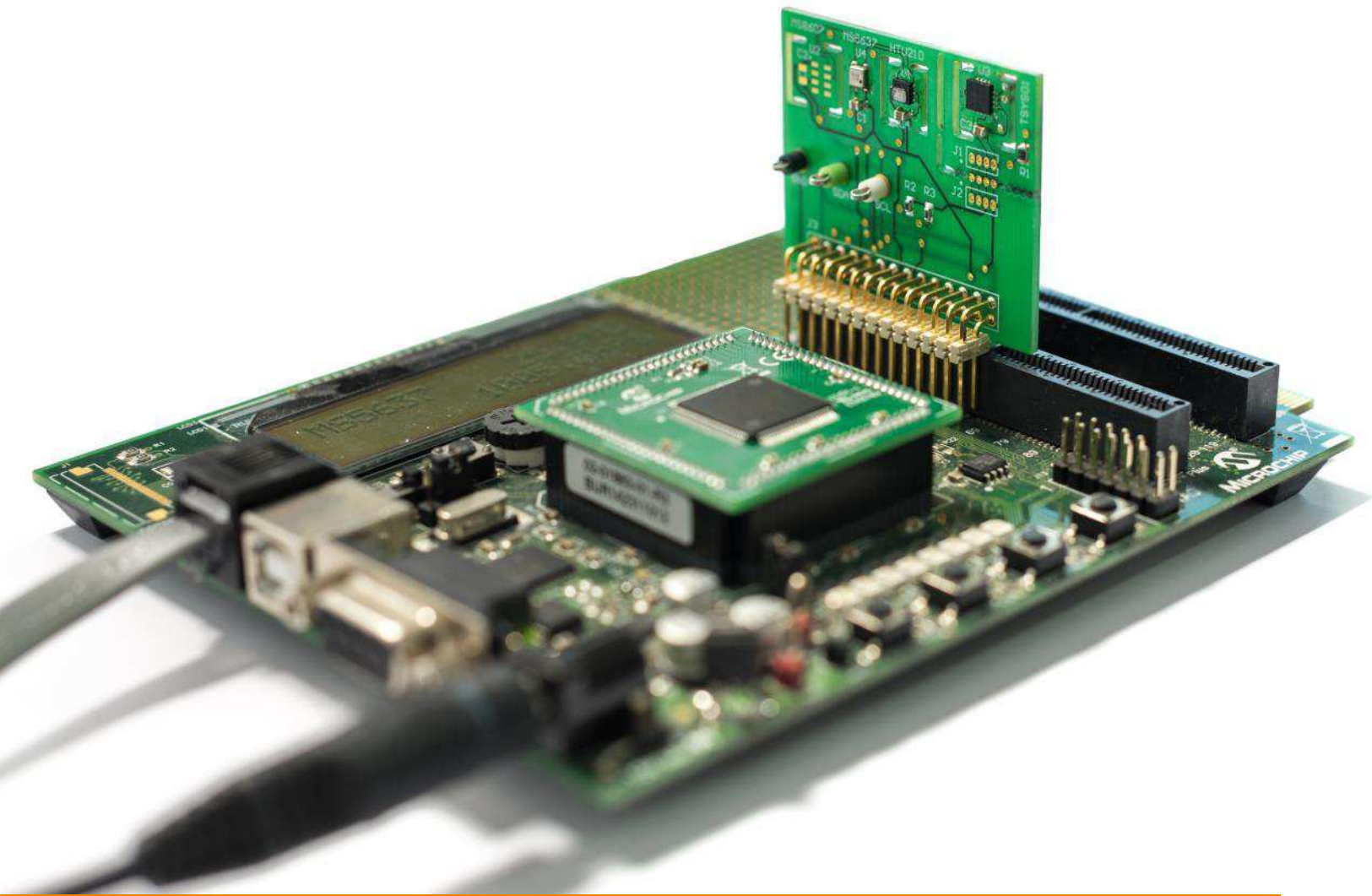


## MEAS PICTAIL PLUS FOR MICROCHIP EXPLORER 16

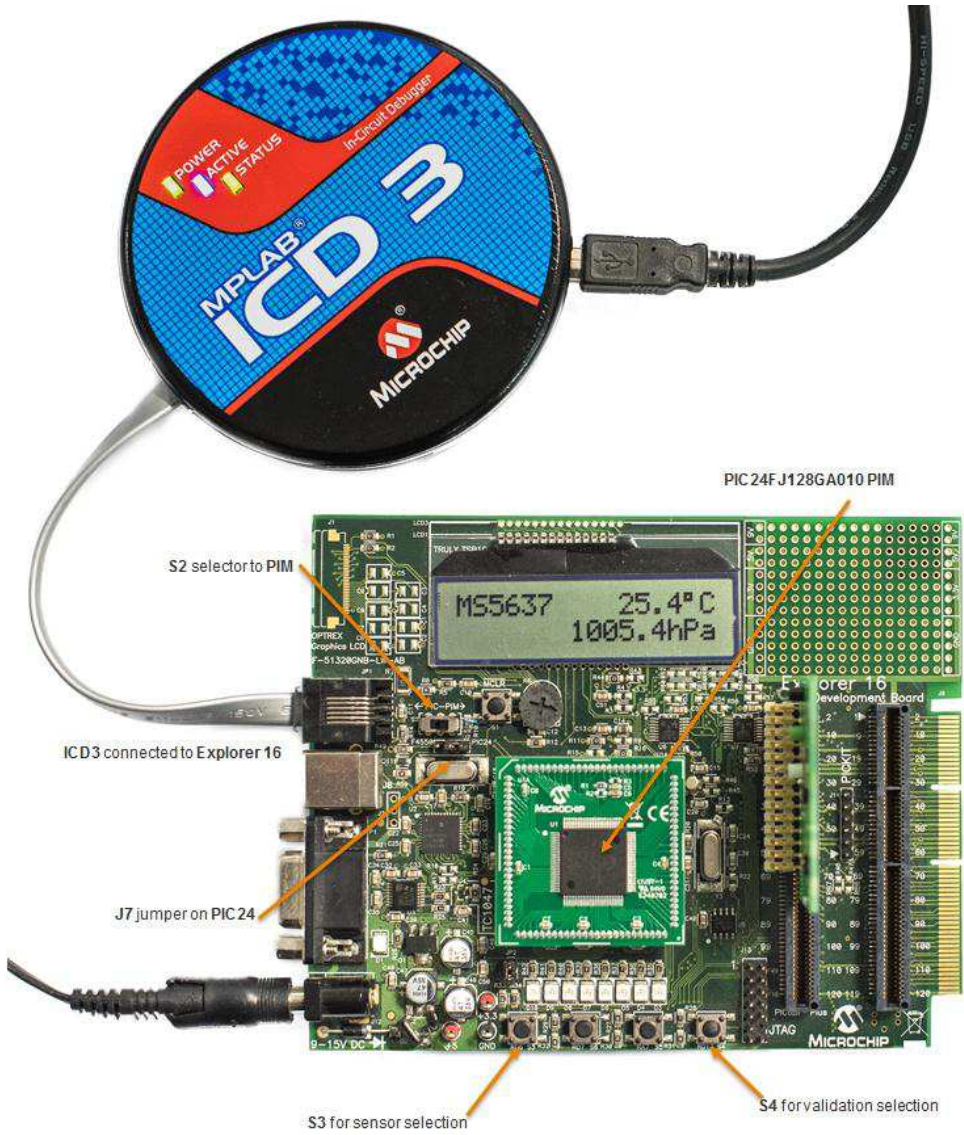


