Member of GHM GROUP

HD50 SERIES

WEB DATA LOGGER

What is a logger?

A measuring device that can store the measurements in a memory. This memory can be located locally (in the instrument) in a database (on a PC or server) or in the cloud.

What is the HD50 logger serie?

It is a logger serie that supports:

- Ethernet with RJ45 connector
- Wi-fi

Any office building has LAN/WLAN network: this means that this logger can be applied everywhere without any further installation or adjustment.

Why did we develop the HD50?

With the HD50 it is possible to start from 1 logger and extend it to a practically unlimited network of loggers. The HD50 settings can be opened from a web browser, as it has a built-in webserver. This way it is also possible to monitor the actual measurements.
Delta OHM already has the HD35 serie, based on RF communication. In some cases when networks are very wide or complex or divided into more than 1 building, a mix of cabled, WiFi and Radio Frequency loggers can be the best solution. The HD50 series have the possibility to be integrated in such hybrid networks.

Where to use this device?

Any indoor place where a user is interested in seeing measurements 'over time':

- a warehouse with goods that need to be stored in a controlled environment;
- electronics that need to be stored with controlled humidity circumstances;
- pharmaceutical products or medicines that need to be controlled in temperature;
- an office building where comfort conditions are extremely important for people working;
- a frozen food storage where it is important to get an alarm when the temperature gets too high;
- in food industry where regulations are applied to monitor the temperature and to save the data to be able to provide this data when authorities ask for it.

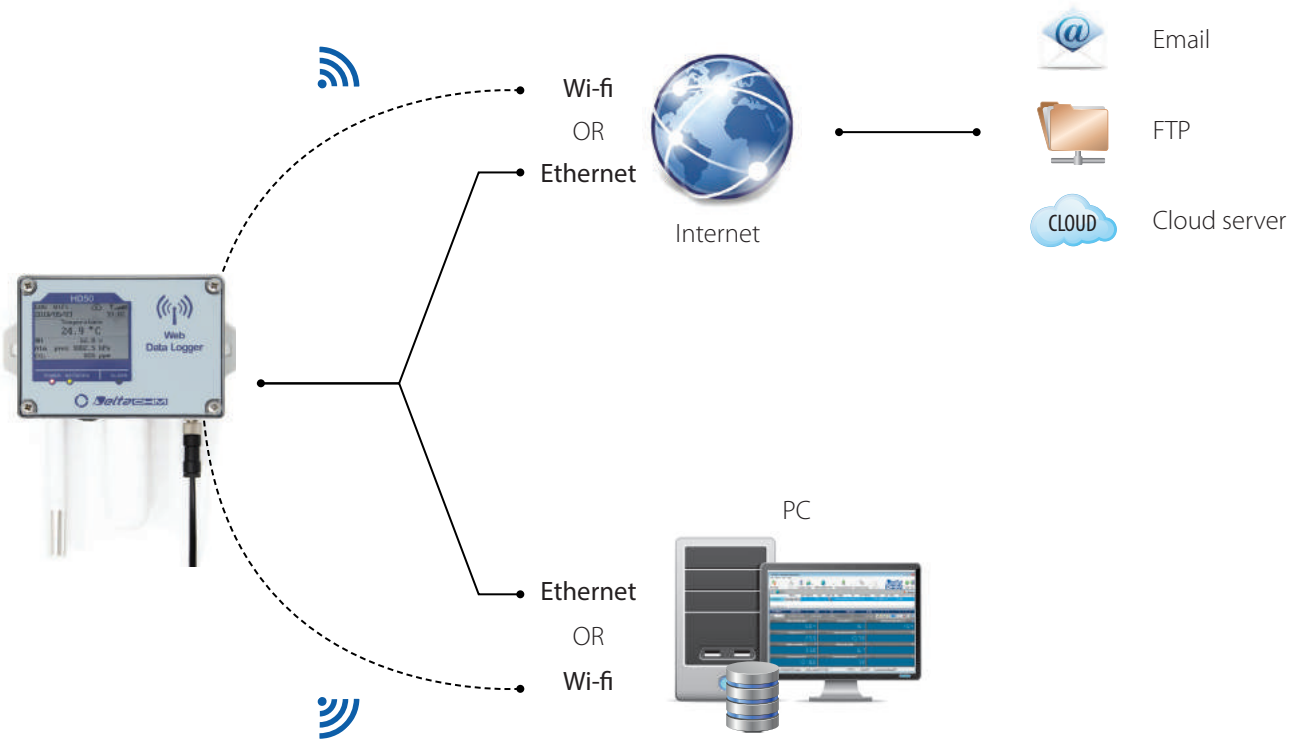
There are many applications where it is important to measure and save the measurement information.

