

## AMBIENT AIR INDICATOR CO-60

ITEM NO. 101300

### INTENDED USE

The ambient air indicator "CO-60" is a stationary measurement unit for recording the carbon dioxide concentration (CO<sub>2</sub>) in the ambient air with an exact and long-term stable measuring method of the NDIR (Non- Dispersive-Infrared-Spectroscopy).

The meter is intended for monitoring the carbon dioxide level in the room air to take appropriate measures for ventilation in advance. An increased CO<sub>2</sub> level leads to fatigue, lack of concentration and loss of efficiency and performance.

The quality level is displayed by means of a traffic light indicator (green/yellow/red). The air temperature and humidity are measured at the same time. All three values are indicated on the display at the same time.

Operation is enabled by the enclosed wall plug transformer.

Any use other than that described above could lead to damage to this product and involves the risk of short circuits, fire, electric shock, etc. The safety instructions and all other information must be followed at all times!

This product complies with the applicable National and European regulations.

All names of companies and products are the trademarks of the respective owner. All rights reserved.

### PACKAGE CONTENTS

- Ambient air indicator
- Wall plug transformer
- USB cable
- Operating Instructions

### EXPLANATION OF SYMBOLS



The lightning symbol indicates a health hazard, e.g. electric shock.



The exclamation mark indicates specific risks associated with handling, function and use.



The "arrow" symbol indicates special tips and operating instructions.

### SAFETY INSTRUCTIONS



**The warranty will be void in the event of damage caused by failure to observe these safety instructions! We do not assume any liability for any consequential damage!**



**We shall not accept liability for damage to property or personal injury caused by incorrect handling or non-compliance with the safety instructions. In such cases, the warranty will be null and void.**

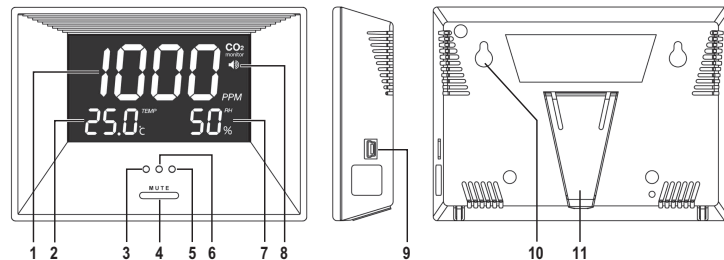
- The unauthorised conversion and/or modification of the unit is not permitted because of safety and approval reasons (CE).
- The product is not a toy and should be kept out of the reach of children!
- The product may only be used in dry, closed interiors, it must not get damp or wet! Otherwise, there is a risk of a life-threatening electric shock!
- Never touch the wall plug transformer with wet or damp hands. There is a risk of a lethal electric shock!
- Do not pull the wall plug transformer from the socket by pulling on the cable.
- Protect the cable of the wall plug transformer from sharp edges and do not bend it.
- Protect the product against extreme temperatures, direct sunlight and strong shocks/vibrations.  
Do not mount the ambient air indicator in rooms with high dust level.
- Do not use this product in rooms or under adverse ambient conditions where combustible gases, vapours or dust are or may be present! There is a risk of explosion!
- The power adapter complies with protection class II.
- Do not leave packaging material lying around carelessly. They could become a dangerous plaything for children.
- Handle the product with care. The product can be damaged if crushed, struck or dropped, even from a low height.



- If you have reason to assume that safe operation is no longer possible, disconnect the product immediately and secure it against accidental operation. A safe operation can no longer be assumed, if:
  - the product shows visible signs of damage,
  - the appliance ceases to function
  - the device was stored for a longer period of time in unfavourable conditions
  - it was exposed to heavy loads during transport.
- In commercial institutions, the accident prevention regulations of the Employer's Liability Insurance Association for Electrical Systems and Operating Materials are to be observed.
- Carbon dioxide (CO<sub>2</sub>) is a transparent and odourless gas. Pay attention to your own safety during all measurements. To protect the life of humans and animals, this device must not be used in areas where high concentrations of carbon dioxide are used industrially.

If in doubt about how to connect the device correctly, or should any questions arise that are not answered in these operating instructions, please contact us or another specialist.

### DESCRIPTION OF THE PARTS



- 1 Indication of the CO<sub>2</sub>-concentration in ppm
- 2 Indication of the room temperature in °C
- 3 Green LED (CO<sub>2</sub>-concentration <800 ppm)
- 4 "MUTE"-key for muting the warning signal
- 5 Red LED (CO<sub>2</sub>-concentration >1500 ppm)
- 6 Yellow LED (CO<sub>2</sub>-concentration 800 - 1500 ppm)
- 7 Indication of the humidity in the room
- 8 Symbol for warning signal on/off
- 9 Socket for the connection of the power supply
- 10 Suspension eye for mounting the product on a wall
- 11 Fold-out base

### INSTALLTION/SETUP

Place the ambient air indicator, such that sufficient ambient air can flow through it. The air flow for the measurement enters the device at the back. Avoid narrow spaces, for example between books etc. in order to prevent any effects on the measured results. Choose a place where a mains socket is available close by.

