HYGROCHIP®
DIGITAL HUMIDITY SENSOR HYT-371

Characteristic feature

- **Measuring range 0 … 100 % rH, -40 … 125°C**
- **Accuracy ±3 % rH, ±0.4 °C**
- **optimal price-performance ratio**
- **Precisely calibrated and temperature compensated**
- **Chemical resistant, long-term stable**
- **FR4-Substrate**
- **Low Hysteresis, compensated Linearity error and Temperature drift**
- **SIL-connections, plug-in type, RM 1.27 mm**
- **Digital I²C Interface to µC**
- **RoHS conformance**

Typical areas of application

- **simple handheld measurement instruments**
- **building control systems**
- **humidity transmitters**
- **Consumer products**
- **Home Automation**

Features

HYT 371 – the inexpensive member of the digital class

With the application of inexpensive FR4 Epoxy substrate and a simplified calibration process, this variant offers the same performance characteristics of the product family at the best price performance ratio of its class.

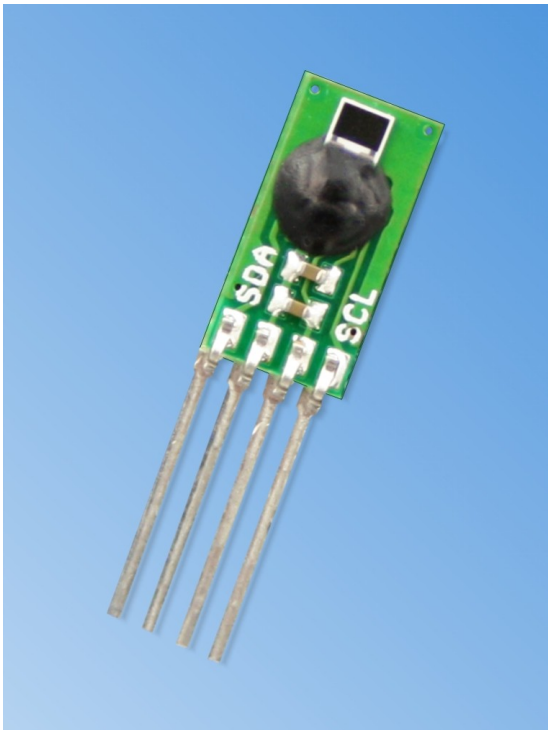
The basic accuracy of +/- 3% rH and +/- 0.4 K is higher than the accuracy of competitor's products, while featuring better chemical resistance and long-term stability.

With dimensions of 10,2 x 5,1 x 1,8 mm and while providing pluggable SIL-Pins, chemical resistance, dew formation resistance and an excellent long term stability this digital humidity sensor offers a large application window. Due to a very attractive price in higher quantities this variant is ideal for price-conscious mass applications and Consumer products.

The signal processing integrated in the sensor completely processes the measured data and directly delivers the physical parameters of relative humidity and temperature over the I²C compatible interface as digital values. The module is precisely calibrated by the manufacturer and is therefore fully interchangeable without adjustment. Both the linearity error as well as temperature drift are corrected “OnChip” through computation resulting in an outstanding accuracy over a wide range of application.

Further variants and the full spectrum of HYGROCHIP® product series can be found at:

http://hygrochip.hygrosens.com



Technical data

Humidity measurement	
Humidity measuring range (3)	0 ... 100% rH see Figure 3
Humidity accuracy (1)	±3% rH (20 ... 80% rH see Figure 1
Reproducibility (2)	±0.1% rH
Hysteresis	< ±1% rH
Humidity resolution	0.05% rH
Linearity error	< ±2% rH
Response time t_{63}	< 6sec
Tk Residual error	0.1% rH / K (0 ... 60 °C)
Long term drift	< 0.5 % rH / a
Measuring principle	Capacitive polymer humidity sensor

Temperature measurement	
Temperature measuring range	- 40 ... +100 °C
Temperature accuracy	±0.4 K (0 ... 60 °C) see Figure 2
Reproducibility	±0.1 K
Temperature resolution	0.05 °C
Response time t_{63}	< 8 sec
Long term drift	< 0.05 K / a
Measuring principle	PTA (integrated)

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Relative humidity accuracy

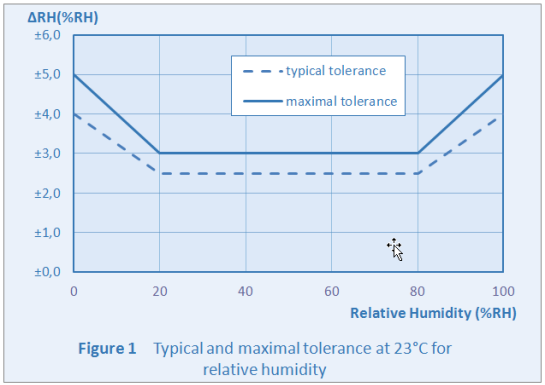


Figure 1 Typical and maximal tolerance at 23°C for relative humidity

(1) The accuracy is tested at 23°C and 3.3 V operating voltage in the direction of rising humidity. The accuracy does not include Tk-Residual error, residual linearity error or Hysteresis effect.

