HD37AB17D
HD37B17D

HD 37AB17D, HD 37B17D
DATALOGGER
RELATIVE HUMIDITY - TEMPERATURE - CO - CO_2

HD37AB17D and **HD37B17D** instruments are **data loggers** able to measure and memorize simultaneously the following parameters:
- Relative Humidity **RH**
- Environment temperature **T**
- Carbon monoxide **CO** (**only HD37AB17D**)
- Carbon dioxide **CO_2**

HD37AB17D and **HD37B17D** instruments have the ability to investigate and monitor the indoor air quality.
Typical applications include checking air quality inside buildings occupied by people (schools, hospitals, auditoria, canteens, etc.); and work places to optimize the comfort and to generally check for small leaks of CO with danger of explosions or fire. This analysis allows the management of conditioning plants (temperature and humidity) and ventilation (recycle air/hour) in order to reach a double purpose: getting a good quality of the air in accordance with ASHRAE and IMC regulations and energy saving.
HD37AB17D and **HD37B17D** are instruments which are very useful to fight the so-called syndrome of sick building.
RH (Relative Humidity) measurement is obtained with a capacitive sensor.
T temperature is measured with a high precision NTC sensor.
The **CO** measurement (Carbon monoxide, only for **HD37AB17D**) is made by an electrochemical cell with two electrodes indicated to detect the presence of Carbon monoxide, lethal for men, in his living or working environment.
The **CO_2** measurement (Carbon dioxide) is obtained with a special infrared sensor (NDIR technology: Non-Dispersive Infrared Technology) that, thanks to the use of double filter and a special measurement techniques, guarantees accurate and stable measurements over time. The infrared sensor is equipped with a protection membrane which provides protection from dust particles and aggressive air agents to assure the sensor's long life.
HD37AB17D and **HD37B17D** are **data loggers** able to memorize the detected measurements at an interval set by the user.
HD37AB17D and **HD37B17D** are connected to the PC by ***USB*** input.
DeltaLog13 communication **software** via the USB port, designed to perform data transfer, data collection and recording and printing of all the instrument parameters and stored measurements. In addition the software allows the calibration adjustments of the RH, CO (only HD37B17D) and CO_2 sensors.
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_r = CO_2 in return air
X_S = CO_2 in the outlet air
X_0 = CO_2 in the external air
The power supply of the instrument is provided by a 2 Ni-MH **rechargeable** batteries package (code BAT-20), that allows 8 hours of continuous working in acquisition mode.

Acquisition frequency :

Frequency	samples per minute	maximum duration of logging limited
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 min.	1 samples per minute	13 days, 12 hours
120 sec. = 2 min.	1 sample every 2 minutes	27 days, 12 hours
180 sec. = 3 min.	1 sample every 3 minutes	41 days, 12 hours
240 sec. = 4 min.	1 sample every 4 minutes	55 days, 12 hours
300 sec.= 5 min.	1 sample every 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	Batteries charger **100-240Vac/6Vdc-1A (code SWD06)**
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
CO_2 temperature compensation	0°C…50°C
Operating conditions	
Working temperature	-20°C…+60°C
Storage temperature	-25°C…+65°C
Working relative humidity	0%RH ... 90%RH no condensation
Protection degree	IP30
Safety of the stored data	Unlimited
Connections	
USB interface	USB 2.0 cable B type Baudrate 460800
Batteries charger 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 record includes the following: - date and time - measurement of the carbon dioxide (CO_2) - 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.
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	Capacitive sensor
Sensor protection	Net filter made of stainless steel (on request filter P6 in AISI316 sintered 10µm or filter P7 in PTFE sintered 20µm)
Measurement range	0...100 % RH
Sensor working range	-20...+60°C
Accuracy	±1.5%RH (0÷90%RH) ±2%RH in the remaining range, for T=15…35°C ±(1,5+1.5%of the measured value)%RH for T= -20…+60°C
Resolution	0,1%
Thermal effects	±2% on whole 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

Sensor type	NTC 10kΩ
Measurement range	-20...+60°C
Accuracy	±0.2°C ±0.15% of the measure
Resolution	0,1°C
Response time (T_{90})	< 30 sec. (air speed = 2m/sec)
Long term stability	0.1°C/year

Carbon monoxide CO (only HD37AB17D)

Sensor	Electro chemical cell
Measurement range	0…500ppm
Sensor working range	-5…50°C
Accuracy	±3ppm±3% of the measured value
Resolution	1ppm
Response time (T_{90})	< 50 sec.
Long term stability	5% of the measure/year
Expected life	> 5 years in normal environmental conditions

Carbon dioxide CO_2

Sensor	NDIR with a double wave length
Measurement range	0…5000 ppm
Sensor working range	-5…50°C
Accuracy	±50ppm±3% of the measurement
Resolution	1ppm
Thermal effects	0,1%f.s./°C
Response time (T_{90})	< 120 sec. (air speed = 2m/sec)
Long term stability	5% of the measure/ 5 years

Ordering codes

HD37AB17D: The kit consists of: **HD37AB17D** instrument to measure CO (Carbon monoxide), CO_2 (Carbon dioxide), RH (Relative Humidity), T (Temperature), **DeltaLog13** Software, USB cable code **CP22**, **SWD06** power supply, **BAT-2** batteries pack, instruction manual, carrying case.

HD37B17D: The kit consists of **HD37B17D** instrument to measure CO_2 (Carbon dioxide), RH (Relative Humidity), T (Temperature), **DeltaLog13** Software, USB cable code **CP22**, **SWD06** power supply, **BAT-2** batteries pack, 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.

P6: Sintered stainless steel 10µ grid protection, for probes diameter 14, thread M12×1.

P7: 20µ, PTFE protection for probes diameter 14, thread M12×1.

P8: Stainless steel and Pocan 20µ protection for probes diameter 14, thread M12×1.

HD75: Saturated solution for testing the Relative Humidity with 75% HR, complete with adapter for probes diameter 14, thread M12×1.

HD33: Saturated solution for testing the Relative Humidity with 33% HR, complete with adapter for probes diameter 14, thread M12×1.

MINICAN.12A: Cylinder of nitrogen for the calibration of CO and CO_2 at 0ppm. Volume 12 litres. **With adjustment valve**.

MINICAN.12A1: Cylinder of nitrogen for the calibration of CO and CO_2 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 CO_2.