MULTIFUNCTION INDUSTRIAL TRANSMITTER FOR TEMPERATURE / HUMIDITY / DEW POINT...

EE22 Series

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 mountingand for installation on rails according to DIN EN 50022.

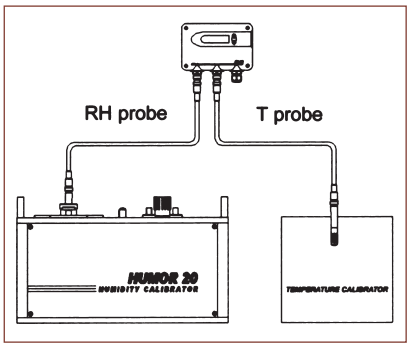
The optional display indicates the actual RH and T values.

Humidity / Temperature Transmitter with Interchangeable Probes

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 RH and T probes (Type: EE22-FTx2x).

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



NEW Reference Probes

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

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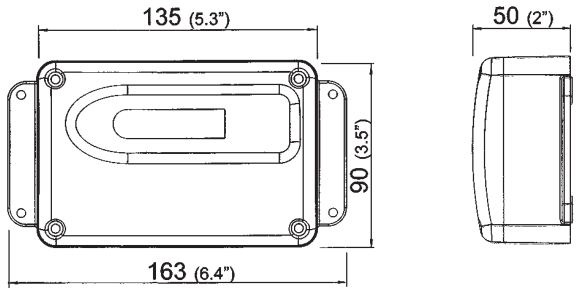
Metal Housing

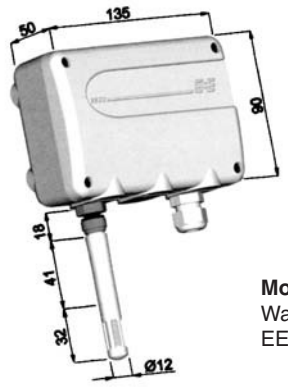
For use in harsh industrial environments all models of the EE22 are available in a robust metal housing.

The very smooth surface and the rounded outlines allow for the use in clean rooms as well.

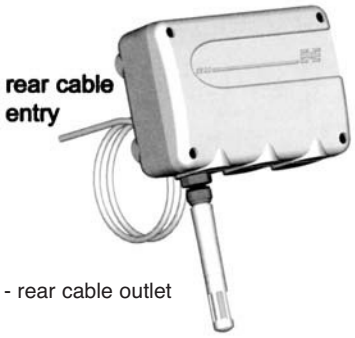


Housing Dimensions (mm) / Models

1 mm = 0.03937" / 1" = 25.4 mm



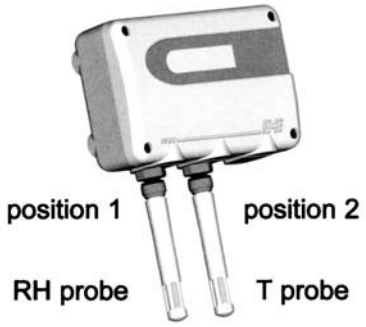
Model A
Wall mounting
EE23-FTAx



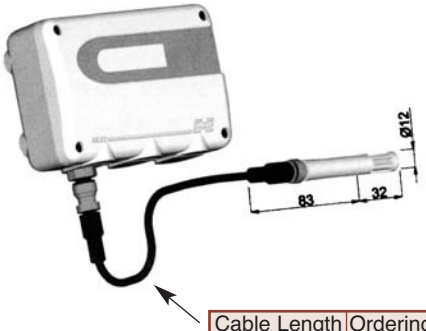
Model F
Wall mounting - rear cable outlet
EE22-FTFx

Versions

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

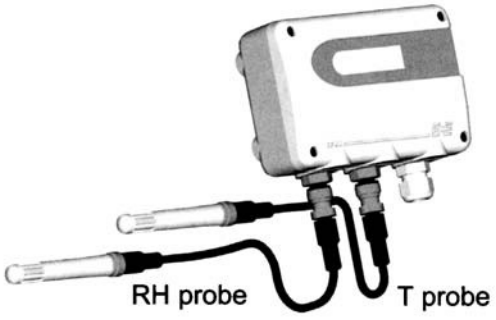


with two separate probes for RH and T
Ordering code: EE22-FTx2x



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

Cable Length	Ordering Code
2m (6.6ft)	HA010801
5m (16.4ft)	HA010802
10m (32.8)	HA010803