(2) The repeatability is measured in the same direction and does not consider the Hysteresis effect

(3) The maximum dew point is brought down to 80°C.

Temperature measurement accuracy

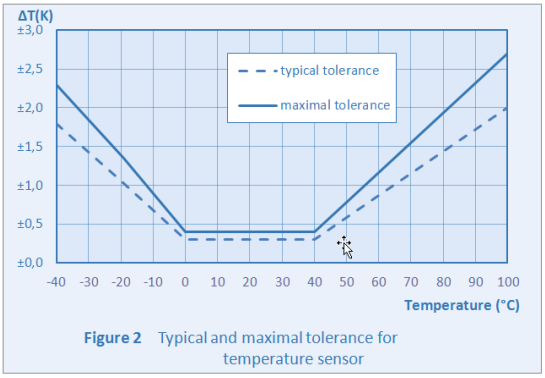


Figure 2 Typical and maximal tolerance for temperature sensor

Humidity application range

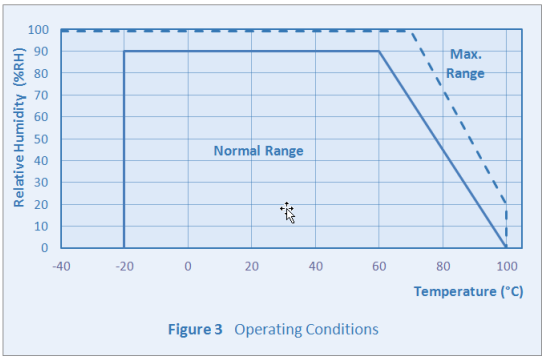


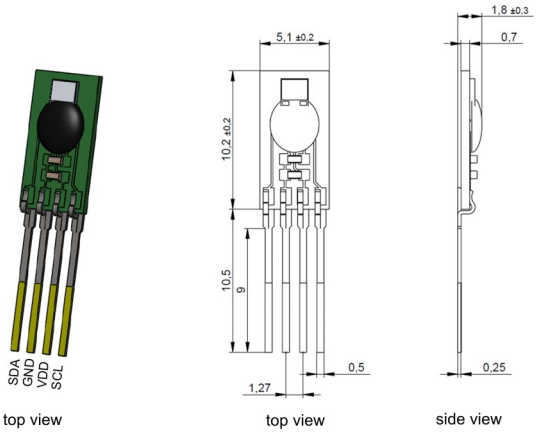
Figure 3 Operating Conditions

Further information about the component can be found at:

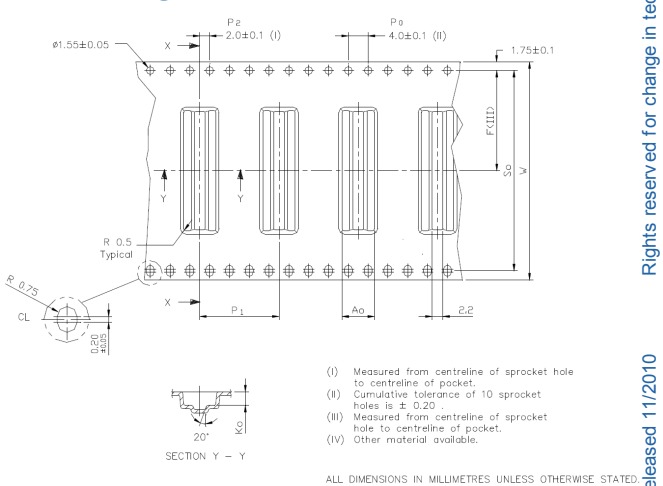
http://hygrochip.hygrosens.com

Operating data	
Operating voltage	2.7 … 5.5 V
Current consumption (Nominal)	< 22µA at 1Hz measuring rate 850 µA maximum
Current consumption (Sleep)	< 1µA
Application temperature	-40 °C ... 100 °C
Humidity application range	0 ... 100% rH
Digital Interface	I²C, address 0x28 or alternative address
Limits	
Operating voltage	-0.3 … 6.0 V
Storage temperature	-40 °C ... 100 °C

Mechanical dimensions



Packing



Tape & Reel, 44 mm Strap