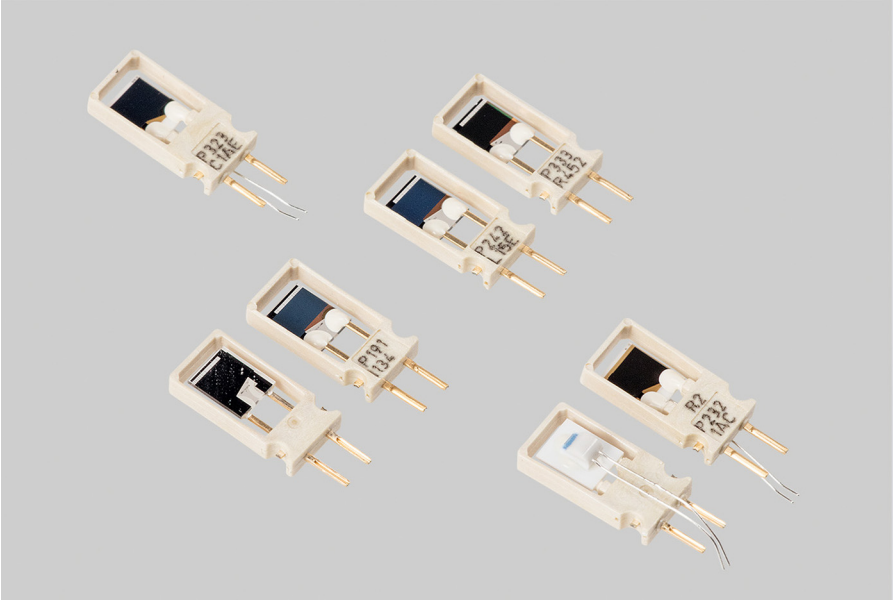
HUMICAP® humidity sensors

For measuring relative humidity



Features

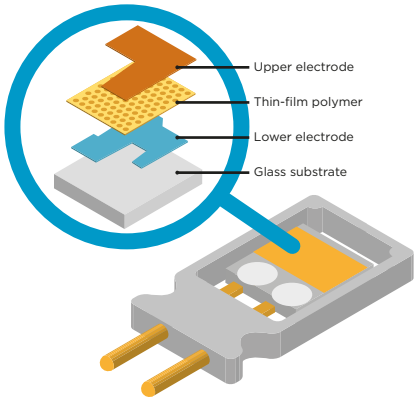
- A capacitive thin-film polymer sensor
- Full measurement range 0 ... 100 %RH
- Accurate to ±0.8 %RH [1)]
- Traceable humidity measurement
- Over 40 years on the market

1) *Accuracy up to ±0.8 %RH depending on product*

Vaisala HUMICAP® humidity sensors guarantee quality and reliability, with their reputation for accuracy, excellent long-term stability, and negligible hysteresis.

Benefits

- Excellent long-term stability
- Insensitive to dust and most chemicals
- Chemical purge option for stable measurements in environments with high concentrations of chemicals
- Sensor heating for measurements even in condensing environments
- Full recovery from condensation



How the HUMICAP® sensor works

HUMICAP® is a capacitive thin-film polymer sensor consisting of a substrate on which a thin film of polymer is deposited between two conductive electrodes. The sensing surface is coated with a porous metal electrode to protect it from contamination and exposure to condensation. The substrate is typically glass or ceramic. The thin-film polymer either absorbs or releases water vapor as the relative humidity of the ambient air rises or falls. The dielectric properties of the polymer film depend on the amount of absorbed water. As the relative humidity around the sensor changes, the dielectric properties of the polymer film change, and so does the capacitance of the sensor. The instrument's electronics measure the capacitance of the sensor and convert it into a humidity reading.

Vaisala HUMICAP® humidity products

Vaisala has everything you need for measuring humidity, with a wide range of humidity instruments covering applications from HVAC to the most demanding industrial applications, both indoors and out. Vaisala's humidity instrument offering includes transmitters, modules for volume applications, portable and handheld humidity meters, and humidity calibrators.

Humidity sensor types

INTERCAP® humidity sensor	**Interchangeable general purpose humidity sensor** with good humidity durability and short response time.
HUMICAP® 180C composite humidity and temperature sensor	Composite [1] general purpose humidity sensor with good humidity durability and short response time. The item contains humidity and temperature sensors. This sensor is used for chemical purge and heated probe options.
HUMICAP® 180R humidity sensor	Robust general purpose humidity sensor with high humidity durability, good long term stability, and good tolerance against chemical exposure.
HUMICAP® 180RC composite humidity and temperature sensor	Robust composite general purpose humidity sensor. The HUMICAP® 180RC has high humidity durability, good long term stability, and good tolerance against chemical exposure. The item contains humidity and temperature sensors. This sensor is used for chemical purge and heated probe options.
HUMICAP® 180L2 moisture in oil sensor	**Moisture measurement sensor for oils and other liquids.** It has excellent tolerance against chemicals and moderate high humidity tolerance.
HUMICAP® R2 humidity sensor	**The latest generation industrial humidity sensor.** Compared to HUMICAP® 180R it has improved corrosion resistance.
HUMICAP® 180V catalytic humidity sensor	Humidity sensor with catalytic surface **for use in processes with H_2O_2**.
HUMICAP® 180VC catalytic composite humidity and temperature sensor	Composite humidity sensor with catalytic surface **for use in processes with H_2O_2**.

