

Temperature and Humidity Sensors



Ingen humidity sensors are capacitive sensors integrated on a polysilicon heater. A response time of less than 1.0 s has been achieved. High accuracy is achieved using multiple polyimide columns having diameters of a few microns and allowing moisture to diffuse into them circumferentially. Using structures that eliminate the air-gap capacitance between the columns, the simulated sensor output drifts by only 1% when the relative dielectric constant in the air region changes from 1 to 10. Ingen Temperature sensor is platinum resistance type sensors separately mounted on the same IC as the

humidity sensor. An accuracy of ± 0.2 deg C in temperature and 3% in RH has been obtained using this method. The heater reduces the recovery time after wetting, enables the sensor to recover from contamination and aging, and allows the sensing film to be reset on demand during self-test protocols. The calibration coefficients are programmed into an OTP memory on the chip. These coefficients are used to internally calibrate the signals from the sensors. The 2-wire serial interface and internal voltage regulation allows for easy and fast system integration

Temperature Sensor iTMS 101

- Fully calibrated Digital output
- Operating range: -20 to +60 degree Celsius
- Accuracy: ± 0.2 °C (with radiation shield)
- Response Time: 1 sec, Resolution: 0.01 deg C
- Sensor Type: Resistance type
- Low power operation: 3.3V, 50 μ A, 0.1 μ A Standby
- Negligible Hysteresis induced and long term drift, High repeatability
- High Noise resolution with programmable sampling
- Proper encapsulation and weather shielding (IP 65)

Humidity Sensor iHMS101

- Operating range: 0% to 100% RH
- Accuracy: $\pm 3\%$ RH or better
- Resolution: 0.03% RH
- Response Time: 1 sec
- Sensor Type: Capacitive / Solid-state
- Negligible Hysteresis induced and long term drift, High repeatability
- High Noise resolution with programmable sampling
- Proper encapsulation and weather shielding
- Low power operation: 3.3V, 550 μ A, 0.3 μ A Standby
- Proper encapsulation and weather shielding (IP 65)