What benefits do this logger series have?

- Easy to use: it can be directly accessed by a web browser.
- It can be used stand alone or in networks with hundreds of loggers.
- Additional software for all solutions: database locally on PC, database on local server, cloud based.
- Wide range of standard sensors (°C / RH / LUX / Atm / CO_2).
- It can support practically 'any signal': universal inputs make it possible to integrate any transmitter with standard output.
- Optional software available for CFR21part11 (pharmaceutical market).
- The logger can send an email alarm when a value is higher or lower than the set threshold.

Connectivity

The data loggers can be connected to a local network via the **Wi-Fi** or **Ethernet** interface



Logging

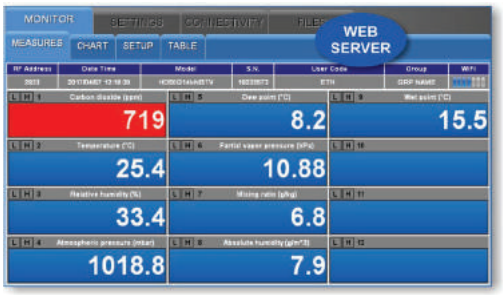
A measuring interval and a logging interval can be set inside the data logger. The stored value is the average of the measures acquired in the logging interval. The acquired data are stored in the internal memory and sent via Internet (if the data logger is connected to a local network with Internet connection). When the data logger memory is full, it can be chosen to stop the logging or to continue overwriting the older data (cyclic logging). It is possible to log all the available quantities or, in order to increase the memory capacity, only the quantities of interest.

Alarms

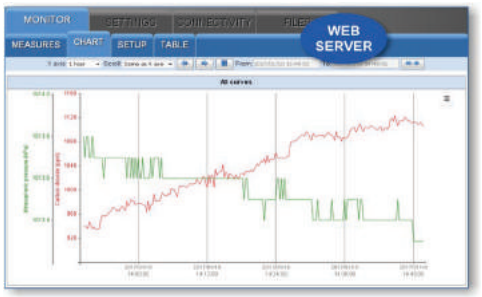
For each detected quantity, two alarm thresholds can be set by the user. The exceeding of a threshold is signaled acoustically by means of the internal buzzer, visually by lighting the alarm LED on the front panel and remotely by sending alarm **e-mails.** An alarm hysteresis and a delay in the generation of the alarm can be configured for each detected quantity.

Integrated Web Server

Thanks to the integrated web server, you can configure the data logger and view the real time measurements from any PC, tablet or smartphone. These have to be connected to the same local network of the data logger by simply using a web browser and typing the IP address of the data logger, without the need to install specific software. You can see the measurements in the form of a graph or in a table.