1) With integral Pt100 sensor.

Sensor properties

	Integral Pt100 temp. sensor	Encapsulation type	Identifying character	Item code
INTERCAP®		Type C	I	15778HM (1 pc) [1] INTERCAPSET-10PCS (10 pcs)
HUMICAP® 180C	X	Type C	I	229011SP
HUMICAP® 180R		Type C	R	HUMICAP180R
HUMICAP® 180RC	X	Type C	R	HUMICAP180RC
HUMICAP® 180L2		Type D	L	HUMICAP180L2
HUMICAP® R2		Type D	R2	HUMICAPR2
HUMICAP® 180V		Type D	C	HUMICAP180V
HUMICAP® 180VC	X	Type D	C	HUMICAP180VC

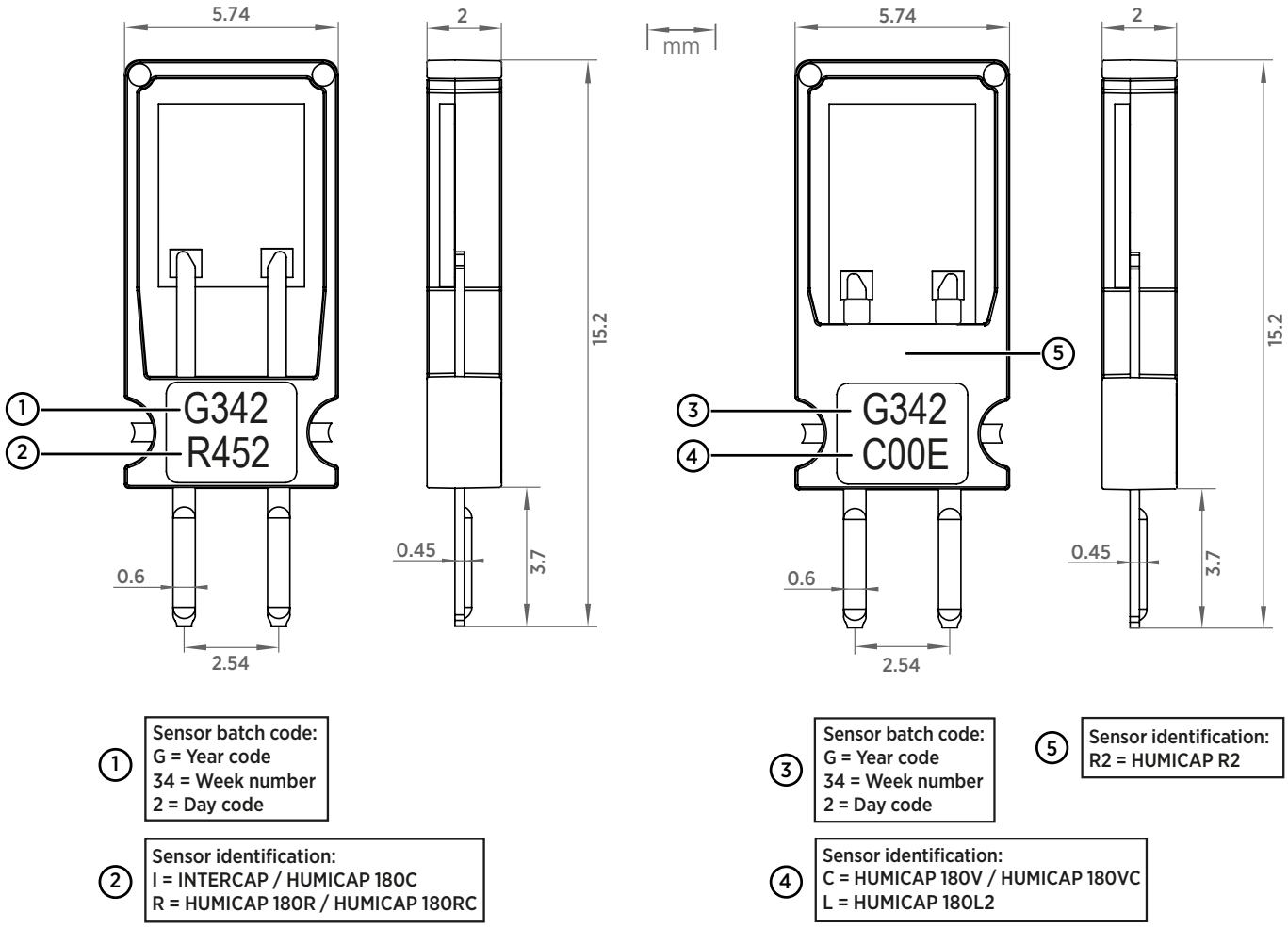
1) After the latest sensor update, the INTERCAP® humidity sensor has been upgraded to the same environmental tolerance as the discontinued HUMICAP® 180 humidity sensor. Please use spare part item 15778HM (INTERCAP® humidity sensor) as replacement for the HUMICAP® 180 sensor.

Technical data

Materials

- All materials comply with UL V-0
- Thin film capacitor structure on glass substrate (Type C) or alumina (Type D)
- Sensor frame is made of lubricated 30 % glass reinforced LCP resin (white LCP Zenite 6130L)
- Sensor pin material is copper alloy with electroplated gold coating
- Sensor chip is attached to pins using silver-filled epoxy glue
- Glue is protected with white thermal curing marking ink

Dimensions



Type C (left) and type D (right) encapsulation dimensions

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