

### Datasheet

Technical specifications are subject to change without notice  
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#### » APPLICATION

**Continuous ventilation reduces the risk of infection. This is particularly relevant these days, as schools have started again with full classes. So-called CO<sub>2</sub> traffic lights alert people, when it is time to ventilate rooms.**

#### Features

- Display CO<sub>2</sub> concentration via LED
- Configurable CO<sub>2</sub> threshold values of the traffic light

The CO<sub>2</sub> concentration in meeting and classrooms as well as in kindergartens, offices or other rooms with large amount of people often increase quickly as a result of inadequate ventilation. During winter months, ventilating a room through windows is obviously not the most comfortable way due to low outside temperatures. Hence, critical CO<sub>2</sub> levels are reached even faster. The consequences can be fatigue, deep breathing, headache, increased blood pressure and pulse and reduced hearing.

As a remedial measure, the CO<sub>2</sub> traffic light is used to detect the CO<sub>2</sub> content in the air with a range of 0..5000 ppm. The CO<sub>2</sub> traffic light indicates, when it is time to ventilate! The measuring signal is optically in traffic light color reproduced by the LED. The CO<sub>2</sub> threshold values 750 ppm and 1250 ppm are preset from factory. The threshold values are however freely configurable via mobile NOVOSapp (available for Android and iOS). With the desk display, the traffic light is ideal for mobile applications.

You can find further information on the topic of "demand-oriented ventilation" on our website (link).

#### » TYPES OF PRODUCTS

**NOVOS 3 move AP CO2 TLF**  
(w/o accessories, connection  
24V=~/~)  
Item No. 780094



Power supply:  
15..35 V = / 19..29 V ~ SELV

⚠ The installation and assembly of electrical equipment should only be performed by authorized personnel.

**NOVOS 3 move UP CO2 TLF**  
(with flush-mounted power supply)  
Item No. 780063



Power supply:  
Flush mounted power supply  
230V (±10%, 50/60Hz) max. 0,4A

⚠ The installation and assembly of electrical equipment should only be performed by authorized personnel.

**NOVOS 3 move CO2 TLF**  
(with stand and mains adaptor)  
Item No. 774314

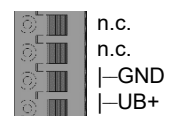


Power supply:  
Mains adaptor  
100..230V (50/60Hz) max. 0,4A

#### » TECHNICAL DATA

**Measuring range CO<sub>2</sub>:** 0..5000 ppm  
**Accuracy CO<sub>2</sub>:** ±(50 ppm + 3 %) of reading (typ. at 21 °C, 50% rH, 1015 hPa)  
**CO<sub>2</sub> sensor:** infrared dual-beam method (NDIR)  
**Enclosure:** PC V0, desk holder aluminium  
**Protection class:** IP20 according to EN 60529  
**Operating conditions** 0..+50 °C, max. 85 %rH non-condensing

#### ⚠ 780094 | 780063



#### » CO<sub>2</sub> TRAFFIC LIGHT (FACTORY DEFAULT)

**Green**  
<750 ppm  
Air quality OK



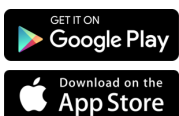
**YELLOW**  
750..1250 ppm  
Air quality acceptable  
**VENTILATION!**



**RED**  
>1250 ppm  
Air quality unacceptable  
**VENTILATION!**



#### » NOVOSAPP



With the help of the NOVOSapp, the CO<sub>2</sub> threshold values of the traffic light function can be adjusted as required within the measuring range. For communication between NOVOSapp and the "NOVOS move" device, a Bluetooth dongle with Micro-USB is required (Art.-No.: 668262). Commercially available Bluetooth dongle are not compatible.

The Micro-USB interface for connecting the Bluetooth dongle to the device is located at the bottom of the front cover.

**The NOVOSapp can be downloaded from the Google Play Store and the Apple App Store.**

#### » INSTALLATION LOCATION

NOVOS move must be installed on a solid, plane and dry surface. The specified ambient conditions must be observed. Select a suitable installation site to obtain a representative measurement result. Every human being emits large quantities of CO<sub>2</sub> when breathing out. Therefore, do not position the CO<sub>2</sub> measuring device in the immediate vicinity of a person. Carbon dioxide is heavier than air and therefore sinks to the ground. Place the CO<sub>2</sub> measuring device in the height-center (or head level) of the room.

