ScienceCube

Z13A
Relative Gas Pressure
User Guide

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WARNING:

For safety reasons and to avoid personal injury, read all operating guides and information in the product guide. Please check that this product is operating properly prior to when you intend to use it for educational purposes only. Use this device and sensors for teaching and learning. The information given in this electronic document shall not be regarded as a guarantee or warranty of physical characteristics and any conditions. We will not replace or cover the costs of a damaged sensor or probe due to negligent or destructive, improper use.

1. DO NOT attempt to modify Mentor device and sensors in any way. This may result in fire, injury, electric shock or severe damage to you or them.
2. DO NOT operate Mentor device and sensors with wet hands, this may cause an electric shock.
3. DO NOT use Mentor device and sensors in close proximity to flammable, corrosive or explosive gases, or chemical vapors. Use this product in a well ventilated area.
4. For safety reasons keep this sensor out of reach of children or animals to prevent accidents. DO NOT allow children to play on or around the sensor.

CAUTION:

DO NOT use Mentor device and sensors in extreme conditions which are over the operating range and short-term exposure limit conditions. Stresses above input range may cause permanent damage. Exposure to absolute maximum conditions for extended periods may degrade sensor reliability. DO NOT attempt to decompose, modify or repair the sensor in any other ways. This may cause permanent damage to the sensor.

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Features and Specifications

Features

Item	Description
Feature	Measure the relative gas pressure in hPa.
Dimension	Sensor base housing: 63x18x16 (WxDxH) in mm Length of female Luer-lock connector : 6.2mm Standard Luer-lock connector (Female fitting stem[1])
Usage	Use only in a dry place at room temperature below +40°C.

Specifications

Item	Description
Input range	- 1000hPa to +3000hPa
Resolution	Typical, 0.244hPa through digital 14bit
Uncertainty	Linearity sensitivity error: Typical ±0.3 %FS Sensitivity-temperature characteristics : ±1.0%FS at temperature (compensation) range 15 to 45°C, where zero at 30°C Accuracy : Typical ±1.0%FS
Sampling rate	Simultaneous rate, Max. 1 kHz/4channels.
Response time[2]	Typical, 0.2ms (200microseconds)
Calibration	Factory calibration stored and FC values recovery supported to restore factory calibration. Optional user calibration data can be wrote to non-volatile user memory.
Zero offset	Zero-reading offset drift: Typ. ± 0.5%FS @25°C

[1] Connect the sensor to rubber tube, one or two way valve, a reaction container, or Luer Lock syringe without needle, Luer connector.

[2] Response time corresponds to the applied pressure, this is the interval time between 90% reaching of the applied pressure and 90% reaching of the detection device (sensing element) before digital signal conditioning and AD converting process of the sensor

Item	Description
	Zero setting[3] with non-volatile* memory supported.

NOTE: You do not need the calibration when using the current sensor. But if you calibrate the sensor for your any purpose, the calibration data created by user does not erased after disconnecting the sensor or power off Mentor. The data set for calibration or zero setting with **MentorStart** is written to non-volatile memory in the sensor.

Additional equipment or application

Mentor device and **MentorStart** application software needed. If you are using Mentor application, consult your instructor for more information.

CAUTION:

1. DO NOT use this sensor in close proximity to flammable or explosive gases. Chemical vapors may interfere with the polymer layers used for capacitive this sensor and high levels of pollutants may cause permanent damage to this sensor.
2. DO NOT use or expose this sensor at the maximum range under 1hrs residence time (exposure limit with max. input range)
3. Prolonged direct exposure to extreme conditions may cause significant property damage.
4. DO NOT place sensor or cable in water, liquids, flame or on a hot plate.
5. DO NOT use a pressure medium other than air.
6. DO NOT exposed to corrosive gases such as the gases given off by chemical reactions.

Setup and Usage

1. Launch the **MentorStart** software and connect the sensor to the sensor port in your Mentor device. **MentorStart** will automatically detect the sensor.
2. To measure the current passing through the two input clips, connect the current clips to the circuit in series with a resistor.

[3] Zero-setting values can be saved to (volatile) memory of Mentor device or non-volatile memory (EEP) of sensor.

LIMITED WARRANTY

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For more information about installing Mentor, using other applications and getting the feedbacks, contact: ScienceCube international distributor.