HC201

Humidity Sensors for HVAC Applications

Typical Applications

HVAC
hand helds
humidifiers
dehumidifiers

Features

high repeatability
high sensitivity
wettable
very good long term stability
good resistance to pollutants
small size construction

Technical Data

Nominal capacitance $C_{76}$ (at 20 degC / 68°F) 200 ± 30 pF
Sensitivity 0.6 pF / % RH
Working range Humidity 10...95% RH
Temperature -40...110 degC (-40...230°F)
Linearity error (20...90% RH) < ± 2% RH
Hysteresis 2.0 ± 0.3% RH
Response time $t_{90}$ < 15 sec
Temperature dependence [%RH / degC] $\Delta RH = g \times RH \times (T - 20)$ $g = -0.004 \pm 10\%$
Long term stability at 20-30 degC (68-86°F) / 20-80% RH drift < 1.5 % / year
Loss tangent < 0.1 typical
Maximum supply voltage (no DC voltage) 5 V max (Upp)
Maximum DC voltage < 5 mV
Operating frequency 10...100 kHz, recommended 20 kHz
Material connection leads phosphor bronze with tin/lead coating

Characteristics

The average increase of capacitance over the working range is 50pF. For the range of 20–90% RH, linear approximation is possible, errors will be lower than ±2% RH.

The sensor characteristic is described by the following linear formula:

$$C(RH) = C_{76} \times [1 + HK \times (RH - 76)]$$

with $HK = 2700 \pm 250$ ppm /% RH
**Working Range**

The working range for the humidity sensor HC201 is shown with regard to the humidity / temperature limits.

Although the sensors would not fail beyond the limits, the specification is guaranteed only within the working range. In applications with high humidity at high temperature the time factor shall be considered.

**Dimensions (mm)**

1 mm = 0.03937 inch / 1 inch = 25.4 mm

**Ordering Guide**

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<tr>
<td>HC</td>
<td>capacitive humidity sensor 200 pF</td>
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<td>capacitive humidity sensor 200 pF with PC housing for mounting on the printed circuit board</td>
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