

## Vaisala HUMICAP® for measuring relative humidity



*Vaisala introduced the Vaisala HUMICAP® thin-film capacitive humidity sensor in 1973. Throughout its 35 years of history, the Vaisala HUMICAP® technology has been under continuous development in order to ensure all time high-tech sensors and instruments.*

Vaisala's relative humidity products incorporate a capacitive thin-film polymer sensor, the Vaisala HUMICAP® Sensor. The HUMICAP® sensor features high accuracy, excellent long-term stability and negligible hysteresis. It is insensitive to dust, particulate dirt, and most chemicals.

All HUMICAP® based products provide a full measurement range of relative humidity, 0 ... 100 %RH. Depending on sensor model, the sensor is available with chemical purge option, which maintains accuracy in environments with high concentrations of chemicals, or with a sensor preheat option that prevents condensation.

### Features/Benefits

- Vaisala HUMICAP® Sensor, a thin-film polymer sensor
- High accuracy
- Excellent long-term stability - a long calibration interval
- Insensitive to dust and most chemicals
- Vaisala INTERCAP® Sensor - an interchangeable relative humidity sensor for easy maintenance

## Operating principle

The thin-film polymer either absorbs or releases water vapor as the relative humidity of the ambient air rises or drops. The dielectric properties of the polymer film depend on the amount of water contained in it: as the relative humidity changes, the dielectric properties of the film change, and so the capacitance of the sensor changes.

The electronics of the instrument measure the capacitance of the sensor and convert it into a humidity reading.

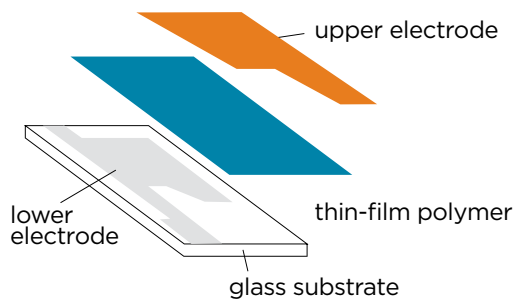
## Vaisala INTERCAP® - easy maintenance

The Vaisala INTERCAP® Sensor is based on the same measurement principle as the HUMICAP® sensor. The INTERCAP® sensor is factory pre-calibrated by laser trimming which makes it a fully interchangeable sensor needing no additional calibration or adjustment. The INTERCAP® sensor is used in Vaisala's  $\pm 3$  %RH accurate instruments.

## Next generation Vaisala HUMICAP® sensor

The latest member of the Vaisala HUMICAP® sensor family is the Vaisala HUMICAP®180R.

This new type of capacitive humidity sensor has been developed especially to cope with chemical interference. Extensive field and laboratory tests show that the new structure and polymer provide the sensor with better than ever long-term stability for relative humidity measurement.



Vaisala HUMICAP® sensor structure.

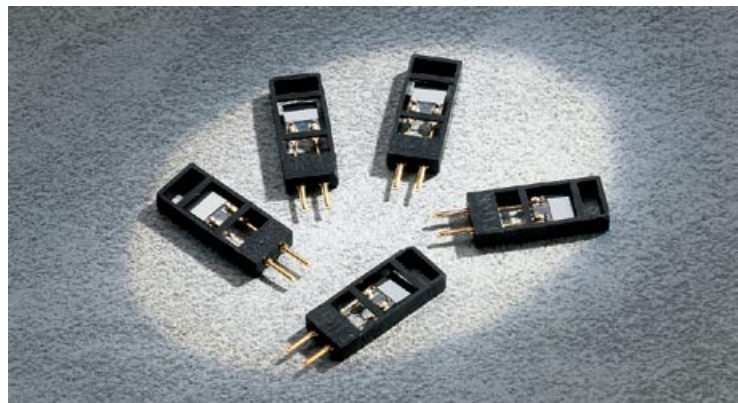
## Applications

Vaisala offers you everything you need for humidity measurement. Vaisala has a wide product range of relative humidity transmitters for industrial applications, including the most demanding and potentially explosive environments.

The Vaisala product range includes a number of reliable humidity and temperature transmitters for HVAC (Heating, Ventilation and Air-Conditioning) applications and versatile humidity OEM modules designed for a variety of applications.

For spot measurements Vaisala offers a wide selection of portable and handheld meters suitable for several types of applications. In addition, Vaisala has products for measuring the structural humidity in buildings and concrete.

The Vaisala product range includes also humidity calibrators and spot checking instruments.



Vaisala HUMICAP® sensors.

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For more information, visit  
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