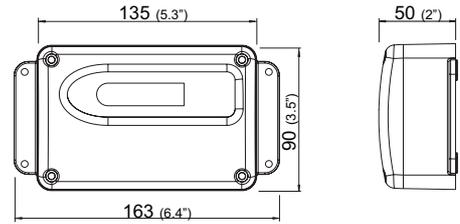
pharmaceutical industry  
 clean rooms  
 storage rooms  
 green houses  
 cooling chambers

## Features

interchangeable probes  
 remote sensing probe up to 10m (32.8ft)  
 measuring range 0...100% RH / -40...80°C (-40...176°F)  
 accuracy ±2% RH / ±0.2°C (±0.36°F)  
 cost saving, easy loop-calibration of RH and T probes

## Metal housing

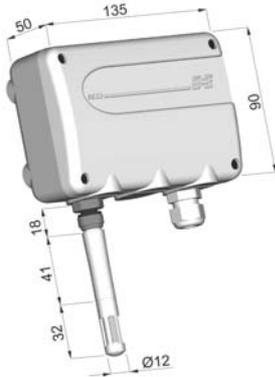
**NEW** For use in harsh industrial environments all models of the EE22 are available in a robust metal housing. The very smooth surface and the rounded outlines allow for the use in clean rooms as well.



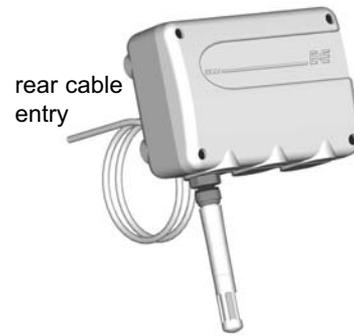
## Housing Dimensions (mm) / Models

1 mm = 0.03937" / 1" = 25.4 mm

**Model A**  
 Wall mounting  
**EE22-FTAx**



**Model F**  
 Wall mounting - rear cable outlet  
**EE22-FTFx**

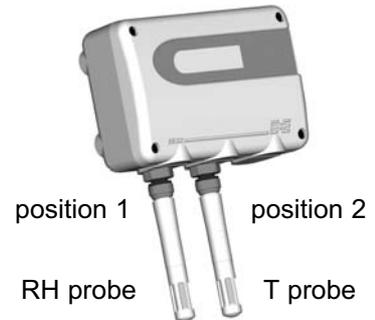


## Versions

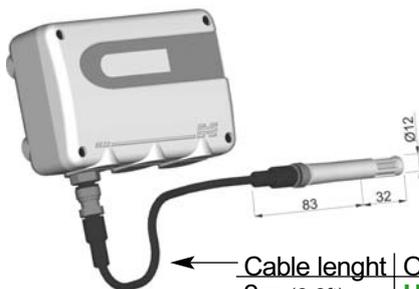
with one RH&T probe  
 Ordering code: **EE22-FTx1x**



with two separate probes for RH and T  
 Ordering code: **EE22-FTx2x**



with one remote RH&T probe  
 Ordering code: **EE22-FTx1x +HAxxxx**



Cable length	Ordering code
2m (6.6ft)	<b>HA010801</b>
5m (16.4ft)	<b>HA010802</b>
10m (32.8)	<b>HA010803</b>

with two remote separate probes for RH and T  
 Ordering code: **EE22-FTx2x +2x HAxxxx**



## Technical Data

### Measuring values of sensing probe (based on 22 ±3°C / 71.6 ±5.4°F)

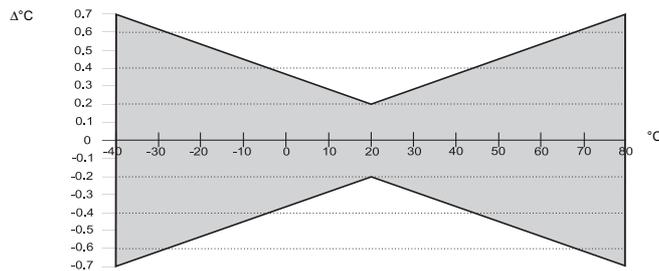
#### Relative Humidity

Sensor element <sup>1)</sup>	HC103	
Working range <sup>1)</sup>	0...100% RH	
Accuracy incl. hysteresis and nonlinearity	±2% RH (0...90%)	±3% RH (90...100%)
Temperature dependence of probe	< (0.025 + 0.0003 x RH) [%RH/°C]	

#### Temperature

Sensor element	Pt1000 (tolerance class A, DIN EN 60751)
Working range sensing probe	fixed sensing probe: -40...60°C (-40...140°F) remote sensing probe: -40...80°C (-40...176°F)

Accuracy (typ.)



### Outputs

0...100% RH/ xx...yy°C (temperature output scale according to Txx ordering code, page 27)	0 - 1V 0 - 5V / 0 - 10V 4 - 20mA (two wire)	-0.5mA < I <sub>L</sub> < 0.5mA -1mA < I <sub>L</sub> < 1mA R <sub>L</sub> < 500 Ohm
Temperature dependence of analogue outputs	max. 0.2 $\frac{mV}{°C}$ resp. 1 $\frac{\mu A}{°C}$	

