



HD 37AB17D, HD 37B17D DATALOGGER RELATIVE HUMIDITY - TEMPERATURE - CO - CO₂

HD37AB17D and HD37B17D are data loggers able to measure and store at the same time the following parameters:

- RH relative Humidity
- T Room Temperature
- CO Carbon Monoxide (only HD37AB17D)
- CO₂ Carbon Dioxide

HD37AB17D and HD37B17D are able to investigate and monitor the quality of indoor air. Typical applications are examining the air quality in buildings where there are crowds of people (schools, hospitals, auditoriums, cafeterias, etc...) and workplaces to maximize comfort and in general to see if there are small leaks of CO, with danger of explosion or fire. This analysis allows you to adjust the air conditioning (temperature and humidity) and ventilation (air change per hour) to achieve a double objective: to achieve good air quality in accordance with ASHRAE standards and current BMI and energy savings.

HD37AB17D and HD37B17D are instruments set to fight the so-called sick building syndrome.

RH (Relative Humidity) measurement is obtained with a capacitive sensor.

T temperature is measured with a high precision NTC sensor.

The sensor for the measurement of CO (Carbon Monoxide, only for HD37AB17D) consists of two electrodes in an electrochemical cell suitable for detecting the presence of carbon monoxide, lethal for humans, in residential and industrial.

The measurement of CO₂ (carbon dioxide) is obtained with a special infrared sensor (NDIR technology: Non-Dispersive Infrared Technology) that, by using a double filter and a particular measurement technique, ensures accurate measurements and stable for a long time. The presence of a protective membrane, which is spread through the air portion, protects the sensor from dust and weather.

HD37AB17D and HD37B17D are data loggers capable of storing the measurements, every user preset.

HD37AB17D and HD37B17D can be connected to the PC via the USB input. Instruments are supplied with DeltaLog13 software which manages the operations of connection to the PC, calibration of RH sensors, CO (only HD37AB17D) and CO₂, setting of the operating parameters of the instrument, data transfer, presentation graphics and printing of measurements acquired or stored.

The software DeltaLog13 is able to assess OA % parameter by an appropriate procedure (percentage of outside air), according to the following formula:

Using appropriate procedure, the Software DeltaLog13 can evaluate the parameter % OA (percentage of external air), according to the following formula:

$$\%OA = \frac{X_r - X_s}{X_r - X_0} \cdot 100$$

whereas:

X = CO₂ in return air

X_s = CO₂ in the outlet air

X₀ = CO₂ in the external air

The power supply of the instrument is provided by a 2 Ni-MH rechargeable batteries package (code BAT-20), that that allows 8 hours of continuous working in acquisition mode.

Acquisition frequency:

frequency	samples per minute	storage capacity
3 sec.	20 samples per minute	16 hours
6 sec.	10 samples per minute	1 day 9 hours
12 sec.	5 samples per minute	2 days 12 hours
15 sec.	4 samples per minute	3 days 12 hours
30 sec.	2 samples per minute	6 days 12 hours
60 sec. = 1 minutes	1 sample per minute	13 days 12 hours
120 sec. = 2 minutes	1 sample per 2 minutes	27 days 12 hours
180 sec. = 3 minutes	1 sample per 3 minutes	41 days 12 hours
240 sec. = 4 minutes	1 sample per 5 minutes	55 days 12 hours
300 sec. = 5 minutes	1 sample per 5 minutes	69 days

Technical Features

Dimensions	275 mm x 45 mm x 40 mm
Weight	230 g (batteries included)
Materials	ABS
Mains power supply (code SWD06)	Batteries charger 100-240Vac/6Vdc-1A
Batteries	Package with 2 rechargeable batteries 1.2V type AA (NiMH)
Autonomy	8 hours of continuous working in measurement mode
Current absorbed with instrument off	200µA
Instrument working temperature	5°C ... 50°C
Working relative humidity	5%RH ... 95%RH no condensed
Temperature / Storage humidity	-25°C ... +70°C / 10%RH ... 90%RH no condensed
Safety of the stored data	Unlimited

Connections

USB interface	USB 2.0 cable B type Baudrate 460800
Charger Batteries power supply (code SWD06)	2 - poles connector (positive at the centre) Output voltage: 6Vdc Maximum current: 1600mA (9,60 VA Max).