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**READ THIS INSTRUCTION SHEET AND THE SAFETY WARNINGS CAREFULLY BEFORE INSTALLING AND SAVE IT FOR FUTURE USE**

The product should only be used for the intended application. Unauthorised modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets.

Attention: Poisoning with carbon dioxide (CO<sub>2</sub>) is life-threatening!

NOVOS move must not be used in areas where explosive or flammable gas mixtures may occur!

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet/ installation manual

Due to mobile use and the mechanical stress (shocks, vibrations, etc.) in schools, kindergartens and similar applications, there may be more drift than with immovable mounted devices. We therefore recommend having the devices calibrated annually.

**Information on CO<sub>2</sub> measurement**

CO<sub>2</sub> is a colourless, odourless, non-flammable and slightly acidic gas. It occurs in natural environment and is released and exhaled as a metabolic product of the human body, among other things.

Since the human respiratory air contains about 4000 ppm CO<sub>2</sub> in addition to the critical aerosols (possibly COVID-19 contaminated), the CO<sub>2</sub> concentration can be used to estimate the aerosol load in the ambient air.

The measurement makes use of the infrared absorbing property of CO<sub>2</sub>. The ambient air in a measuring chamber is illuminated with IR light and the measured light intensity is a measure for the CO<sub>2</sub> concentration in the measuring chamber.

The accuracy of the sensor is  $\pm(50 \text{ ppm} + 3 \%)$  of reading, i.e. at 1000 ppm the measuring accuracy can be up to  $\pm 80$  ppm. Two devices placed side by side could differ (at 1000ppm) by a maximum of 160 ppm, provided the measured values are stable. Furthermore, the measured values are subject to the ambient temperature, static pressure and relative humidity in accordance with the general gas law.

**Information about Self-Calibration Feature CO<sub>2</sub>**

Virtually all gas sensors are subject to some sort of drift. The degree of drift is partially dependent on the use of quality components and good design. But even with good components and excellent design, a small amount of drift can still occur in the sensor that may ultimately result in the need for a sensor to be recalibrated. The natural drift of the sensor is caused by:

- *Dust/dirt* • *Aggressive chemicals absorbed inside chamber / optical elements* • *Corrosion inside chamber (high rh, condensation)* • *Temperature cycles causing mechanical stress* • *Electron/hole migration in the photo detector's semiconductor* • *Drift of photo amplifiers* • *External mechanical stress on chamber* • *Light source wear-off*

Most of the effects listed above will be compensated by the automatic self-calibration of the sensor's dual channel technology. In contrast to commonly used ABC-Logic self-calibrating sensors with dual channel technology are suitable for all applications including those operating 24 hours, 7 days a week, for example hospitals. However some effects cannot be compensated automatically and may result in a very gradual natural drift of a few ppm per month. This natural drift is not covered by Thermokon's 5-year warranty.

**Target values for carbon dioxide concentrations in indoor air**

Target values for indoor air:

CO <sub>2</sub> -concentration	Hygienic evaluation	Recommendation
<1000 ppm	Hygienically harmless	No further actions
1000..2000 ppm	Hygienically noticeable	Intensify ventilation methods (increase fresh air volume flow or air exchange rate) Check and improve ventilation performance.
>2000 ppm	Hygienically unacceptable	Check the ventilation of the room examine additional options, if necessary



**thermokon**  
Sensortechnik GmbH

**EU Konformitätserklärung**  
**EU Declaration of Conformity**

Wir, Thermokon Sensortechnik GmbH  
We, Thermokon Sensortechnik GmbH

erklären, dass die Produkte  
declare, that the products

**NOVOS 3 move xxx**

mit den Anforderungen der folgenden Normen oder normativen Dokumenten übereinstimmen  
fulfil the requirements of the following standards or other normative documents

**Richtlinie / Directive**

2014/30/EU Elektromagnetische Verträglichkeit / 2014/30/EU Electromagnetic compatibility

**Standards / Standards**

EN 60730-1 (2011), EN 61000-6-1 (2007), EN 61000-6-3 (2011)

**Richtlinie / Directive**

2014/35/EU Niederspannungsrichtlinie / 2014/35/EU Low Voltage Directive

**Standards / Standards**

EN 60730-1 (2011)

**Richtlinie / Directive**

2011/65/EU RoHS + 2015/863/EU RoHS / 2011/65/EU RoHS + 2015/863/EU RoHS

**Standards / Standards**

EN 50581 (2013)

Mittenaar, 01.12.2020

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