# MEAS PICTAIL PLUS

For Microchip Explorer 16

## Microchip Explorer 16 Board Setup

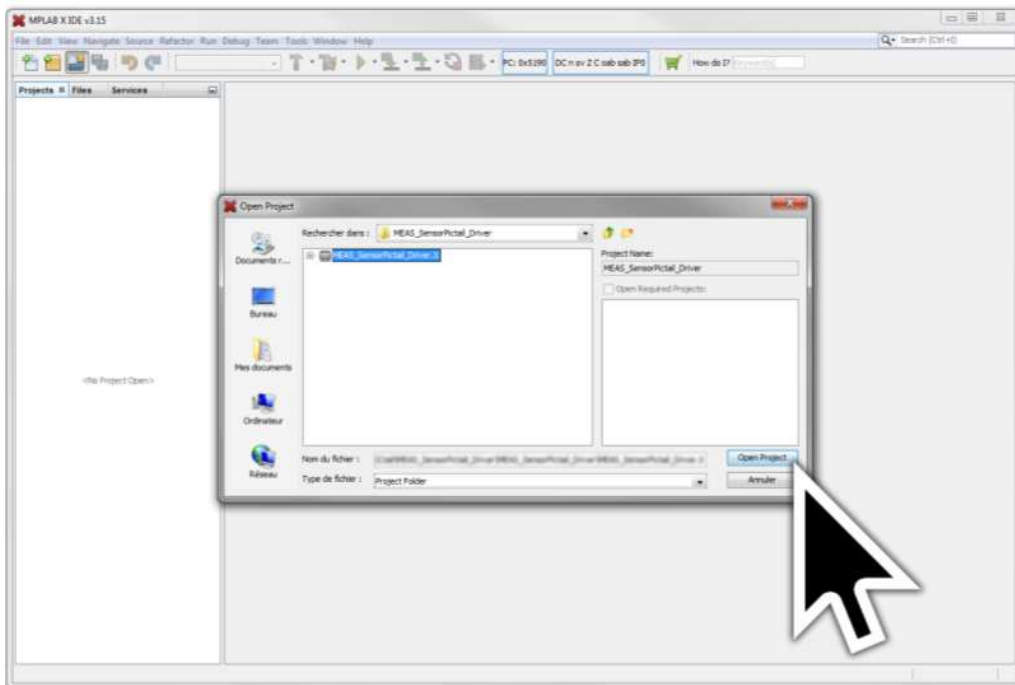
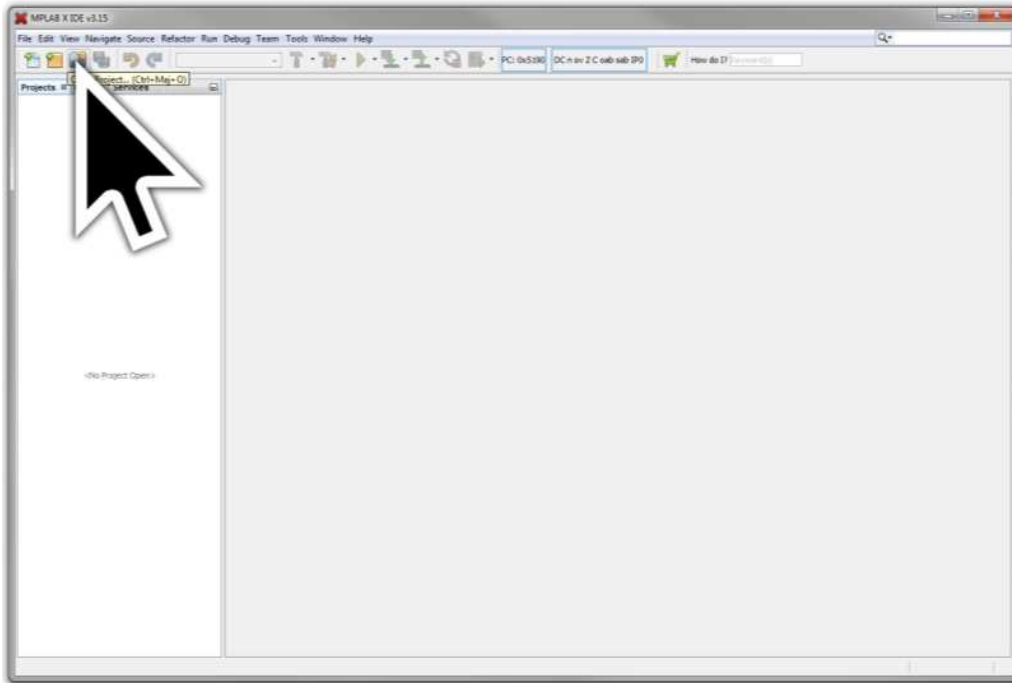
PIM used for the sample code is PIC24FJ128GA010.



