

## Sisäilman laadun tarkkailulaite HD21AB17

Hiilidioksidi, Hiilimonoksidi, kosteus ja lämpö sekä ilmanpaine(Baro), DeltaOhm HD21AB17 ja HD21AB

### Käyttökohteet:

- Sisäilmaolosuhteiden mittauksiin
- ”Sairaala-rakennuksen” analysointiin
- Ilmanvaihdon tehokkuuden tarkastuksiin
- Rakennusautomaation tarkastuksiin

### Tärkeimmät ominaisuudet:

- Mittaa ja näyttää kaikki suureet samaan aikaan näytössä.
- Mittarin voi jättää akulla loggaamaan viikoiksi
- Laskee neljä arvoa suoraan.
- Tukeva kotelointi ja kosteus/lämpö anturi erillisessä tornissa
- Helppokäyttöinen ohjelma

### Mittaa seuraavat parametrit:

- Hiilimonoksidi CO 0..500 ppm
- Hiilidioksidi CO<sub>2</sub> 0..5000 ppm
- Ilmanpaineen 750..1100 hPa
- Lämpötilan -20.. +80 °C
- Suhteellisen kosteuden 0.. 100% RH

### Ja laskee:

- Kastepisteen
- Märkälämpötilan
- Kosteussisältö g/m<sup>3</sup> ja g/kg
- Enthalpia J/kg

Mittari mittaa ja näyttää kaikki suureet samaan aikaan näytössä. Loggeritoiminnossa mittarin voi jättää useaksi viikoksi akun varaan. Mittarissa on muistia 67600 mittaustulosta varten ja se pystyy tallentamaan tietoa määräväleihin. Kosteus ja lämpötila anturit on sijoitettu torniin, jossa reagointiaika on hyvin pieni.

Tieto voidaan lukea USB portin kautta tietokoneeseen ja tiedon käsittelyä varten on mukana kätevä ohjelma DeltaLog.

### Tekniset tiedot:

Näyttö	LCD taustavalolla
Toimintalämpötila	-5..50°C
Varastointi	-25..65 °C 0..85%RH
Akkulaturi	12V dc/1A
Toiminta-aika akuilla	8 tuntia jatkuvaa käyttöä. Loggeritoiminnolla viikkoja.
Kulutus vähävirtatilassa	<45 uA
Muistin pysyvyys	säilyy ilman virransyöttöä
Mitat	300x90x40 mm 470g



Mittaongelmiesi ratkaisija

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**HD21AB  
HD21AB17**

▶ [ GB ] Indoor Air Quality  
Monitors



- **HD21AB** and **HD21AB17** IAQ Monitors are bench-top/portable instruments manufactured by **Delta Ohm** for the analysis of indoor air quality (IAQ, Indoor Air Quality).



HD21AB17

The instruments simultaneously measure the parameters:

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

The **HD21AB17** instrument also measures:

- Temperature
- Relative Humidity

and it calculates:

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

**HD21AB** and **HD21AB17** are dataloggers with a memory capacity of 67600 recordings, divided in 64 blocks. They use the **DeltaLog10 software from version 0.1.5.3**.

Reference Standards: **ASHRAE 62.1 – 2004, Legislative Decree 81/2008**. These regulations apply to all confined spaces that could be used by people. Kitchens, baths, changing rooms and swimming pools are included, due to the presence of 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 160x160 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.

#### Instrument Technical Data

##### Instrument

##### Dimensions

(Length x Width x Height) 210x90x40 mm (HD21AB)  
300x90x40 mm (HD21AB17 with probe)

##### Weight

470 g (batteries included)

##### Materials

ABS, rubber

##### Display

Backlit, Dot Matrix  
160x160 dots, visible area 52x42 mm

##### Operating conditions

Operating temperature

-5...50°C

Storage temperature

-25...65°C

Working relative humidity

0 ... 85% RH without condensation

##### Instrument uncertainty

± 1 digit @ 20°C

##### Power

Mains adapter (code SWD10) 12Vdc/1A

Batteries

4 x 1.2V Ni-MH rechargeable batteries AA type

Autonomy

8 hours of continuous use in measure mode

Power absorbed

with instrument off

< 45µA

##### Security of stored data

Unlimited

##### Serial interface:

Socket:

mini-USB

Type:

USB 1.1 or 2.0 not insulated

Baud rate:

460800

Data bits:

8

Parity:

None

Stop bits:

1

Flow control:

Xon-Xoff

Cable length:

Max 5 m

##### Memory

Divided in 64 blocks.

##### Storage capacity

67600 recordings.

##### Logging interval

Selectable among: 15, 30 seconds, 1, 2, 5, 10, 15, 20, 30 minutes and 1 hour.

