

EE04 Series

Miniature Humidity and Temperature Transmitter

The high quality, compact EE04 humidity and temperature transmitters are optimised for OEM applications. Highest performance with respect to accuracy and long term stability is combined with low costs for large quantities. The SMD humidity sensor HC103 series, state of the art electronics and dedicated housing are offering an excellent price / performance ratio.

An optional filter assures optimal protection against dirt. For use in high pollution or corrosive environment the sensors and electronics can be protected with a special E+E coating. There is an EE04 version model available with extra air slots on the side allowing for very fast response times.

The linear output voltage for relative humidity can easily be processed further. The temperature output signal is provided by a voltage divider with passive NTC sensor. Fast and easy installation is possible by using the provided mounting flange.



Typical Applications

air conditioning in automobiles
humidifiers and dehumidifiers
copy machines
warehouses
home appliances

Features

small dimensions
excellent price / performance ratio
high long term stability
easy installation
low power consumption
traceable calibration

Technical Data

Measuring Quantities

Relative Humidity

Humidity sensor	HC103	
Working range	0...95%RH	with coating 0...100%
Accuracy at 25°C (77°F)	± 3%RH (40...60%RH)	± 5%RH (0...95%RH)
Humidity output	Traceable to intern. standards, administrated by NIST, PTB, BEV... linear analogue voltage 0...100%RH. Δ 0.1xU _v ...0.9xU _v e.g.: for U _v = 5VDC : 0...100%RH = 0.5V...4.5V (50%RH = 2.5V)	
Load resistor R _{load}	> 5kOhm	
Response time τ_{63} at 25°C (77°F)	type B:	< 45s (without filter and without coating)
	type O:	< 30s (without filter and without coating)

Temperature

Temperature output	Voltage divider: NTC (10kOhm at 25°C/77°F) with pull down resistor (10kOhm)		
Calculation T _[°C] out of output voltage	$R_{NTC} = \frac{10000 \times U_v}{U_{Out}} - 10000$	$T_{[K]} = \frac{3496}{11,726 + \ln\left(\frac{R_{NTC}}{10000}\right)}$	T _[°C] = T _[K] - 273,15
Calculation output voltage out of T _[°C]	T _[K] = T _[°C] + 273,15	$R_{NTC} = 10000 \times e^{\left(\frac{3496}{T_{[K]}} - 11,726\right)}$	$U_{Out} = \frac{10000 \times U_v}{(R_{NTC} + 10000)}$
Working temperature	-40...85°C (-40...185°F)		

General Data

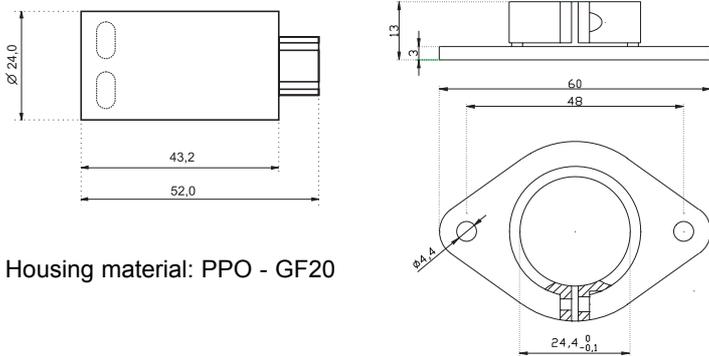
Voltage supply (U _v)	5V DC ±10%
Current consumption	typical 1.4mA without load < 3.5mA at maximal load
Sensor protection	grid / metal grid filter or coating
CE compatibility according ¹⁾	EN 50081-1 EN 61000-6-2

¹⁾ EE04 is not protected against surge



Dimensions (mm)

1 mm = 0.03937" / 1" = 25.4 mm

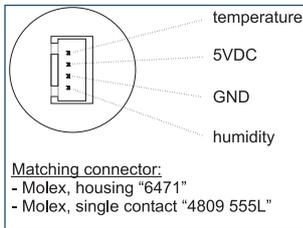


Housing material: PPO - GF20

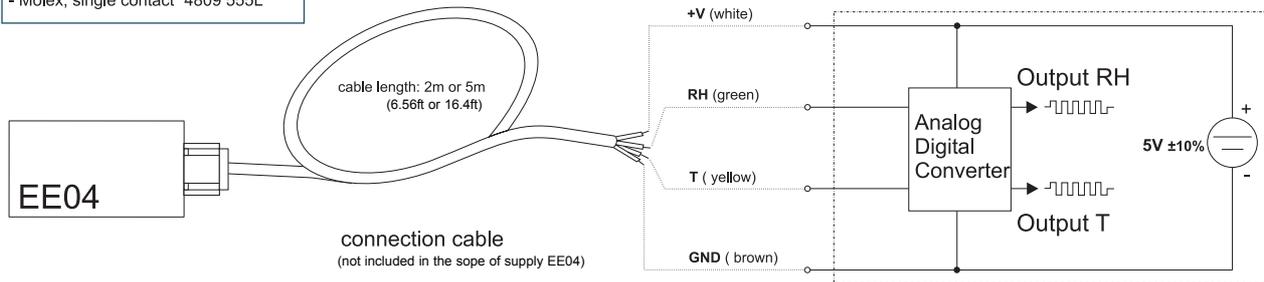
Protection class:

Sensor side: IP50 (type B)
IP20 (type B and O)
Connector side: IP30

Connection Diagram



The circuitry shows the typical A/D conversion of the analogue output signals. A reference voltage or calibration is not required. The voltage supply can vary in the range 5V ±10%.



Ordering Guide

MODEL	TYPE	HUMIDITY OUTPUT	T-SENSOR	FILTER (for type B only)	COATING (for (3) only)
humidity+temperature (FT)	duct (B) duct with extra air slots on the side (O)	linear 0,1...0,9 x U _v (4)	NTC, 10k at 25°C (A)	only grid, no filter (3) metal grid filter above grid (6)	with coating (HC) without coating (--)
EE04-					

Accessories

connection cable 2m (6.6ft) (HA010305)
5m (16.4ft) (HA010306)

Order Example

EE04-FTB4A3-HC

model:
Type:
output:
T-sensor:
filter:
coating:

humidity and temperature duct
linear 0.1 - 0.9 x U_v
NTC
only grid, no filter
with coating