## Demonstration Software Setup

First, make sure you have a working installation of Microchip MPLAB® X IDE and MPLAB® XC16 compiler.

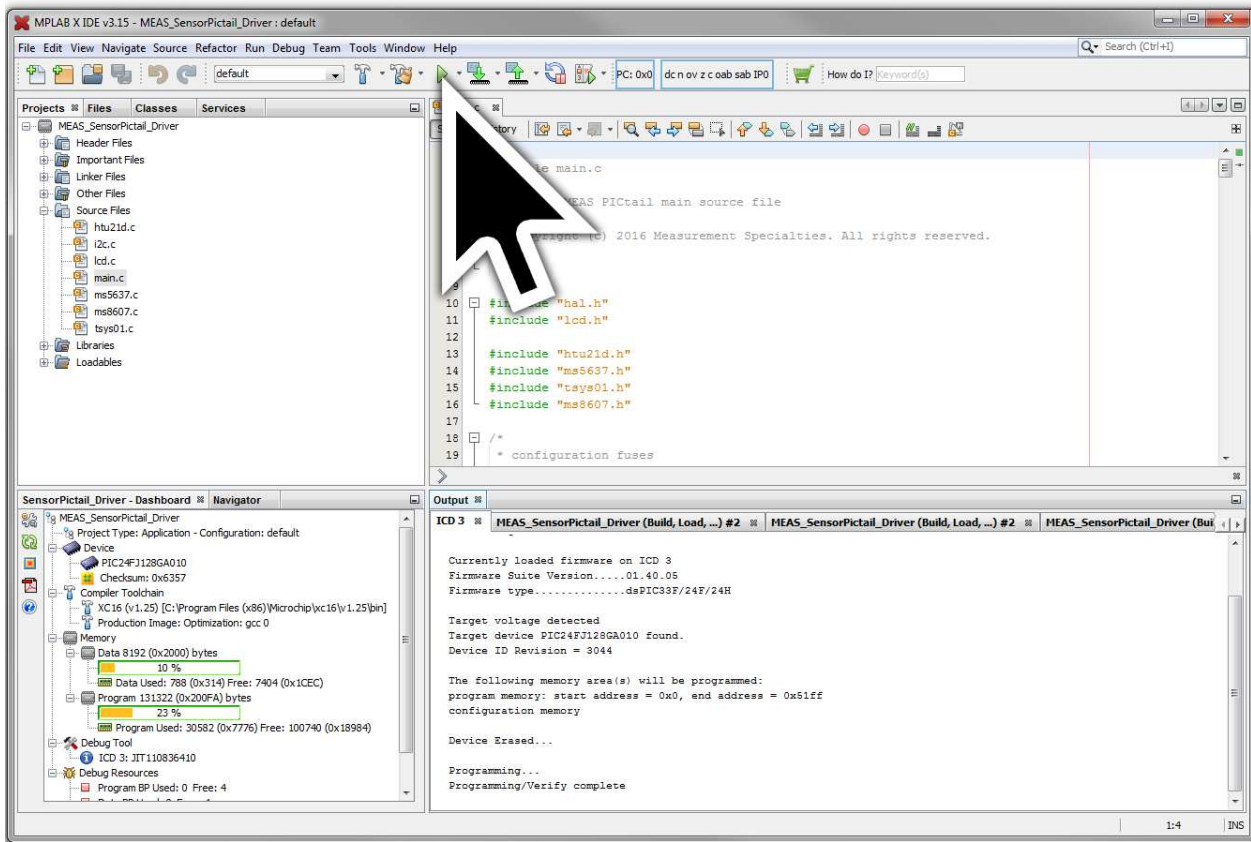
Next, open the provided project:



# MEAS PICTAIL PLUS

For Microchip Explorer 16

Now, build and program the sample source code to the Explorer 16:



**Demonstration Software**

When the programming is complete and successful, the software will run instantly and you should see the TE Connectivity (TE) splash screen:



Followed by the sensor selection screen:



You can press S4 to navigate through the all four sensors:



Then press S3 to select the desired sensor and start its measurements.