Logging interval	Storage capacity	Logging interval	Storage capacity
15 seconds	About 11 days and 17 hours	10 minutes	About 1 year and 104 days
30 seconds	About 23 days and 11 hours	15 minutes	About 1 year and 339 days
1 minute	About 46 days and 22 hours	20 minutes	About 2 years and 208 days
2 minutes	About 93 days and 21 hours	30 minutes	About 3 years and 313 days
5 minutes	About 234 days and 17 hours	1 hour	About 7 years and 261 days

#### Technical data of the sensors

##### CO<sub>2</sub> Carbon Dioxide

Sensor

NDIR Dual Wavelength

Measurement range

0 ... 5000ppm

Sensor working range

-5 ... 50°C

Accuracy

±50ppm+3% of measurement

Resolution

1ppm

Temperature dependence

0.1%f.s./°C

Response time (T<sub>90</sub>)

< 120 sec (air speed = 2m/sec)

Long-term stability

5% of measurement/5 years

## CO Carbon Monoxide

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

## Atmospheric Pressure Patm

Type of sensor	Piezo-resistive
Measurement range	750 ... 1100 hPa
Accuracy	±1.5 hPa @ 25°C
Resolution	1 hPa
Long-term stability	2hPa/year
Temperature drift	±3hPa with temperature -20 ... +60°C

## Relative Humidity RH (HD21AB17 only)

Type of sensor	Capacitive
Sensor protection	Stainless steel grid filter (on request 20µm sintered filter P6 in AISI 316 or 10µm sintered filter P7 in PTFE)
Measurement range	0 ... 100 % RH
Sensor working range	-20 ... +60°C
Accuracy	±2% (10÷90% RH) ±2.5% in the remaining range
Resolution	0.1°C
Temperature dependence	±2% on all temperature range
Hysteresis and repeatability	1% RH
Response time (T <sub>90</sub> )	< 20 sec (air speed = 2m/sec) without filter
Long-term stability	1%/year

## Temperature T (HD21AB17 only)

Type of sensor	NTC 10kΩ
Measurement range	-20 ... +60°C
Accuracy	±0.2°C ±0.15% of measurement
Resolution	0.1°C
Response time (T <sub>90</sub> )	< 30 sec (air speed = 2m/sec)
Long-term stability	0.1°C/year

## ORDERING CODES

**HD21AB:** IAQ Monitor datalogger kit. It measures CO, CO<sub>2</sub> and atmospheric pressure. Equipped with: **DeltaLog10** software (**version 0.1.5.3 and later**) for data download, monitor, and data processing on Personal Computer, 4 x 1.2V NiMH rechargeable batteries, operating manual, case. **The cables must be ordered separately.**

**HD21AB17:** IAQ Monitor datalogger kit. It measures CO, CO<sub>2</sub>, atmospheric pressure, temperature and relative humidity. Equipped with: **DeltaLog10** software (**version 0.1.5.3 and later**) for data download, monitor, and data processing on Personal Computer, 4 x 1.2V NiMH rechargeable batteries, operating manual, case. **The cables must be ordered separately.**

## Accessories:

- SWD10:** Stabilized power supply at 100-240Vac/12Vdc-1A mains voltage.  
**CP23:** Connection cable with male mini-USB connector on instrument's side and USB 2.0 male connector on PC's side.  
**BAT-40:** Spare batteries with built-in temperature sensor.  
**Accessories for CO and CO<sub>2</sub> sensors:**  
**MINICAN.12A:** Nitrogen bottle for CO and CO<sub>2</sub> sensor calibration at Oppm. Volume 12 liters. **With adjustment valve.**  
**MINICAN.12A1:** Nitrogen bottle for CO and CO<sub>2</sub> sensor calibration at Oppm. Volume 12 liters. **Without adjustment valve.**  
**ECO-SURE-2E CO:** CO spare sensor  
**HD37.36:** Kit connection tube between instrument and MINICAN.12A for CO calibration.  
**HD37.37:** Kit connection tube between instrument and MINICAN.12A for CO<sub>2</sub> calibration.

## Accessories for Humidity sensor:

- HD75:** Saturated solution at 75.4%RH@20°C for calibration of relative humidity probes, ring M24x1.5 and M14x1.  
**HD33:** Saturated solution at 33.0%RH@20°C for calibration of relative humidity probes, ring M24x1.5 and M14x1.  
**P5:** Protection grid in stainless steel for Ø 14mm probes.  
**P6:** Complete protection in 20µ sintered AISI 316 for Ø 14mm probes.  
**P7:** Complete protection in 10µ sintered PTFE for Ø 14mm probes.  
**P8:** Protection grid in stainless steel and Pocan for Ø 14mm probes, thread M12x1.



HD21AB

#### Manufacture of portable and bench top instruments

Current and voltage loop transmitters

Temperature - Humidity - Pressure

Air speed - Light - Acoustics

pH - Conductivity - Dissolved Oxygen - Turbidity

Elements for weather stations - Thermal Microclimate



#### SIT CENTRE N°124

Temperature - Humidity - Pressure - Air speed

Photometry/Radiometry - Acoustics

#### CE CONFORMITY

- **Safety:** EN61000-4-2, EN61010-1 Level 3
- **Electrostatic discharge:** EN61000-4-2 Level 3
- **Electric fast transients:** EN61000-4-4 livello 3, EN61000-4-5 Level 3
- **Voltage variations:** EN61000-4-11
- **Electromagnetic interference susceptibility:** IEC1000-4-3
- **Electromagnetic interference emission:** EN55022 class B