Measuring rate

1 sample every three seconds

Storage capacity

20000 Records
Every records includes the followingf:
- date and time
- measurement of the carbon dioxide (CO₂)
- measurement of the carbon monoxide (CO- only HD37AB17D)
- measurement of the relative humidity (RH)
- measurement of the temperature (T)



Logging interval	selectable within: 3,6,12,15,30,60 seconds, 2,3,4,5 minutes. The stored values represent the average value of the samples that are stored every three seconds.	Response time (T_{90}) Long term stability Expected life	< 50 sec. 5% of the measure/year > 5 years in normal environmental conditions
Printing interval	selectable within: 3,6,12,15,30,60 seconds, 2,3,4,5 minutes. The printed values represent the average value of the samples that are stored every three seconds.		

Sensor Features
Relative Humidity RH
Sensor protection

Capacitive sensor
Net filter made of stainless steel (upon request filter P6 in AISI316 sintered 20µm or filter P7 in PTFE sintered 10µm)
5...100 % RH
-20...+60°C
±2% (10÷90%RH) ±2,5% in the remaining range
0,1%
±2% on all the temperature range
1% RH
±2% on all temperature range
< 20 sec. (air speed = 2m/sec) without filter
1%/year

Measurement range
Sensor working range
Accuracy
Resolution
Thermal effects
Hysteresis and repeatability
Temperature dependence
Response time (T_{90})
Long term stability

Temperature T

Sensor type
Measurement range
Accuracy
Resolution
Response time (T_{90})
Long term stability

NTC 10KΩ
-20...+60°C
±0.2°C ±0.15% of the measure
0,1°C
< 30 sec. (air speed = 2m/sec)
0.1°C/year

Carbon monoxide CO (only HD37AB17D)

Sensor
Measurement range
Sensor working range
Accuracy
Resolution

Electro chemical cell
0...500ppm
-5...50°C
±3ppm+3% of the measure value
1ppm

Carbon dioxide CO₂

Sensor
Measurement range
Sensor working range
Accuracy
Resolution
Thermal effects
Response time (T_{90})
Long term stability

NDIR with a double wave length
0...5000 ppm
-5...50°C
±50ppm+3% of the measurement
1ppm
0,1%f.s./°C
< 120 sec. (air speed = 2m/sec)
5% of the measure/ 5 years

Purchasing codes

HD37AB17D: The kit consisting of: **HD37AB17D** instrument to measure CO (Carbon monoxide), CO₂ (Carbon dioxide), RH (Relative Humidity), T (Temperature), **DeltaLog13** Software, USB cable code **CP22**, **SWD06** power supply, **BAT-20** batteries package, instruction manual, carrying case.

HD37B17D: instrument to measure CO₂ (Carbon dioxide), RH (Relative Humidity), T (Temperature), **DeltaLog13** Software, USB cable code **CP22**, **SWD06** power supply, **BAT-20** batteries package, instruction manual, carrying case.

Accessories:

- VTRAP20:** Instrument tripod, maximum height 270mm.
- SWD06:** 100-240Vac/6Vdc-1A mains voltage power supply.
- BAT-20:** Replacement batteries pack for HD37AB17D and HD37B17D instruments with integrated temperature sensor.
- P5:** Stainless steel grid protection for probes diameter 14, thread M12×1.
- P6:** Sintered stainless steel 10µ grid protection, for probes diameter 14, thread M12×1.
- P7:** 10µ, PTFE protection for probes diameter 14, thread M12×1.
- P8:** Stainless steel and Pocaan protection for probes diameter 14, thread M12×1.
- HD75:** Saturated solution for testing the Relative Humidity with 75% RH, equipped with adapter for probes diameter 14, thread M12×1.
- HD33:** Saturated solution for testing the Relative Humidity with 33% RH, equipped with adapter for probes diameter 14, thread M12×1.
- MINICAN.12A:** Cylinder of nitrogen for the calibration of CO and CO₂ at 0ppm. Volume 12 litres. **With adjustment valve.**
- MINICAN.12A1:** Cylinder of nitrogen for the calibration of CO and CO₂ at 0ppm. Volume 12 litres. **Without adjustment valve.**
- ECO-SURE-2E CO:** Spare CO sensor.
- HD37.36:** Kit connection pipe between instrument and MINICAN.12A for the calibration of CO.
- HD37.37:** Kit connection pipe between instrument and MINICAN.12A for the calibration of CO₂.