The product can be suspended easily on two screws, nails or wall hooks using the suspension eyes (10) on the backside.

Alternatively, it is also possible to fold out a foot (11).

### GETTING STARTED

Connect the power supply unit to the socket (9) on the side of the product using the enclosed USB cable and plug it into a mains socket.

- ➔ Alternatively, the ambient air display can also be powered via a USB port. This must be a so-called high-power USB port that can supply a current of at least 500 mA.

All display segments appear and the ambient air indicator emits a brief alarm sound.

For a few seconds, the display will only show lines for the CO<sub>2</sub>-concentration (1), the room temperature (2) and the indoor humidity (7).

Then, the room temperature and the indoor humidity are displayed.

Due to the fact that the sensor needs a short warm-up, it should take another 2 minutes until the first measurement of CO<sub>2</sub>-concentration appears on the display.

### OPERATION

#### a) Indication of the CO<sub>2</sub>-concentration, the room temperature and the indoor humidity.

The ambient air indicator is in automatic measuring mode after the warm-up phase (approx. 2 minutes). The CO<sub>2</sub>-concentration is shown on the upper display (1) in ppm, the room temperature (°C) in the display at the left side on the bottom (2) and the relative humidity in the room in the display at the right side on the bottom (7).

- ➔ Furthermore, the correct indication of CO<sub>2</sub> depends on the air diffusion in the room; it can take a few minutes until the indicator has stabilized. The same applies to the indication of the room temperature and the humidity in the room.

At a CO<sub>2</sub>-concentration of more than 3000 ppm, "Hi" will be shown on the display.

## b) Air quality display in traffic light colours

Air quality is shown using a traffic light display with 3 coloured LED's. The following displays are possible:

Green LED: The CO<sub>2</sub>-concentration is below 800 ppm. Air quality is good.

Yellow LED: The CO<sub>2</sub>-concentration is between 800 and 1500 ppm. Air quality is ok. It is recommended ventilating the room soon.

Red LED: The CO<sub>2</sub>-concentration is above 1500 ppm. Air quality is bad. It is necessary to ventilate the room.

If the warning signal is not muted, another additional audio sound is emitted.

## c) Muting the audio sound.

At a CO<sub>2</sub>-concentration of more than 1500 ppm, an audio sound is emitted. This sound can be muted by pressing the "MUTE"-key (4).

## TROUBLESHOOTING

### The display indicates "ERR3":

- The ambient temperature is lower than 0 °C or higher than +50 °C.

### Confusing symbols on the display:

- Disconnect the ambient air indicator from the operating voltage.

### No display:

- Check the power supply.
- Either use the enclosed power supply or alternatively, a so-called high-power USB port that delivers a minimum current of 500 mA.

## CLEANING AND MAINTENANCE

The device requires no servicing on your part, apart from occasional cleaning.

Use a soft, antistatic and lint-free cloth for cleaning. Do not use abrasive or chemical cleaners.

Do not apply too much pressure on the display to avoid scratch marks.

## DISPOSAL



Electronic devices are recyclable waste materials and must not be disposed of in the household waste! Dispose of an unserviceable product in accordance with the relevant statutory regulations.

## TECHNICAL DATA

### a) Ambient air indicator

#### General

Operating voltage .....	5 V/DC
Power consumption .....	max. approx. 180 mA
Display .....	LCD (backlit)
Measured values .....	Carbon dioxide, temperature and relative humidity
Operating ambient temperature .....	0 °C to +50 °C
Ambient temperature during storage .....	-20 °C to +60 °C
Ambient humidity .....	0% to 95% relative humidity, not condensing
Dimensions .....	137 x 99 x 28 mm (W x H x D), without feet
Weight .....	approx. 182 g

#### Carbon dioxide sensor

Measurement range .....	0 - 3000 ppm
Definition .....	1 ppm (0 - 1000 ppm) 5 ppm (1001 - 2000 ppm) 10 ppm (2001 - 3000 ppm)
Accuracy (temp. < +25 °C) .....	±80 ppm or ±5% of the reading (>2000 ppm: ±7% of the reading)
Repeatability .....	±20 ppm (at 400 ppm)
Influence of temperature .....	Typically ±0,2% of the reading per °C or ±2 ppm of the reading per °C, referring to +25 °C
Warming-up phase .....	2 min for +22 °C

#### Temperature sensor

Measurement range .....	0 °C to +50 °C
Definition .....	0,1 °C
Accuracy .....	±1 °C

#### Humidity sensor

Measurement range .....	20% to 90% relative humidity
Definition .....	1%
Accuracy .....	±5% relative humidity at +23 °C

### b) Power adaptor

Operating voltage .....	100 - 240 V/AC, 50/60 Hz
Output .....	5 V/DC, 800 mA

#### Legal notice

These operating instructions are a publication by Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau (www.conrad.com). All rights including translation reserved. Reproduction by any method, e.g. photocopy, microfilming, or the capture in electronic data processing systems require the prior written approval by the editor. Reprinting, also in part, is prohibited. These operating instructions represent the technical status at the time of printing. Changes in technology and equipment reserved. © Copyright 2014 by Conrad Electronic SE.