

EE220

Humidity and Temperature Sensor with Interchangeable Probes

The innovative, modular EE220 humidity (RH) and temperature (T) sensor consists of a basic unit and various pluggable, interchangeable probes.

The basic unit can accommodate one combined EE07 RH and T probe or two separate EE07 probes, one for RH and one for T. The EE07 probes are available in plastic or in stainless steel enclosure and can be plugged onto the basic unit either directly or with M12 extension cables up to 10 m (32.8 ft) long. An optional kit facilitates the mounting of the probes in a duct.

The EE220 basic unit is available with polycarbonate or with metal enclosure, suitable for wall mount or for installation on rails (DIN EN 50022). For pharma and food industry the basic unit features a rear cable inlet.

The measured values are available on two analogue voltage or current (2-wire 4 - 20 mA) outputs, as well as on the optional display.

1- or 2-point adjustment for RH and T of the sensor can be easily performed with push buttons on the electronics board of the EE220 basic unit. Alternatively, the EE07 probes can be adjusted individually with the EE-PCA Product Configuration Adapter (see EE07 data sheet).

For surface moisture monitoring or for the early detection of condensation danger, EE220 can accommodate the EE03 RH and T module (see data sheet EE03).



Typical Applications

Pharma, biotech
Incubators and clean rooms
Cool chambers
Storage rooms

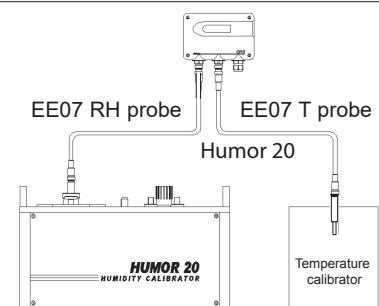
Features

Interchangeable probes
Outstanding accuracy and long term stability
Easy loop calibration
Wide temperature working range

Field Loop Calibration

A loop calibration or adjustment in the field, as required by the FDA (Food and Drugs Administration) regulated industries is easily possible for the EE220 with two separate probes. Using extension cables, the EE07 probes can be dropped into calibrators without dismantling the EE220 basic unit.

The illustration shows the EE07 RH probe placed into the Humor 20 high end portable humidity calibrator and the EE07 T probe in a dry block calibrator.



Sensing Probes (for technical data and ordering guide see EE03 and EE07 data sheets)

Humidity / Temperature Probes		Measuring Range
EE07 RH/T probe, polycarbonate		0...100 %RH -40...80 °C (-40...176 °F)
EE07 RH/T probe, stainless steel for clean rooms, food and pharmaceutical industry		0...100 %RH -40...80 °C (-40...176 °F)
EE03 RH/T module for surface moisture, detection of condensation danger		0...95 %RH -40...85 °C (-40...185 °F)
Temperature Probes		Measuring Range
EE07 T probe, polycarbonate		-40...80 °C (-40...176 °F)
EE07 T probe, stainless steel for clean rooms, food and pharmaceutical industry		-40...80 °C (-40...176 °F)

Reference Probes

A functional and accuracy check of the EE220 basic unit can be performed using reference probes instead of the regular EE07 probes. These are certified by individual test report and available for two pairs of fix RH and T values:

- RH = 10 % and T = 45 °C (113 °F)
- RH = 90 % and T = 5 °C (41 °F)




Technical Data

Outputs

(RH: 0...100 %RH; T: see ordering guide)	0 - 1 V	-0.5 mA < I _L < 0.5 mA
	0 - 10 V	- 1 mA < I _L < 1 mA
	4 - 20 mA (2-wire)	R _L < 500 Ω
T dependency, max.	0.2 mV/°C, 1 μA/°C	

General

Power supply class III  ¹⁾ (EU) / class 2 (NA)	10 - 35 V DC or 9 - 29 V AC	
for 0 - 1 V	15 - 35 V DC or 15 - 29 V AC	
for 0 - 10 V	10 V + R _L x 20 mA < U _V < 35 V DC	
for 4 - 20 mA		
Current consumption, typ.	DC supply: 10 mA	
	AC supply: 20 mA _{rms}	
Electrical connection	Screw terminals max. 2.5 mm ²	
Cable feedthrough	Cable gland M16x1.5 cable Ø 4.5 - 10 mm (0.18 - 0.39")	
Enclosure	Material	Polycarbonate
		Metal AISi ₉ Cu ₃
	Protection rating	IP65/NEMA 4
Electromagnetic compatibility	EN 61326-1:2013	EN 61326-2-3:2013
	Industrial Environment	
	FCC Part15 ClassA	ICES-003 ClassA
Working and storage conditions	-40...60 °C (-40...140 °F) without display	
	-30...60 °C (-22...140 °F) with display	
	0...95 %RH, non-condensing	
	700...1200 mbar	

1) USA & Canada class 2 supply required, max. supply voltage 30 V DC



Ordering Guide

The EE220 basic unit does not include the sensing probes, which are to be ordered separately. The order shall include three positions:

- EE220 basic unit
- EE07 probes or EE03 modules
- Probe cables, optional for EE07 probes and compulsory for EE03 modules.