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

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Technical Data EE22

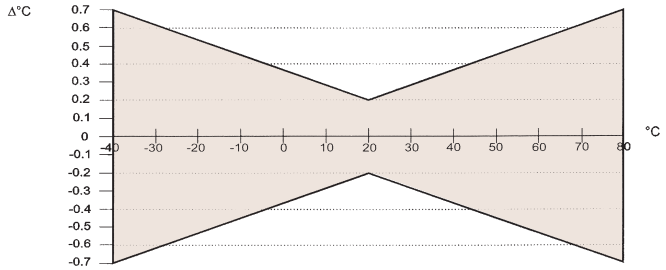
Measuring Values of Sensing Probe (based on 22 ±3°C / 71.6 ±5.4°F)

Relative Humidity

Sensor element [1]	HC103
Working range [1]	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) [$\frac{\%\ RH}{°C}$]

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 [2]

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

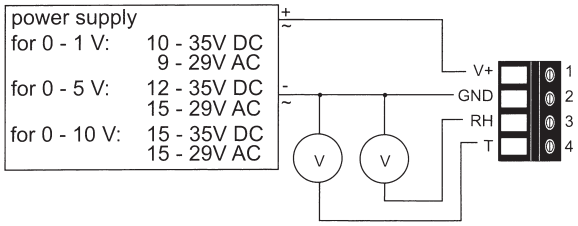
General

Supply voltage SELV				
	for 0 - 1V output	10 - 35V DC	or	9 - 29V AC
	for 0 - 5V output	12 - 35V DC	or	15 - 29V AC
	for 0 - 10V output	15 - 35V DC	or	15 - 29V AC
	for 4 - 20mA output	10 - 35V DC		SELV = Safety Extra Low Voltage
Load resistor for 4 - 20mA output		R_L < $\frac{U_v - 10V}{0.02A}$ [Ω]		
Current consumption		Typ. 10mA for Dc supply		Typ. 20mA_{eff} for AC supply
Electrical connection		Screw terminals max. 2.5mm^2		
Cable gland		M16x1.5 cable ø 4.5 - 10 mm (0.18 - 0.39") (optional connector; type: Lumberg, RFS 50/11)		
Sensor protection		membrane filter, PTFE filter, metal grid filter		
Material	housing	PC or Al Si 9 Cu 3		
	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	CE
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)		

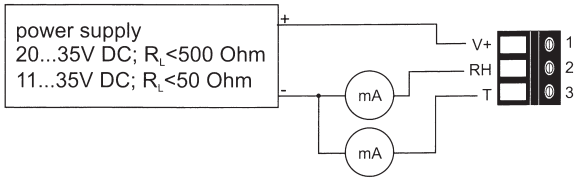
[1] Refer to the working range of the humidity sensor HC103.

Connection Diagram

EE22-FT1,2,3xx



EE22-FT6xx



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Ordering Guide EE22

Position 1 - Transmitter

Hardware Configuration		
Housing	metal housing	M
	polycarbonate housing	P
Type	humidity + temperature	FT
Output	0 - 1V	1
	0 - 5V	2
	0 - 10V	3
	4 - 20mA	6
Model	wall mounting - cable gland M16x1.5 cable ø 4.5 -10 mm (0.18 - 0.39")	A
	wall mouting - rear cable outlet	F
Probe	1 probe RH&T active	1
	2 separate probes for RH and T active	2
Filter	membrane filter	1
	stainless steel sintered filter	3
	PTFE filter	5
	metal grid filter	6
Display	without display	
	with display	D07
Plug	without plug	
	with plug (type: Lumberg, RSF 50/11)	C03
Coating sensor	without coating	
	with coating	HC01
Calibration	standard calibration	
	high-humidity calibration	CA01
Software Configuration		
T-Unit	°C	
	°F	E01
Scaling of T-output in°C or °F	-40… 60 (T02) / 0… 120 (T16) / -20… 50 (T48)	Select according to Ordering Guide (Txx)
	-10… 50 (T03) / -30… 60 (T20) / -40… 176 (T80)	
	0… 50 (T04) / 0… 80 (T21) / 0… 140 (T85)	
	0… 60 (T07) / -40… 80 (T22) / 0… 176 (T86)	
	-30… 70 (T08) / -20… 80 (T24) / 32… 120 (T90)	
	-10… 70 (T11) / -20… 60 (T25) / 32… 140 (T91)	
	-40… 120 (T12) / -30… 50 (T45) / 32… 132 (T96)	

Position 2 - Probe cable

Cable length	2m (6.6ft)	HA010801
	5m (16.4ft)	HA010802
	10m (32.8ft)	HA010803

Accessories / Replacement Parts

- Replacement probe RH&T (EE07-FTx)
- Replacement probe T (EE07-Tx)
- Display (D07)
- Filter caps (HA0101xx)
- Probe cable 2m (6.6ft) / 5m (16.4ft) / 10m (32.8ft) (HA0108xx)
- Bracket for rail installation (HA010203)
- External supply unit (V02)
- 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)