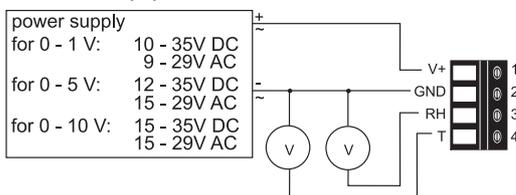
### General

Supply voltage SELV for 0 - 1V output for 0 - 5V output for 0 - 10V output for 4 - 20mA output	10 - 35V DC or 9 - 29V AC 12 - 35V DC or 15 - 29V AC 15 - 35V DC or 15 - 29V AC 10 - 35V DC	SELV = Safety Extra Low Voltage
Load resistor for 4 - 20mA output	R <sub>L</sub> < $\frac{U_V - 10V}{0.02 A}$ [Ω]	
Current consumption	typ. 10mA for DC supply	typ. 20mA <sub>eff</sub> for AC supply
Electrical connection	screw terminals max. 2.5mm <sup>2</sup>	
Cable gland	M16x1.5 cable Ø 4.5 - 10 mm (0.18 - 0.39") (optional connector; type: Lumberg, RSF 50/11)	
Sensor protection	membrane filter, PTFE filter, metal grid filter	
Material housing	PC or Al Si 9 Cu 3	
Material probe	PC	
Protection class of housing	IP65; Nema 4	
Electromagnetic compatibility	EN 61000-6-3 EN 61000-6-2	FCC Part15 ClassB ICES-003 ClassB
Working temperature range of probe	-40...60°C (-40...140°F) / 80°C (176°F) for remote sensing probe	
Working temperature range of electronics	-40...60°C (-40...140°F)	
Storage temperature range	-40...60°C (-40...140°F)	

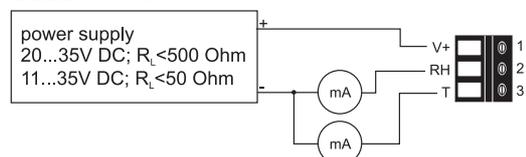
<sup>1)</sup> Refer to the working range of the humidity sensor HC103.

## Connection Diagram

### EE22-FT1,2,3xx



### EE22-FT6xx



## Ordering Guide

### Position 1 - Transmitter

**EE22-**

<b>Hardware Configuration</b>				
<b>Housing</b>	metal housing			<b>M</b>
	polycarbonat housing			<b>P</b>
<b>Type</b>	humidity + temperature			<b>FT</b>
<b>Output</b>	0-1V			<b>1</b>
	0-5V			<b>2</b>
	0-10V			<b>3</b>
	4-20mA			<b>6</b>
<b>Model</b>	wall mounting - cable gland M16x1.5	cable Ø 4.5 - 10 mm (0.18 - 0.39")		<b>A</b>
	wall mounting - rear cable outlet			<b>F</b>
<b>Probe</b>	1 probe RH&T active			<b>1</b>
	2 separate probes for RH and T active			<b>2</b>
<b>Filter</b>	membrane filter			<b>1</b>
	stainless steel sintered filter			<b>3</b>
	PTFE filter			<b>5</b>
	metal grid filter			<b>6</b>
<b>Display</b>	without display			
	with display			<b>D07</b>
<b>Plug</b>	without plug			
	with plug (type: Lumberg, RSF 50/11)			<b>C03</b>
<b>Sensor coating</b>	without coating			
	with coating			<b>HC01</b>
<b>Calibration</b>	standard calibration			
	high humidity calibration			<b>CA1</b>
<b>Software Configuration</b>				
<b>T-Unit</b>	°C			
	°F			<b>E01</b>
<b>Scaling of T-output in °C or °F</b>	-40...60 ( <b>T02</b> )	0...120 ( <b>T16</b> )	-20...50 ( <b>T48</b> )	<b>Select according to Ordering Guide (Txx)</b>  <b>Other T-scaling refer to page 11</b>
	-10...50 ( <b>T03</b> )	-30...60 ( <b>T20</b> )	-40...176 ( <b>T80</b> )	
	0...50 ( <b>T04</b> )	0...80 ( <b>T21</b> )	0...140 ( <b>T85</b> )	
	0...60 ( <b>T07</b> )	-40...80 ( <b>T22</b> )	0...176 ( <b>T86</b> )	
	-30...70 ( <b>T08</b> )	-20...80 ( <b>T24</b> )	32...120 ( <b>T90</b> )	
	-10...70 ( <b>T11</b> )	-20...60 ( <b>T25</b> )	32...140 ( <b>T91</b> )	
	-40...120 ( <b>T12</b> )	-30...50 ( <b>T45</b> )	32...132 ( <b>T96</b> )	
<b>Position 2 - Probe cable</b>				
<b>Cable length</b>	2m (6.6ft)			<b>HA010801</b>
	5m (16.4ft)			<b>HA010802</b>
	10m (32.8ft)			<b>HA010803</b>

## Accessories / Replacement Parts

(For further information see data sheet "Accessories", page 58)

- Replacement probe RH&T (EE07-FTx)	- probe cable 2m (6.6ft) / 5m (16.4ft) / 10m (32.8ft)	(HA0108xx)
- Replacement probe T (EE07-Tx)	- bracket for rail installation	(HA010203)
- Display (D07)	- external supply unit	(V02)
- Filter caps (HA0101xx)	- RH calibration set	(HA0104xx)
	- Reference probes	(HA010403)

## Order Example

Position 1 - Transmitter:

**EE22-MFT2A26C03/T07**

housing:	metal housing
type:	humidity + temperature
output:	0-5V
model:	wall mounting - cable gland M16x1.5
probe:	2 separate probes for RH and T
filter:	metal grid filter
display:	without display
plug:	with plug
sensor coating:	without coating
calibration:	standard calibration
T-Unit:	°C
scaling of T-output:	0...60°C

Position 2 - Probe cable:

**2x HA010802**

cable length: 2x 5m (2x 16.4ft)