Position 1: EE220 Basic Unit

		EE220-	
Hardware Configuration	Enclosure material	Polycarbonate	no code
		Metal (AlSi ₉ Cu ₃)	HS3
	Output	0 - 1 V	A1
		0 - 10 V	A3
		4 - 20 mA	A6
	Number of probes	1, combined for RH + T	NP1
2, separate probes for RH + T		NP2	
Electrical connection	Cable gland M16x1,5	E1	
	1 plug for power supply and outputs	E4	
	Rear cable inlet	E34	
Display	Without display	no code	
	With display	D1	
SW Config.	T Output	Temperature [°C]	no code
		Temperature [°F]	MB2
	T scale low	0	no code
		Value	SBLValue
T scale high	50	no code	
	Value	SBHValue	

Position 2 - Probes

See EE03 and EE07 ordering guide in the corresponding data sheets at www.epluse.com/ee220.

Position 3 - Probe cables

TYPE		
Cable for EE07 (optional)	2 m (6.6 ft)	HA010801
	5 m (16.4 ft)	HA010802
	10 m (32.8 ft)	HA010803
Cable for EE03 (compulsory)	2 m (6.6 ft)	HA010328
	5 m (16.4 ft)	HA010329

Order Example

Position 1 - Basic Unit:

EE220-HS3A3NP1E4

Enclosure material: Metal (AlSi₉Cu₃)
 Output: 0 - 10 V
 Number of probes: 1, combined for RH + T
 Electrical connection: 1 plug for power supply and outputs
 Display: Without display
 T Output: Temperature [°C]
 T Scaling low: 0 °C
 high: 50 °C

Position 2 - Probe:

EE07-M1HS2F9

Enclosure material: Stainless steel
 Model: Humidity and temperature
 Filter: Stainless steel grid
 Coating: Without

Position 3 - Probe cable:

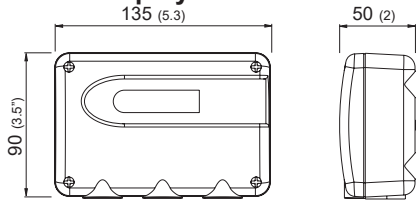
1x HA010802

Type: 5 m (16.4 ft) cable for EE07

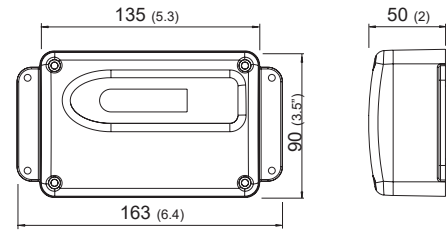
Dimensions

Values in mm (inch)

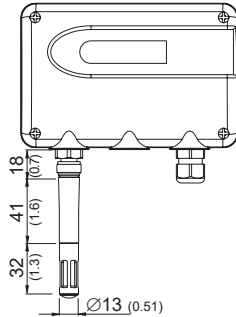
Enclosure polycarbonate



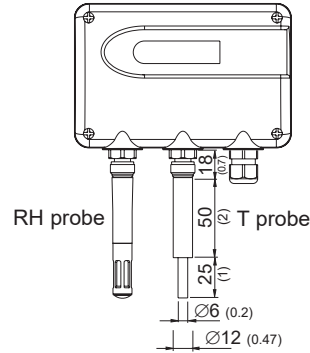
Enclosure metal



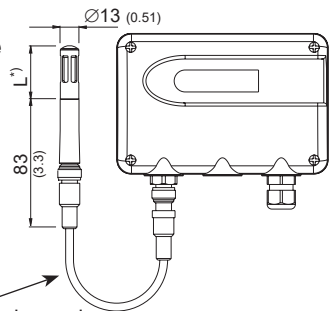
EE220 with one RH + T probe EE220-xNP1x



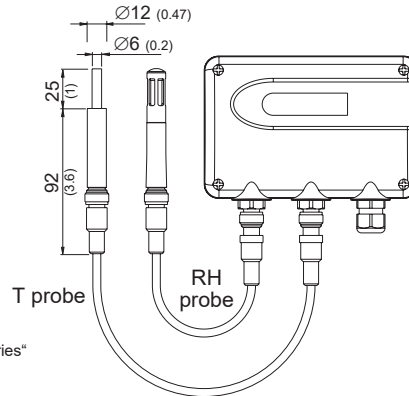
EE220 with two separate probes for RH + T EE220-xNP2x



EE220 with one remote RH + T probe EE220-xNP1x + HAxxxx



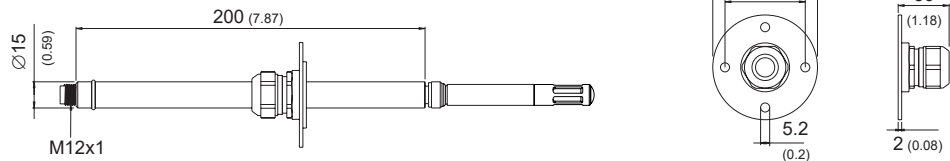
EE220 with two separate remote probes for RH + T EE220-xNP2x + 2x HAxxxx



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

*) L = Filter length see Datasheet „Accessories“

Duct mounting kit HA010209



Accessories

(for further information, see data sheet "Accessories")

- Display and metal front cover
- Display and polycarbonate front cover
- Duct mounting kit
- Extension cable for EE07 2 m (6.6 ft) / 5 m (16.4 ft) / 10 m (32.8 ft)
- Bracket for rail installation (polycarbonate enclosure only)
- Power supply adapter
- Reference probes set (2 probes)

D07M
D07P
HA010209
HA010801/02/03
HA010203
V03
HA010403