Web server: monitor of measurements with CO_2 measurement in alarm



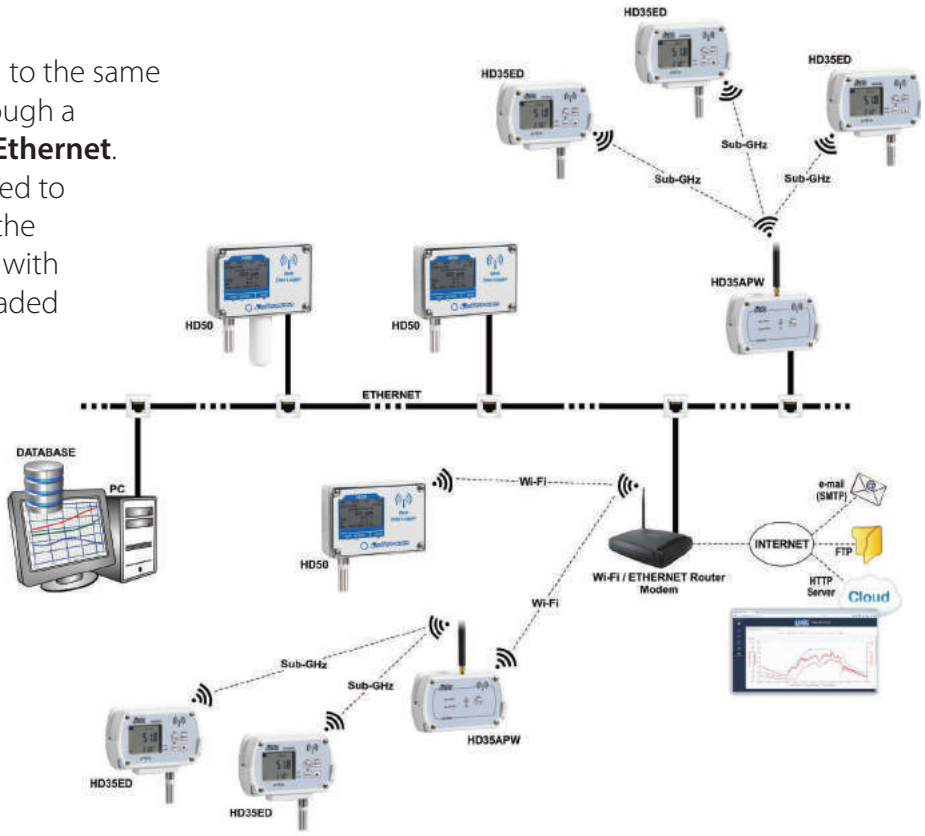
Web server:
graph of measurements

Cloud

Thanks to the integreted web server, it is possible to directly connect data to the logger and display the actual measurement. The data logger can automatically send, at regular intervals, the data to an HTTP server, and in particular to the Delta OHM portal **www.deltaohm.cloud**. The data sending interval is configurable.

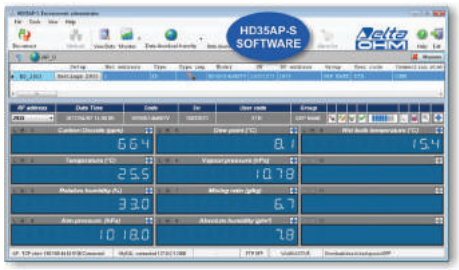
Cloud: viewing measurements with a Web browser from anywhere in the world by using mobile devices (tablet, smartphone, notebook)

Multiple devices can be connected to the same local network, either via **Wi-Fi** (through a router or Wi-Fi access point) or via **Ethernet**. The data of all the devices connected to the network can be collected into the same database and can be viewed with a "Cloud" service or can be downloaded via e-mail or FTP.



Example of a hybrid network (Wi-Fi + ETHERNET) with multiple data loggers

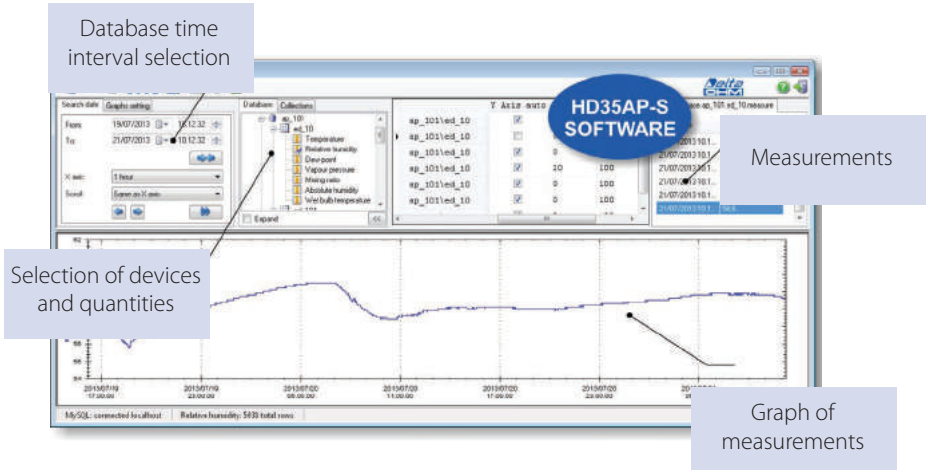
PC Application Software



HD35AP-S software: viewing the real time measurements

The PC software **HD35AP-S** supplied with the data logger allows:

- Configuring
- Viewing the real time measurements, both graphically and numerically
- Downloading the data in a database automatically at regular intervals or upon user request



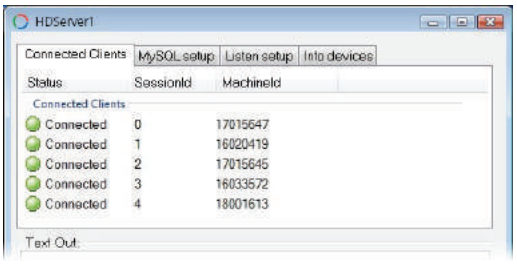
The software HD35AP-S is applied to configure the datalogger and can be used for simple network.
For more extended networks use HDServer1

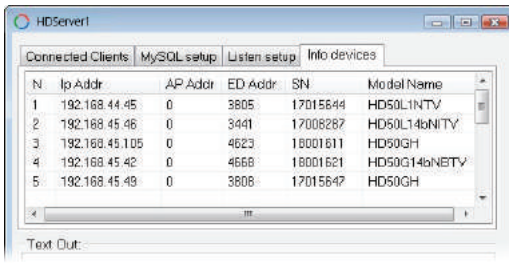
HD35AP-S software: database

HDServer1

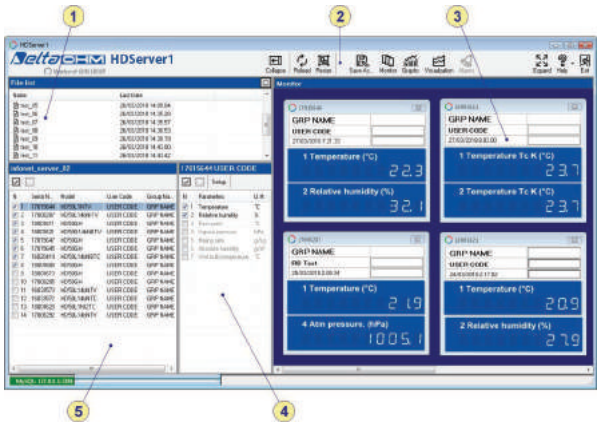
The HDServer1 software allows receiving, viewing and entering into a database the measurements automatically transmitted by loggers. Differently from the HD35AP-S, it supports multiple and simultaneous
TCP/IP connections with many HD50 and HD35APW. An IP scanner functionality allows to easily identify and add all devices available on the network. The software consists of two parts that work independently:

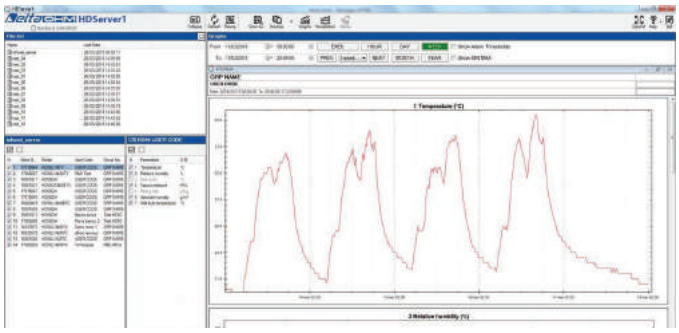
• The Server part, which receives and enters in the database the data coming from the devices.





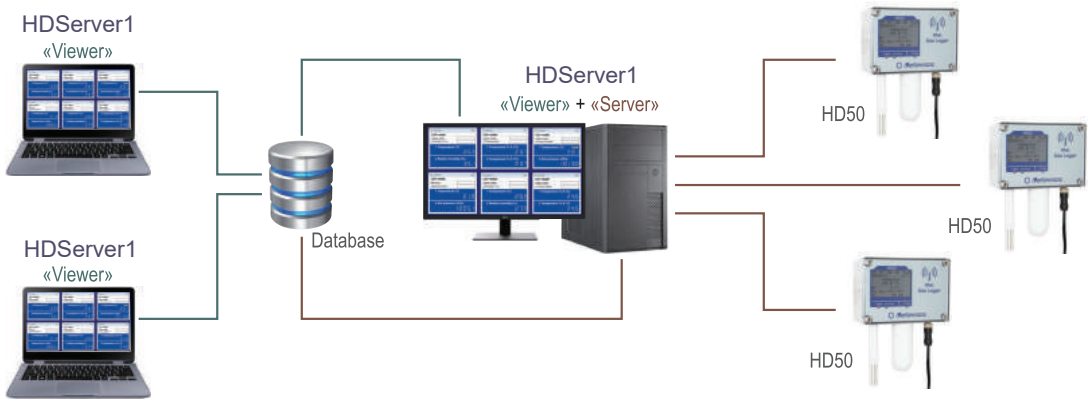
• The Viewer part, which displays the data of the database on the PC monitor





