Datasheet EE220

Humidity and Temperature Sensor with Interchangeable Probes

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.

Versatility

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 the pharmaceutical and food industry the basic unit features a rear cable inlet.

Outputs and Display

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

Configurable and Adjustable

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).

EE220 polycarbonate enclosure with EE07 polycarbonate probe

EE220 aluminium die-cast enclosure with two EE07 stainless steel probes

Features

Outputs, Calibration and Adjustment

- 2 analogue voltage or current outputs
- **Adjustment**
  1- or 2-point adjustment for RH and T, via push buttons on the electronics board
- **Calibration**
  Easy loop calibration with separate probes for RH and T

Enclosure

- Polycarbonate or aluminium die-cast
- IP65 / NEMA 4(X) protection rating
- Easy mounting and cleaning
- Versatile connection options

M12 Probe connection

- Easy probe exchange
- Directly on EE220 or with M12 cables up to 10 m

Interchangeable probes

- Outstanding accuracy and long term stability
- Wide temperature working range
- Combined and separate probes for RH and T available
- Stainless steel or polycarbonate enclosure
- Reference probes for functional check

Inspection certificate

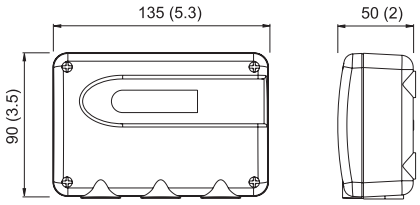
According to DIN EN 10204-3.1

Dimensions

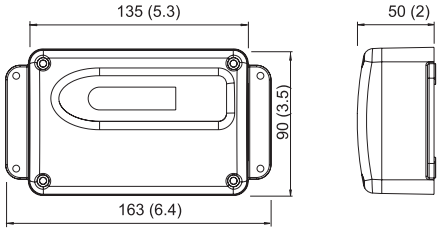
Values in mm (inch)

Enclosure

Polycarbonate

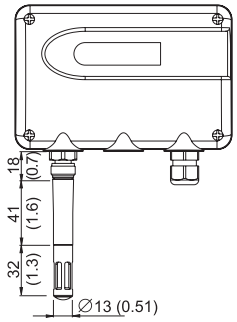


Aluminium die-cast



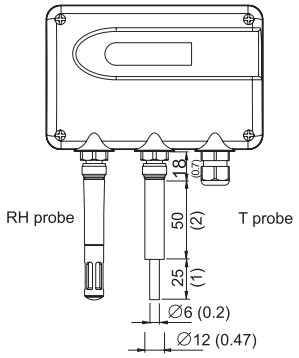
EE220 with one RH + T probe

EE220-xNP1x



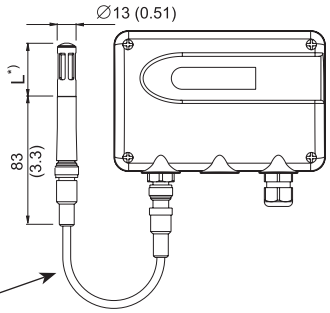
EE220 with two separate probes for RH + T

EE220-xNP2x



EE220 with one remote RH + T probe

EE220-xNP1x+ HAxxxx

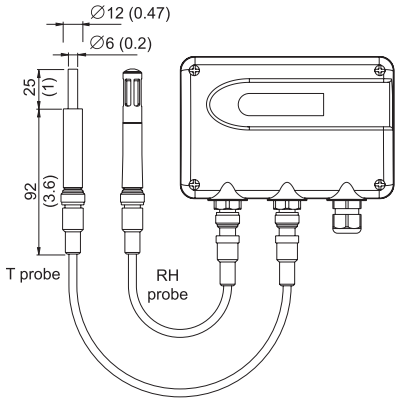


Cable length	Ordering code
2 m (6.6 ft)	HA010801
5 m (16.4 ft)	HA010802
10 m (32.8 ft)	HA010803

*) L = Filter length
see Datasheet „Accessories“

EE220 with two separate remote probes for RH + T

EE220-xNP2x + 2x HAxxxx

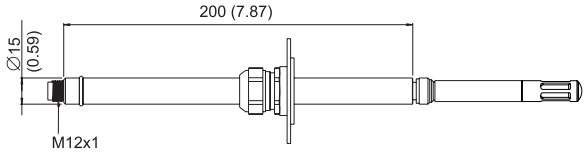


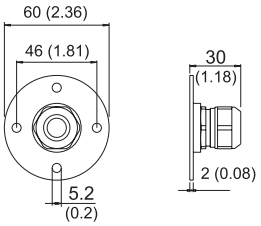
Dimensions

Values in mm (inch)

Duct mounting kit

HA010209

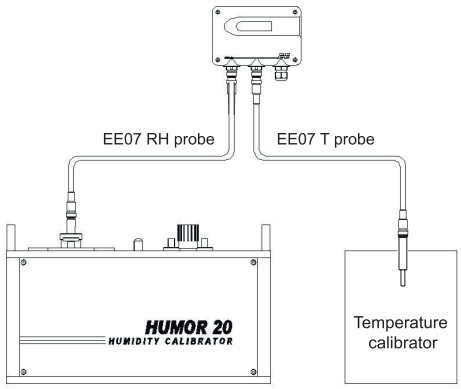




Field Loop Calibration

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 dismounting the EE220 basic unit.

