

# 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°C / 68°F)	200 ± 30 pF	
Sensitivity	0.6 pF / % RH	
Working range	Humidity	10...95% RH
	Temperature	-40...110°C (-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 / °C]	$\Delta RH = g * RH * (T - 20)$	$g = -0.004 \pm 10 \%$
Long term stability at 20-30°C (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	phosphor bronze with tin coating	

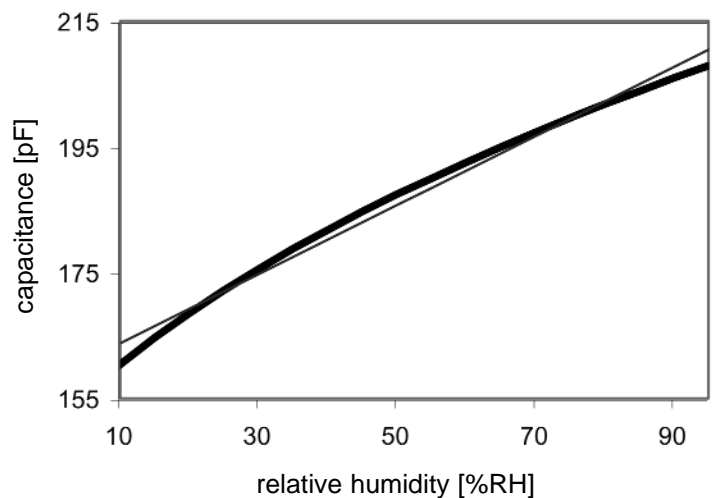
### Characteristics

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:

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

with  $HK = 2700 \pm 250 \text{ ppm} / \% \text{ RH}$

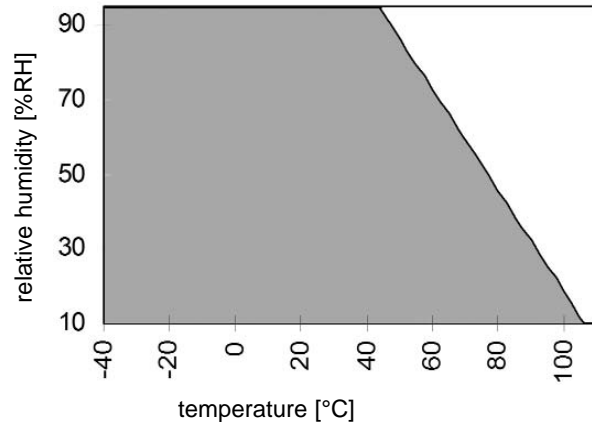


## Working Range

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

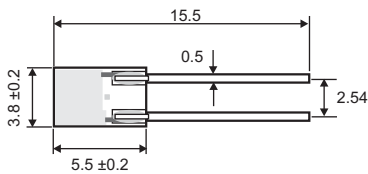
Although the sensors would not fail beyond the limits, the specification is guaranteed only within the working range.

In applications with high humidity at high temperature the time factor shall be considered.

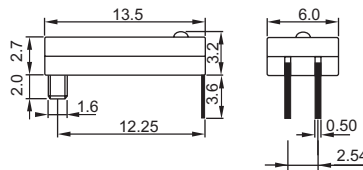


## Dimensions (mm)

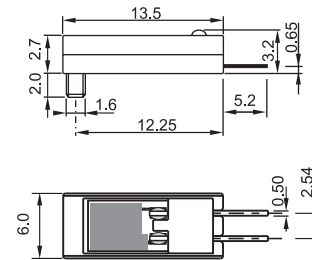
1 mm = 0.03937" / 1" = 25.4 mm



**HC201**



**HC201/H**



**HC201/G**

## Ordering Guide

MODEL	TYPE
HC	capacitive humidity sensor 200 pF <span style="float: right;">(201)</span>
	capacitive humidity sensor 200 pF with PC housing for mounting on the printed circuit board <span style="float: right;">(201/H)</span>
	capacitive humidity sensor 200 pF with PC housing <span style="float: right;">(201/G)</span>
HC	