Member of GHM GROUP

HD21ABE, HD21ABE17

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
Warehouse temperature	-25…65°C
Working relative humidity	0 … 85% RH without condensation
Protection degree	IP30
Instrument uncertainty	± 1 digit @ 20°C
Power supply	
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.

HD21ABE, HD21ABE17
INDOOR AIR QUALITY MONITORS

HD21ABE and **HD21ABE17** IAQ Monitors are bench-top/portable instruments manufactured by **Delta OHM** for the analysis of indoor air quality (IAQ, Indoor Air Quality).
The instruments simultaneously measure the parameters:
- **Carbon Dioxide** CO_2
- **Carbon Monoxide** CO
- **Atmospheric Pressure**

The **HD21ABE17** instrument also measures:
- **Temperature**
- **Relative Humidity**

and it calculates:
- **Dew Point**
- **Wet Bulb Temperature**
- **Absolute Humidity**
- **Mixing Ratio**
- **Enthalpy**

HD21ABE and **HD21ABE17** 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**, **Italian 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 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 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.

HD21ABE17

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_2 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_{90})	< 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_{90})	< 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 (HD21ABE17 only)

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

Temperature T (HD21ABE17 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_{90})	< 30 sec (air speed = 2m/sec)
Long-term stability	0.1°C/year

ORDERING CODES

HD21ABE: IAQ Monitor datalogger kit. It measures CO, CO_2 and atmospheric pressure. Complete with: **DeltaLog10** software downloadable from Delta OHM website (**version 0.1.5.3 and later**) for data download, monitor, and data processing on Personal Computer, 4 x 1.2V NiMH rechargeable batteries, CP23 USB cable, power supply SWD10, operating manual, case. **The cables must be ordered separately.**

HD21ABE17: IAQ Monitor datalogger kit. It measures CO, CO_2, atmospheric pressure, temperature and relative humidity. Complete with: **DeltaLog10** software downloadable from Delta OHM website (**version 0.1.5.3 and later**) for data download, monitor, and data processing on Personal Computer, 4 x 1.2V NiMH rechargeable batteries, CP23 USB cable, power supply SWD10, operating manual, case. **The cables must be ordered separately.**

Accessories:

BAT-40: Spare batteries with built-in temperature sensor.

Accessories for CO and CO_2 sensors:

MINICAN.12A: Nitrogen bottle for CO and CO_2 sensor calibration at 0ppm. Volume 12 liters. **With adjustment valve.**

MINICAN.12A1: Nitrogen bottle for CO and CO_2 sensor calibration at 0ppm. Volume 12 liters. **Without adjustment valve.**

HD37.36: Kit connection tube between instrument and MINICAN.12A for CO calibration.

HD21AB17.9: Connection accessory between instrument and MINICAN.12A for CO2 calibration. The connecting tube is included.

Accessories for Humidity sensor:

HD75: Saturated solution at 75.4%RH@20°C for calibration of relative humidity probes, ring M24x1.5 and M12x1.

HD33: Saturated solution at 33.0%RH@20°C for calibration of relative humidity probes, ring M24x1.5 and M12x1.

HD11: Saturated solution at 11.0%RH@20°C for calibration of relative humidity probes, ring M24x1.5 and M12x1.

P6: Complete protection in 10µm sintered AISI 316 for Ø 14mm probes.

P7: Complete protection in 20µm sintered PTFE for Ø 14mm probes.

P8: 20µm protection grid in stainless steel and PBT for Ø 14mm probes, thread M12x1.

HD21ABE