

## INDOOR AIR QUALITY MONITORS



AIR QUALITY

## HIGHLIGHTS:

- Indoor air quality permitting calculation of automatic ventilation rate by CO<sub>2</sub> analysis correlate to the real presence of people in the rooms

## HD21-ABE-17

Art. no. 700049

Indoor air quality monitors

## General:

HD21-AB-17 IAQ Monitor is a bench-top/portable instrument manufactured by Delta Ohm for the analysis of indoor air quality (IAQ, Indoor Air Quality).

## The instrument simultaneously measures the parameters:

- Carbon Dioxide CO<sub>2</sub>
- Carbon Monoxide CO
- Atmospheric Pressure
- Temperature
- Relative Humidity

## and it calculates:

- Dew Point
- Wet Bulb Temperature
- Absolute Humidity
- Mixing Ratio
- Enthalpy

These regulations apply to all confined spaces that could be used by people. Kitchens, baths, changing rooms and swimming pools are included, due to their high humidity. You should take into account, in regard to air quality, possible chemical, physical and biological contaminants. The instruments have a wide Dot Matrix graphic display with a resolution of 160 x 160 dots.

## The instruments typical applications are:

- Measurement of IAQ (Indoor Air Quality) and comfort conditions in schools, offices and indoor spaces.
- Analysis and study of the Sick Building Syndrome, and of the resulting consequences.
- Checking the HVAC (Heating, Ventilation and Air Conditioning) system efficiency.
- Examination of IAQ conditions in factories to optimize microclimate and improve productivity.
- Building Automation checks.

## Specifications:

## Device

<b>Dimensions:</b>	300 x 90 x 40 mm (H x W x D) (with probe)
<b>Material:</b>	ABS, rubber
<b>Display:</b>	Backlight, Dot Matrix, 160 x 160 dots, visible area 52 x 42 mm

## Operating conditions

<b>Working temperature:</b>	-5 ... +50 °C
<b>Storage temperature:</b>	-25 ... +65 °C
<b>Working relative humidity:</b>	0 ... 85 % RH without condensation
<b>Protection degree:</b>	IP30
<b>Instrument uncertainty:</b>	±1 digit @ 20 °C

## Power supply

<b>Mains adapter (Code SWD-10):</b>	12 V DC/1 A
<b>Batteries:</b>	4 x 1.2 V Ni-MH rechargeable batteries AA type
<b>Autonomy:</b>	8 h of continuous use in measure mode

## Serial interface

<b>Socket:</b>	mini-USB
<b>Type:</b>	USB 1.1 or 2.0 not insulated
<b>Storage capacity:</b>	67.600 recordings

## Scope of supply:

IAQ Monitor datalogger kit. Complete with: DeltaLog10 software (version 0.1.5.3 and later), monitor, and data processing on Personal Computer, 4 x 1.2 V NiMH rechargeable batteries, manual, case, with USB cable and mains adapter

CO<sub>2</sub> Carbon Dioxide

<b>Sensor:</b>	NDIR Dual Wavelength (two frequencies)
<b>Measuring range:</b>	0 ... 5.000 ppm
<b>Sensor working range:</b>	-5 ... +50 °C
<b>Accuracy:</b>	±50 ppm ±3 % of measurement
<b>Resolution:</b>	1 ppm
<b>Temperature dependence:</b>	0.1 % f.s./°C
<b>Response time (T<sub>90</sub>):</b>	<120 s (air speed = 2 m/s)

## CO Carbon Monoxide

<b>Sensor:</b>	Electrochemical cell
<b>Measuring range:</b>	0 ... 500 ppm
<b>Sensor working range:</b>	-5 ... +50 °C
<b>Accuracy:</b>	±3 ppm ±3 % of measurement
<b>Resolution:</b>	1 ppm
<b>Response time (T<sub>90</sub>):</b>	<50 s
<b>Service life:</b>	>5 years in normal environment conditions

## Atmospheric Pressure (Patm)

<b>Type of sensor:</b>	Piezo-resistive
<b>Measuring range:</b>	750 ... 1.100 hPa
<b>Accuracy:</b>	±1.5 hPa @ 25 °C
<b>Resolution:</b>	1 hPa
<b>Temperature drift:</b>	±3 hPa with temperature -20 ... +60 °C

## Relative Humidity (RH)

<b>Type of sensor:</b>	Capacitive
<b>Sensor protection:</b>	Stainless steel grid filter (on request 10 µm sintered filter P6 in AISI 316 or 20 µm sintered filter P7 in PTFE)
<b>Measuring range:</b>	0 ... 100 % RH
<b>Sensor working range:</b>	-20 ... +60 °C
<b>Accuracy:</b>	±1.5 % RH (0 ... 90 % RH) ±2 % RH (elsewhere) for T=15 ... 35 °C ±(1.5 +1.5 % of the measure) % RH for T=-20 ... +60 °C
<b>Resolution:</b>	0.1 °C
<b>Temperature dependence:</b>	±2 % on all temperature range
<b>Hysteresis and repeatability:</b>	1 % RH
<b>Response time (T<sub>90</sub>):</b>	<20 s (air speed = 2 m/s) without filter

## Temperature T

<b>Sensortyp:</b>	NTC 10 kΩ
<b>Measuring range:</b>	-20 ... +60 °C
<b>Accuracy:</b>	±0.2 °C ±0.15 % of measurement
<b>Resolution:</b>	0.1 °C
<b>Response time (T<sub>90</sub>):</b>	<30 s (air speed = 2 m/s)

## Accessories:

## SWD-10

Art. no. 700039

Stabilized power supply at 100-240 V AC / 12 V DC / -1 A mains voltage.

## CP-23

Art. no. 700050

Connection cable with type B MiniUSB connector on instrument's side and USB 2.0 connector on PC's side.

## BAT-40

Art. no. 700051

Spare batteries with built-in temperature sensor.

## ECO-SURE-2E-CO

Art. no. 700052

CO spare sensor

## MINICAN-12-A-0

Art. no. 700059

Nitrogen can for CO and CO<sub>2</sub> calibration at 0 ppm, 20 litres

## HD-37-36

Art. no. 700053

Connection tube kit for CO calibration

## HD-37-37

Art. no. 700054

Connection tube kit for CO<sub>2</sub> calibration

## HD-33-0

Art. no. 700055

33 % RH saturated solution for checking the relative humidity sensor