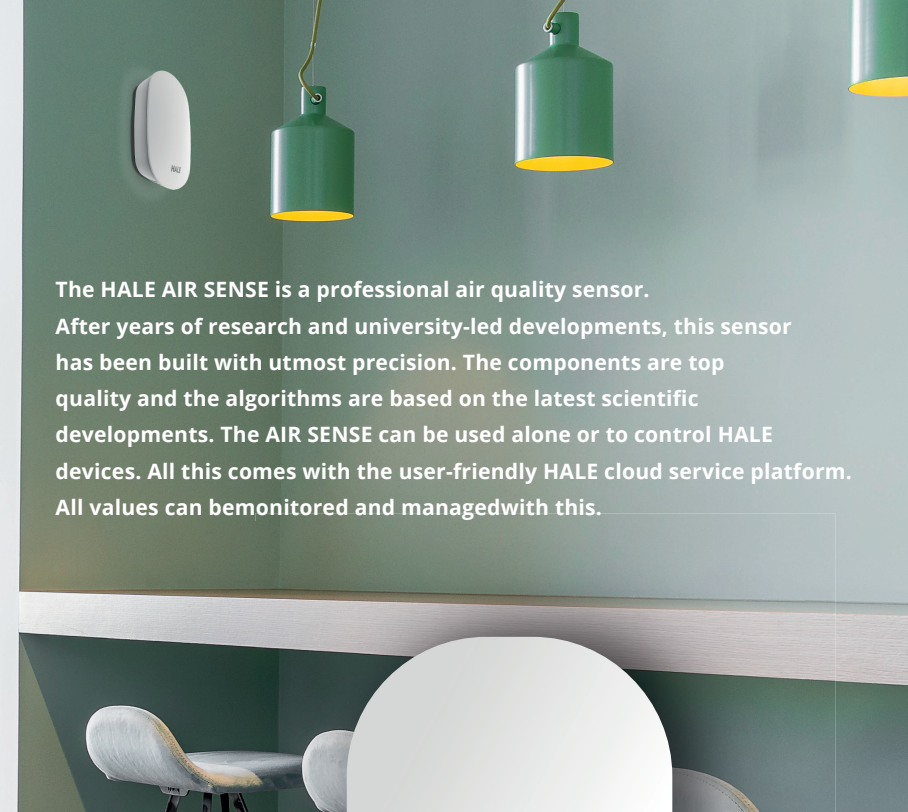


# AIR SENSE



The HALE AIR SENSE is a professional air quality sensor. After years of research and university-led developments, this sensor has been built with utmost precision. The components are top quality and the algorithms are based on the latest scientific developments. The AIR SENSE can be used alone or to control HALE devices. All this comes with the user-friendly HALE cloud service platform. All values can be monitored and managed with this.

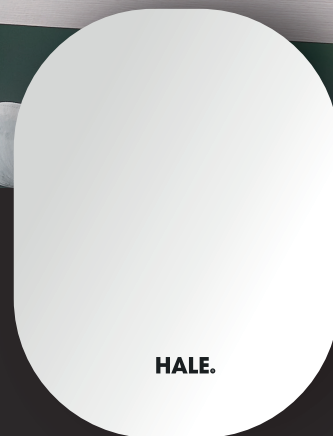


## AIR QUALITY

The HALE AIR SENSE measures air quality precisely according to five different aspects; temperature, relative humidity, CO<sub>2</sub> (carbon dioxide), TVOC (hydrocarbons) and PM (particulates). All with high-quality components. Particulates are measured in units of 0.3 PM, 0.5 PM, 1.0 PM, 2.5 PM and 10 PM and threshold values indicate when the air is good or bad. Colour indicators on the CO<sub>2</sub> sensor in green, orange and red indicate when ventilation is required.

## USER FRIENDLY

The AIR SENSE is connected via Wifi to a 2.4 GHz network. It is very simple and easy to install. The sensor is then assigned to a designated space in the HALE cloud platform. The monitoring feature allows you to analyse all data over longer time periods on your mobile or computer. You can also remotely monitor HALE devices in real time to view and resolve status and error messages. The sensor can be installed in various ways. You can screw or adhere the sensor to the wall using the bracket supplied. It is also possible to install the sensor in a downlight fitting in the wall for a permanent power supply.



HALE.

Relative air humidity measurement

Particulate measurement - 0.3 PM | 0.5 PM  
1.0 PM | 2.5 PM | 10 PM

Temperature measurement

TVOC measurement

CO<sub>2</sub> measurement with colour indication  
on the sensor

Automatic calibration and updates

Modular construction + wall socket installation

802.11b/g/n (2.4 GHz) Wifi connection

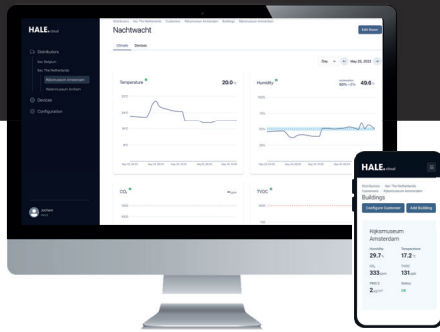
Easy to install yourself

Power adapter

## HALE CLOUD

The HALE cloud platform enables the AIR SENSE to be used to control several HALE air conditioning devices in a room. The automation mode allows you to fix set points with which the machines can be controlled. This enables the external sensor to be positioned in a different location from where the sensor is located in the product. This allows for better and more accurate control of the device.

The HALE cloud server is based at a safe and secure location and complies with strict privacy and data protection law.



## TEMPERATURE

The optimal temperature indoors is between 18 and 24 degrees. Relative air humidity influences the perceived temperature in a room. Keeping relative air humidity in winter between 40% - 60% can save on energy bills as the thermostat can be set one degree lower.

## CO2

Carbon dioxide (CO<sub>2</sub>) is a gas that naturally occurs in the atmosphere. CO<sub>2</sub> levels are expressed in PPM (parts per million). Too much CO<sub>2</sub> suppresses oxygen intake in the body. As a result, the body expends less energy, leading to fatigue, headaches and loss of concentration. The ideal concentration of CO<sub>2</sub> in the air is 400 to 800 ppm and the threshold value is set at 1200 ppm.

## PARTICULATES

A collective term for small airborne particles. These are invisible to the naked eye. Almost all human activity creates particulates. The smaller the particles, the greater the danger they pose to health. PM 1 (particulate matter) refers to ultrafine particles. Ultrafine particles land in the lungs and are especially dangerous for children and adults with lung conditions. The particulate level advised by the WHO is 45 µg/m<sup>3</sup> for PM<sub>10</sub> and 15 µg/m<sup>3</sup> for PM<sub>2.5</sub>.

## RELATIVE AIR HUMIDITY

This is the maximum percentage of moisture in the air at a certain temperature and air pressure. A percentage between 40% - 60% is ideal, and can also reduce viruses. Too much humidity can cause mould growth. Too little humidity (dry air) is detrimental to mucous membranes, the eyes, nose, throat and skin. It can also lead to reduced resistance to infections. Dry air also influences materials like wooden floors, instruments and artworks. Plants grow and look better with healthy air humidity levels.

## TVOC

Collective term for a group of hydrocarbons that evaporate easily (Total Volatile Organic Compounds). These chemicals occur in things like building materials, cleaning agents and paint. Short-term exposure causes irritation to the eyes and mucous membranes. High concentrations can have health consequences for other organs. The optimum value would lie below 500 PPB (parts per billion). Levels above 1000 PPB should be avoided.



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