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



Sensing Probes

Technical data and ordering guide see EE07 data sheet

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)

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 reports and available for two pairs of fixed RH and T values:

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

Technical Data

Outputs

Analogue

(RH: 0...100 %RH; T: see ordering guide)	0 - 1 V 0 - 10 V 4 - 20 mA (2-wire)	-0.5 mA < I_L < 0.5 mA -1 mA < I_L < 1 mA R_L < 500 Ω	I_L = load current R_L = load resistance
Temperature dependency, max.	0.2 mV/°C, 1 µA/°C		

General

Power supply class III USA & Canada: Class 2 supply necessary, max. voltage 30 V DC		
	0 - 1 V	10 - 35 V DC or 9 - 29 V AC
	0 - 10 V	15 - 35 V DC or 15 - 29 V AC
	4 - 20 mA	10 V + R_L x 20 mA < U_V < 35 V DC
Current consumption, typ. @ 24 V DC/AC	**DC supply**	10 mA
	AC supply	20 mA_{rms}
Electrical connection		Screw terminals max. 2.5 mm^2 (AWG 14)
Cable glands		Cable gland M16x1.5, cable Ø4.5 - 10 mm (0.18 - 0.39")
Working and storage conditions		
	without display	-40…+60 °C (-40...+140 °F)
	with display	-30…+60 °C (-22...+140 °F)
		0…95 %RH, non-condensing
		700…1 200 mbar

Enclosure	**Material**	**Protection Rating**
	Polycarbonate	IP65 / NEMA 4X
	Aluminium die-cast (AlSi9Cu3)	IP65 / NEMA 4

Electromagnetic compatibility	EN 61326-1:2013 FCC Part15 ClassA	EN 61326-2-3:2013 ICES-003 ClassA	Industrial Environment
Conformity	CE UKCA		

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
- Probe cables, optional for EE07 probes

Position 1: EE220 Basic Unit

	Feature	Description	Code
Hardware Configuration			EE220-
	Enclosure material	PC (Polycarbonate)	No code
		Aluminium die-cast (AlSi9Cu3)	HS3
	Output	0 - 1 V	A1
		0 - 10 V	A3
		4 - 20 mA	A6
	Number of probes	1, combined for RH + T	NP1
		2, seperate 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	No code
		With display	D1
SW Config.	Output T measurand	Temperature [°C]	No code
		Temperature [°F]	MB2
	Output T scaling low	0	No code
		Value	SBL*Value*
	Output T scaling high	50	No code
		Value	SBH*Value*

Position 2: Probes

See EE07 ordering guide in the corresponding data sheet at www.epluse.com/ee220.

Position 3: Probe cables

Type		Code
Cable for EE07 (optional)	2 m (6.6 ft)	HA010801
	5 m (16.4 ft)	HA010802
	10 m (32.8 ft)	HA010803

Order Example

Position 1 - Basic Unit:

EE220-HS3A3NP1E4

Feature	Code	Description
Enclosure material	HS3	Aluminium die-cast (AlSi9Cu3)
Output	A3	0 - 10 V
Number of probes	NP1	1, combined for RH + T
Electrical connection	E4	1 plug for power supply and outputs
Display	No code	Without
Output T measurand	No code	Temperature [°C]
Output T scaling low	No code	0 °C
Output T scaling high	No code	50 °C

Position 2 - Probe:

EE07-M1HS2F9

Feature	Code	Description
Model	M1	Humidity and temperature
Enclosure material	HS2	Stainless steel
Filter	F9	Stainless steel grid
Sensor coating	No code	Without
Additional function	No code	Without

Position 3 - Probe cable:

HA010802

Feature	Code	Description
Cable for EE07	HA010802	5 m (16.4 ft) cable for EE07

Accessories

For further information see datasheet Accessories.

Description	Code
Display and metal front cover	D07M
Display and polycarbonate front cover	D07P
Duct mounting kit	HA010209
Extension cable for EE07 2 m (6.6 ft) 5 m (16.4 ft) 10 m (32.8 ft)	HA010801 HA010802 HA010803
Bracket for rail installation (polycarbonate enclosure only)	HA010203
Power supply adapter	V03
Reference probes set (2 probes)	HA010403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