CO_2 Traffic Light Indicator
Data Sheet

At a glance

CO_2 measuring range:	› 0..5000 ppm
CO_2 accuracy:	› ±(50 ppm +3 %) of the measured value (typical at 21 °C, 50 % relative humidity 1015 hPa)
CO_2 sensor:	› Dual beam infrared measuring process (NDIR)
Housing:	› PC V0, aluminium table-top stand
IP class:	› IP20 in accordance with DIN EN 60529
Conditions of use:	› 0..+50 °C, max. 85 % r.h. non-condensing

GREEN
<750 ppm

Air quality
OK

YELLOW
750...1250 ppm

Air quality
acceptable

VENTILATE!

RED
>1250 ppm

Air quality
unacceptable

VENTILATE!

The unit is only designed for its intended use. Any independent conversion or modification is prohibited! Do not use the modules in conjunction with units intended, directly or indirectly, for human, health or life-saving purposes, or the operation of which could cause dangers to people, animals or material values.
Caution: Carbon dioxide (CO_2) poisoning is fatal!

Do not use the traffic light indicator in areas in which explosive or flammable gas mixtures can occur!

The following also apply
- Laws, standards and regulations
- The state of the art at the time of installation
- The technical data for the unit

Stronger drift can be caused in schools, nursery schools and similar applications due to the mobile use and possible associated mechanical stresses (shocks, vibrations etc.) on the unit than is the case with permanently fixed units. We therefore recommend that you recalibrate the unit annually.

Information on CO_2 measurement

CO_2 is a colourless, odourless, non-flammable and slightly acidic gas. It occurs in the natural environment and is released and exhaled, among other things, as a metabolic product of the human body. As human respiratory air contains about 4000 ppm of CO_2 in addition to the critical (possibly COVID 19-loaded) aerosols, the CO_2 concentration can be used to estimate the aerosol load in the room air. The measurement benefits from the infrared-absorption property of CO_2. The process involves illuminating the room air in a measuring chamber with IR light. The light intensity measured is a measure of the CO_2 concentration in the measuring chamber. The sensor has an accuracy of ±(50 ppm +3%) of the measured value, i.e. the inaccuracy of the measurement can be up to ±80 ppm at 1000 ppm. Two units set up adjacent to each other can have a maximum deviation from each other of up to 160 ppm (at 1000 ppm), providing the measured values are stable. The ambient temperature, air pressure and air humidity can also affect the measured values in accordance with the gas laws.

Information on self-calibration of CO_2

Virtually all gas sensors are subject to drift. The degree of drift is partly dependent on the use of high-quality components and good design. However, sensors can nonetheless experience drift even with good components and excellent design, and this can eventually lead to a sensor needing to be recalibrated. The natural drift of the sensor is caused by: • dust / dirt • aggressive chemicals absorbed in the chamber / the aforementioned optical elements • corrosion in the chamber (due to high relative humidity / condensation) • high temperature fluctuations causing mechanical stresses • electron / hole migration in the photo detector's semiconductor • drift of photo amplifiers • outer mechanical stress on the chamber • wear of the light source. Most of the effects listed above are compensated for by the automatic self-calibration of the sensor's dual-channel technology. Unlike the ABC logic widely used, dual channel self-calibrating sensors can also be used in 24-hour, 7 day a week applications, such as hospitals. However, some effects cannot be compensated for and can result in a very gradual natural deviation of a few ppm per month.

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