

# H8000

## Relative Humidity Element

The H8000 capacitive polymer element is the latest generation technology, developed to reliably and accurately measure moisture in a wide range of relative humidity applications. This element is the core measurement element of Michell's new range of interchangeable HygroSmart sensors, probes and transmitters.



### Highlights

- Linearity  $\pm 1.5\%$  RH
- Stability  $\pm 1\%$  RH per year
- Operating temperature  $-40$  to  $+200^{\circ}\text{C}$
- Low thermal hysteresis
- $\varnothing 0.4\text{mm}$  leg diameter
- Nominal capacitance  $250\text{ pF}$
- Low RH hysteresis

### Applications

- RH probes
- RH transmitters
- Portable RH checkers
- Custom OEM RH instruments

## Technical Specifications

### Performance Specifications

RH measurement range	0 to 100% RH
Linearity @ 23°C	±1.5% RH (5 to 95% RH)
RH hysteresis	±1% RH
RH measurement response time	Less than 10 seconds
RH thermal drift (0 to +70°C / 10 kHz)	@ 11%: -0.18% RH/°C @ 75%: -0.24% RH/°C
Maximum mixing ratio	250g water/kg dry air (see envelope)
D factor (tangent of loss angle)	0.02 typical
RH long term stability @ 23°C	< ±1% RH per year

### Electrical Specifications

Nominal capacitance (75% RH @ 23°C)	250 pF ±15%
Nominal sensitivity (15 to 85% RH @ 23°C)	0.45 pF / %RH
Operating frequency range	5 / 300 kHz

### Operating Specifications

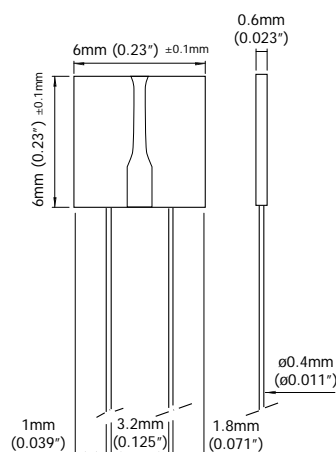
Operating temperature	-40 to +200°C
Operating pressure	0.04 to 30 bar

### Mechanical Specifications

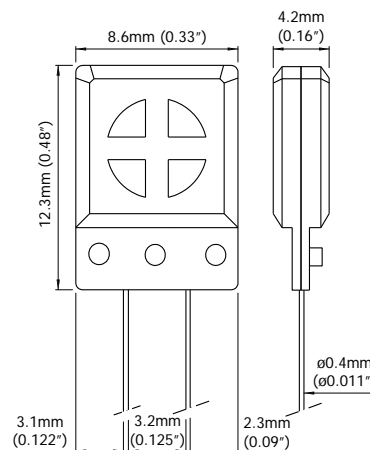
Weight	0.1g (without cap)
Leg diameter	ø0.4mm
Leg length	12mm, 50mm

## Product Dimensions

### H8000 Element without protection cap

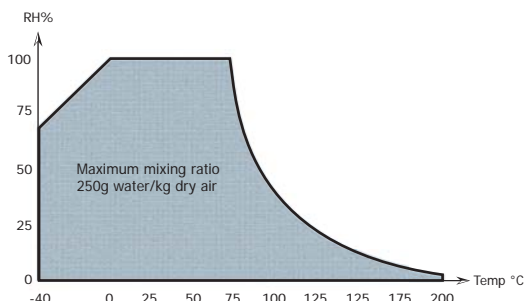


### H8000 Element with blue protection cap



## Measurement Operating Envelope

The H8000 RH technology operates to the defined technical specifications within the following operating condition envelope:



## Related HygroSmart Products

HygroSmart is the brand used to describe the range of Michell RH related products on an interchangeable sensor, which negates the need for on-site calibration.



**WM281/291**  
Advanced Wall Mount  
RH and Temperature  
Transmitter



**WR283/293**  
Advanced Remote Probe  
RH and Temperature  
Transmitter



**DT284/294**  
Advanced 12mm Duct  
Mount RH and Temperature  
Transmitter



**I7000XP**  
Interchangeable Sensor  
for Relative Humidity and  
Temperature

**Michell Instruments** 48 Lancaster Way Business Park, Ely, Cambridgeshire, CB6 3NW

Tel: +44 (0) 1353 658000, Fax: +44 (0) 1353 658199, Email: [info@michell.com](mailto:info@michell.com), Web: [www.michell.com/uk](http://www.michell.com/uk)

Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.  
Issue no: HygroSmart H8000\_97482\_V1\_UK\_Datasheet\_0115