

MINIATURE TRANSMITTERS

EE04 Series

The high quality, compact EE04 humidity and temperature transmitters are optimized 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 optional 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.

Miniature Humidity and Temperature Transmitter



Typical Applications

- Air conditioning in automobiles
- Humidifiers and dehumidifiers
- Copy machines
- Warehouses
- Home appliances

Features

- Small dimensions
- Excellent / performance ratio
- High long term stability
- Easy installation
- Low power consumption

Technical Data EE04

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	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]	$T_{[K]} = T_{[°C]} + 273,15$	$R_{NTC} = 10000 \times e^{\left(\frac{3496}{T_{[K]}} - 11,726\right)}$	$U_{Out} = \frac{10000 \times U_v}{\left(\frac{R_{NTC}}{10000} + 10000\right)}$
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

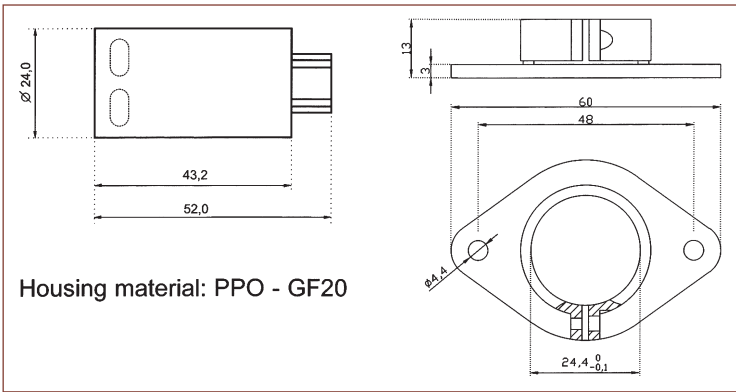


¹⁾ EE04 is not protected against surge.

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Dimensions (mm)

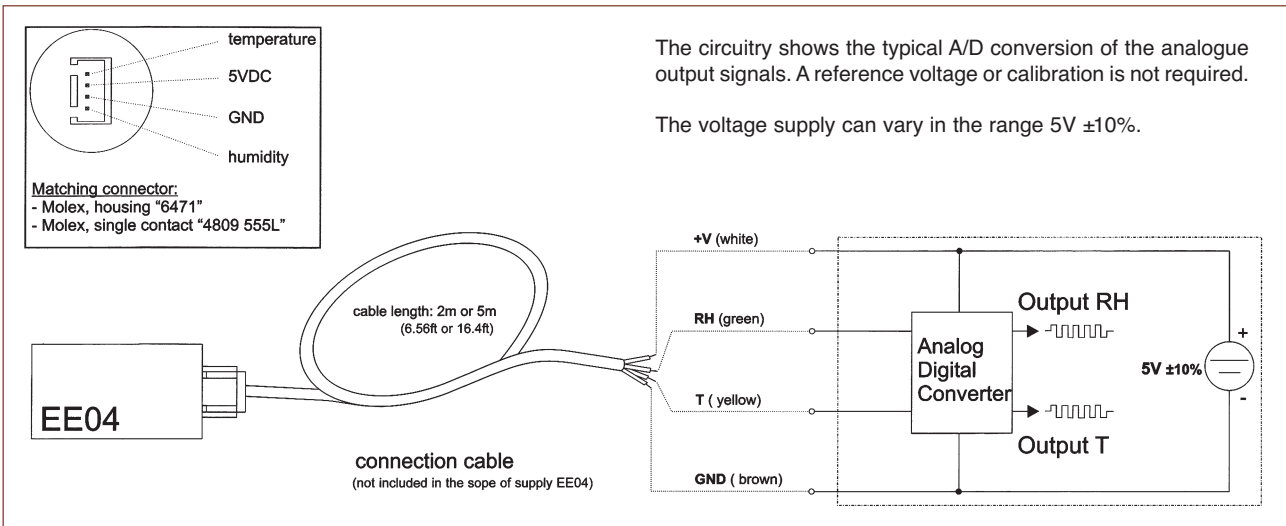
1 mm = 0.03937" / 1" = 25.4 mm



Protection class :

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

Connection Diagram



Ordering Guide EE04

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 Uv (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: humidity and temperature
Type: duct
Output: linear 0.1 – 0.9 x UV
T-sensor: NTC
Filter: only grid, no filter
Coating: with coating