### HTU21D /// Humidity and Temperature

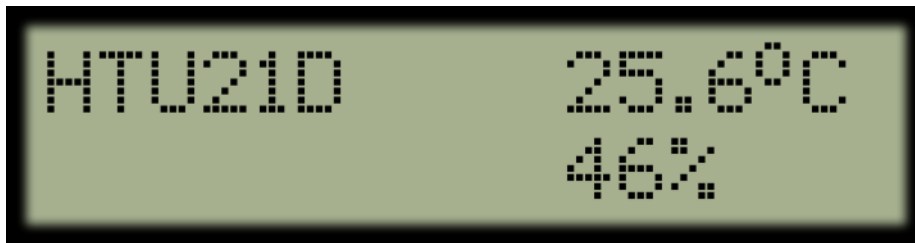


Description: HTU21D, the new digital humidity sensor and temperature sensor of MEAS is about to set new standards in terms of size and intelligence: Embedded in a reflow solderable Dual Flat No leads (DFN) package of 3 x 3mm foot print and 1mm height it provides calibrated, linearized signals in digital, I<sup>2</sup>C format. HTU21D sensors are dedicated humidity and temperature plug and play transducers for OEM applications where reliable and accurate measurements are needed. Direct interface with a micro-controller is made possible with the module humidity and temperature digital outputs.

HTU21D sensors are low power consumption designed for high volume and cost sensitive applications with tight space constraints. Every sensor is individually calibrated and tested. Lot identification is printed on the sensor and an electronic identification code is stored on the chip, which can be read out by command. Furthermore, the resolution of HTU21D sensor can be changed by command (8/12bit up to 12/14bit for RH/T), low battery can be detected and a checksum improves communication reliability. With made improvements and the miniaturization of the sensor the performance-to-price ratio has been improved ñ and eventually, any device should benefit from the cutting edge energy saving operation mode.

#### Features:

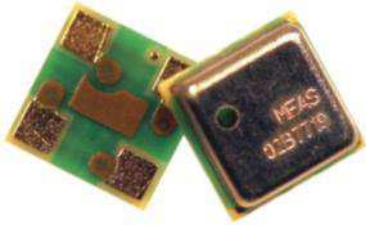
- Full interchangeability with no calibration required in standard conditions
- Instantaneous desaturation after long periods in saturation phase
- Compatible with automatized assembly processes, including Pb free and reflow processes
- Individual marking for compliance to stringent traceability requirements



Sensor measurements are refreshed every 500 milliseconds.

Press any key to go back to sensor selection screen.

## MS5637 /// Pressure and Temperature



Description: The MS5637 is an ultra-compact micro altimeter. It is optimized for altimeter and barometer applications in Smart-phones and Tablet PCs. The altitude resolution at sea level is 13 cm of air. The sensor module includes a high-linearity pressure sensor and an ultra-low power 24 bit  $\Delta\Sigma$  ADC with internal factory-calibrated coefficients. It provides a precise digital 24-bit pressure and temperature value and different operation modes that allow the user to optimize for conversion speed and current consumption. A high-resolution temperature output allows the implementation of an altimeter/thermometer function without any additional sensor. The MS5637 can be interfaced to any

microcontroller with I<sup>2</sup>C-bus interface. The communication protocol is simple, without the need of programming internal registers in the device. Small dimensions of 3 x 3 x 0.9 mm<sup>3</sup> allow the integration in mobile devices. This new sensor module generation is based on leading MEMS technology and latest benefits from MEAS Switzerland proven experience and know-how in high volume manufacturing of altimeter modules, which has been widely used for over a decade. The sensing principle employed leads to very low hysteresis and high stability of both pressure and temperature signal.

