Home Box

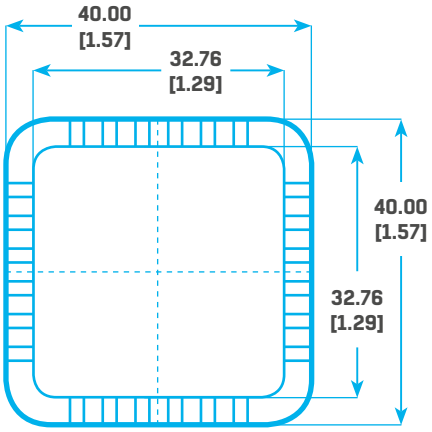
Environmental sensor
1-Wire UNI

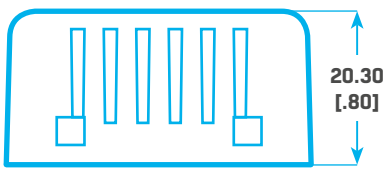
Temperature

Air quality

Humidity

Pa Atmospheric pressure





The Home Box family are unique sensors to protect comfortable conditions in your working and living environments. Different combinations of values for every home, office or public installation.

Complex environmental sensor that connects to the 1-Wire UNI bus.

This sensor measures temperature and air humidity as well as atmospheric pressure and air-quality (concentration of volatile organic compounds - TVOC). Clean air is a basic requirement for human beings, but there are many influences that reduce and affect indoor air quality. The most common include insufficient ventilation, high temperature, and humidity, carbon dioxide concentrations, the presence of volatile organic compounds, molds, etc. Many of these factors can affect our concentration, but also have a negative impact on our health. In order to avoid these adverse effects, it is necessary to ensure constant air quality measurement and thus obtain specific data from which we can take suitable and practical measures. The ideal solution is to install a comprehensive sensor that measures VOC. The volatile organic compounds sensor detects the TVOC concentration in the air (in ppb – parts per billion).

Applications and usage

Thanks to its flexibility, this sensor is ready for integration into air conditioning systems, intelligent building management systems, schools, and residential homes. In addition, the atmospheric pressure sensor is useful for weather forecasting or for detecting loss of pressure in positive or negative pressure rooms.

Technical specifications

- Maximum length of the 1-Wire bus: 20 m
- Maximum number of sensors per 1-Wire UNI port: 1 (use 1-Wire Hub Power if more are needed)
- Sensor dimensions: 40×40×20 mm
- Protection: IP30
- Communication interface: 1-Wire bus, RJ-11 jack
- Combined sensor of 4 quantities – reads as 4 independent sensors on the bus
- 5V power from the 1-Wire port

Temperature

- Measurement range: -30 to +70 °C
- Measurement accuracy: 0,8 °C
- Resolution: 0,1 °C

Air quality

- Measurement range: 0 to 60 000 ppb
- Resolution: 1 ppb in the 0 ppb to 2008 ppb range, 6 ppb in the 2 008 ppb to 11110 ppb range, 32 ppb in the 11110 ppb to 60 000 ppb range
- Measurement accuracy: 15 % of the measured value

Atmospheric pressure

- Measurement range: 30 000 to 110 000 Pa
- Relative accuracy: 12 Pa (95 000 to 105 000 at 25 °C)
- Absolute accuracy: 100 Pa (30 000 to 110 000 at -20 to 65 °C)
- Temperature coefficient: 1,5 Pa/K (in the 25 to 40 °C range at 90 000 Pa)
- Resolution: 10 Pa

Humidity

- Measurement range: 10 to 95 % RH
- Measurement accuracy: 5 % RH at 25 °C
- Resolution: 0,1 % RH

Air quality levels:

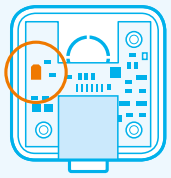
Less than 60 ppb: Excellent
60-200 ppb: Very good
200-660 ppb: Good
660-2200 ppb: Bad
More than 2200 ppb: Unhealthy

Installation and use

Housed in an elegant plastic box, it can be mounted on a wall or a ceiling or placed on a desk. It is small and lightweight so it can be secured in place with a piece of double-sided adhesive tape. A detachable cable with RJ-11 jacks is used for the connection.

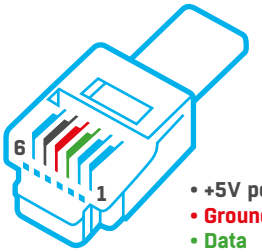
Then, use the supplied 3-meter cable to connect the sensor to a HW group unit equipped with the 1-Wire UNI interface, and run sensor detection.

Temperature, relative humidity and air pressure values are available immediately. The TVOC sensor needs to be first calibrated in its environment. The calibration takes 10 days; during this time, it is necessary to air the premises regularly and thoroughly, at least twice a day. Moreover, the values in ppb only become available 10 seconds after the sensor is powered up.



Before first use, remove the lid and remove the protective foil from the humidity sensing chip

Connector pinouts



RJ12	RJ11			
3	2	Data	<->	1-Wire Data
4	3	GND	---	System Ground
5	4	+5V	---	Power Supply