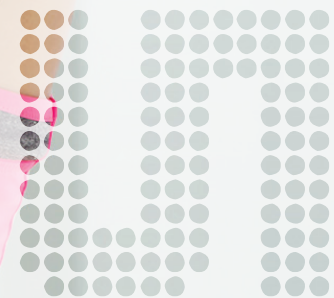


# ENS210

[www.ams.com/ENS210](http://www.ams.com/ENS210)



## ENS210 – Relative Humidity and Temperature Sensor

- Digital pre-calibrated relative humidity and temperature sensor
- Compact 2 x 2 x 0.75mm package
- Monolithic integration of transducer and logic for an ultra-low power solution
- Highly accurate relative humidity and temperature readings (max  $\pm 0.2^{\circ}\text{C}$ ;  $\pm 3.5\%$  RH)
- Wide supply voltage range of 1.71V to 3.6V
- Optional RH compensation SW for quick RH & T prediction in portable devices
- Complete SW suite for air quality monitoring in combination with ams gas sensor products

We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.

## General Description

The new digital ENS210 is the ams accurate relative humidity and temperature sensor ideal for space- and power-constrained designs such as portable and connected smart home devices and appliances. ENS210 delivers an optimized combination of Relative Humidity and Temperature sensing accuracy, ultra-low power consumption and small size. The ENS210 comes pre-calibrated and ready-to-use, thereby accelerating customer time-to-market while lowering the overall bill of materials (BOM).

The device is encapsulated in a QFN4 package and includes a I<sup>2</sup>C slave interface for communication with a master processor. ENS210 offers a wide voltage range of 1.71V to 3.6V. The monolithic integration in plain CMOS technology allows for an

ultra-low power consumption in standby and active mode. An always-on domain allows the sensor to listen to the master device even in standby mode. The sensor returns the relative humidity in % RH and the temperature in Kelvin.

Seamless design-in by availability of a full collaterals set, including datasheet, application notes, SW drivers and regional field application engineering support. The ENS210 is optionally available in combination with SW compensation engine for quick and accurate RH & T prediction in portable applications, and proprietary ams algorithms for accurate air quality measurement.

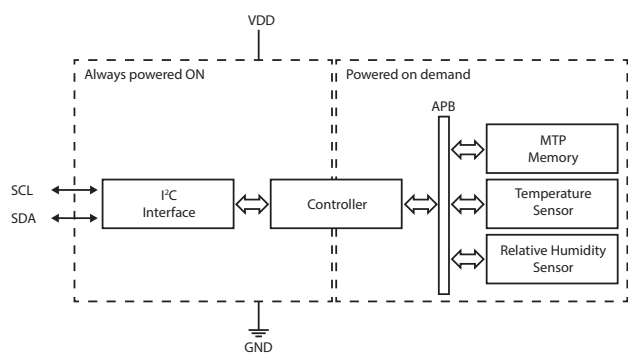
### Features

- Monolithic integration of RH & T digital I<sup>2</sup>C output sensor
- 2.0 x 2.0 x 0.75mm form factor
- Wide supply range of 1.71V to 3.6V
- Active current: 7.1uA @ 1Hz (1.8V)
- Standby current: 40nA @ 1.8V
- Accuracy: max  $\pm 0.2^{\circ}\text{C}$ ,  $\pm 3.5\%$  RH
- Response time: RH 4 sec; T 1 sec
- Excellent long-term stability
- Ideal in combination with ams gas sensors for accurate air quality monitor system solution
- Optional Sensor Fusion SW for quick RH & T ambient prediction in portable applications

### Benefits

- Extremely low power consumption for continuous environmental conditions monitoring in wireless applications running on the tightest power budgets
- Fast compensation for environmental conditions change
- Large RH & T sensing operating range
- Best RH and T accuracy in this package size
- Easy design in (wide supply range, short response time, high longer stability, excellent power supply rejection ratio)
- Robustness in harsh environments
- One stop shop for environmental sensors and full system solution for air quality monitoring including SW

### Block Diagram



### Applications

- Portable as Mobile phones and Wearables
- Smart Home and Building Automation (e.g. HVAC, Air purifiers, Smart Thermostats, Wireless Sensor nodes)
- Home Appliance (e.g. Dryers, Refrigerators, Microwaves)
- Weather stations
- Printers, Enterprise drivers and Server Rooms
- Medical baby incubators