### Features:

- QFN Package 3 x 3 x 0.9mm<sup>3</sup>
- High-resolution module, 13cm
- Integrated digital pressure sensor (24-bit  $\Delta\Sigma$  ADC)
- I<sup>2</sup>C interface
- Operating Temperature Range -40 to +85°C
- Extended Pressure Range 10 to 2000mBar



Sensor measurements are refreshed every 500 milliseconds.

Press any key to go back to sensor selection screen.

### TSYS01 /// Temperature



Description: The TSYS01 is a single chip, versatile, new technology temperature sensor. The TSYS01 provides factory calibrated temperature information. It includes a temperature sensing chip and a 24 bit  $\Delta\Sigma$ -ADC. The essence of the digital 24 bit temperature value and the internal factory set calibration values lead to highly accurate temperature information accompanied by high measurement resolution. The TSYS01 can be interfaced to any microcontroller by an I2C or SPI interface. This microcontroller has to calculate the temperature result based on the ADC values and the calibration parameters.

#### The basic working principle is:

- Converting temperature into digital 16/24 bit ADC value
- Providing calibration coefficients
- Providing ADC value and calibration coefficients by SPI or I<sup>2</sup>C interface

#### Features:

- High Accuracy  $\pm 0.1^\circ\text{C}$  @ Temp.:  $-5^\circ\text{C}$  ...  $+50^\circ\text{C}$
- Adjustment of high accuracy temp. range on request
- Low Current,  $< 12.5 \mu\text{A}$  (standby  $< 0.14 \mu\text{A}$ )
- SPI / I<sup>2</sup>C Interface Small Package: QFN16
- Operating Temperature Range:  $-40^\circ\text{C}$  ...  $+125^\circ\text{C}$

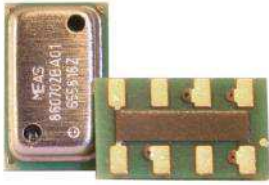


Sensor measurements are refreshed every 500 milliseconds.

Press any key to go back to sensor selection screen.



### MS8607 /// Pressure, Humidity and Temperature

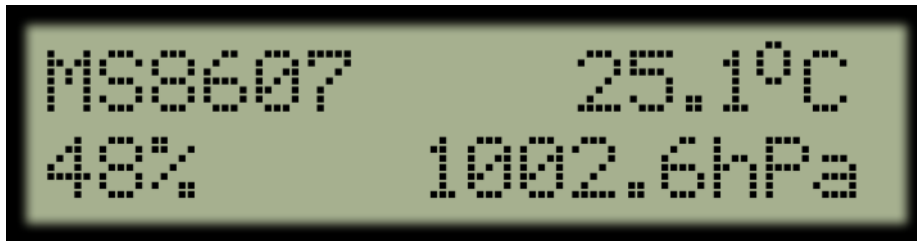


Description: The MS8607 is the novel digital combination sensor of MEAS providing 3 environmental physical measurements all-in-one: pressure, humidity and temperature (PHT). This product is optimal for applications in which key requirements such as ultra low power consumption, high PHT accuracy and compactness are critical. High pressure resolution combined with high PHT linearity makes the MS8607 an ideal candidate for environmental monitoring and altimeter in smart phones and tablet PC, as well as PHT applications such as HVAC and weather stations. This new sensor module generation is based on leading MEMS

technologies and latest benefits from Measurement Specialties proven experience and know-how in high volume manufacturing of sensor modules, which has been widely used for over a decade.

#### Features:

- Operating Range: Pressure, 10 - 2000mBar
- Operating Range: Relative Humidity, 0 - 100%RH
- Operating Range: Temperature, -40 to +85°C
- Absolute Accuracy @25°C: Pressure, 300...1100mBar;  $\pm 2$ mBar
- Absolute Accuracy @25°C: Relative Humidity, 20...80%RH;  $\pm 3$ %RH
- Absolute Accuracy @25°C: Temperature, @25°C;  $\pm 1$ °C
- Resolution (Highest Mode): Pressure, 0.016mBar
- Resolution (Highest Mode): Relative Humidity, 0.04%RH
- Resolution (Highest Mode): Temperature, 0.01°C



Sensor measurements are refreshed every 500 milliseconds.

Press any key to go back to sensor selection screen.

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