Viewer function
1. List of saved visualization 2. Toolbar. 3. Measurement panels of the "Visualization" selected in the list of "Visualizations" 4. List of the quantities of the device selected in the list of devices 5. List of devices belonging to the selected visualization.

The software can be installed in multiple PCs. The Server part is normally active in only one PC, while the Viewer part can be active simultaneously in several PCs.

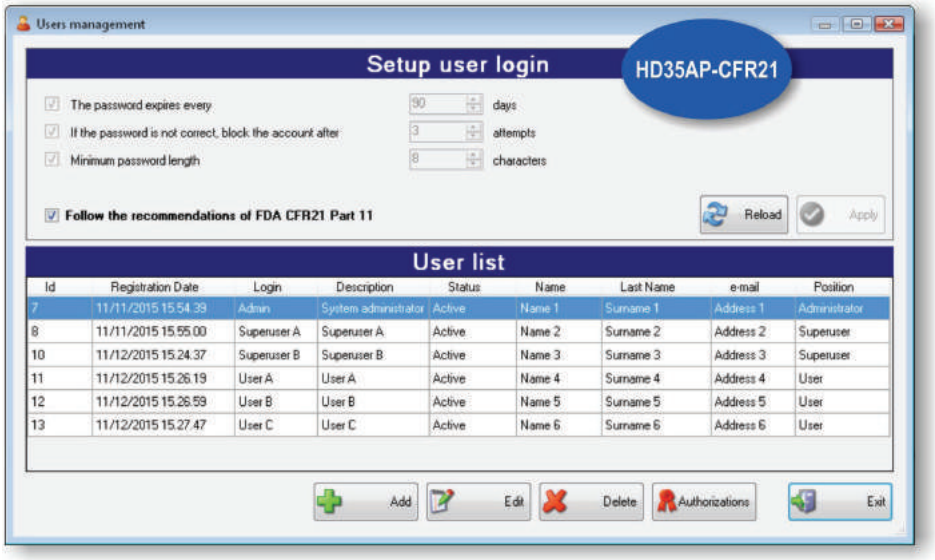


CFR21 Option

In addition to the features of the basic softwares, the **HD35AP-CFR21** option allows the protection of recorded data and configuration in response to **FDA 21 CFR part 11** recommendations. In particular:

- The traceability of activities (audit trail) performed with the software: which users are connected and what changes are made to the configuration of the data logger.
- The management of users access for the data logger configuration and viewing of data in the database. Each user can be assigned a different password for using the software. Three levels of access are available (Administrator, Super-user and standard User). For each level, the allowed operations can be defined.

HD35AP-CFR21 option:
users permissions



The HD35AP-CFR21 option works with USB hardware key connected to any PC belonging to the same local network of the PC in which the HD35AP-S software is installed.

Note: if the HD35AP-CFR21 option is used, the data logger integrated web server allows only viewing the measurements, but not the data logger configuration, because the settings changed via web server can not be traced.

Available HD50… series models

In order to highlight the physical quantities measured by the data loggers, the ordering codes include some identification characters for the various quantities. (see legend below)

Model	MEASURES						INPUTS		OPTIONAL LCD	
							Number of M12 connectors	Built-in sensors	L	G
	NTC10K	Pt100	RH	Patm	CO_2	Lux			Custom	Graphic
HD50 N/1 TC	•						1		•	•
HD50 N/2 TC	•						2		•	•
HD50 N/3 TC	•						3		•	•
HD50 N TV	•							•	•	•
HD50 1N TC	•		•				1		•	•
HD50 17P TC		•	•(*)				1		•	•
HD50 1N TV	•		•					•	•	•
HD50 14bN TV	•		•	•				•	•	•
HD50 14bN TC	•		•	•			1	Patm	•	•
HD50 14b7P TC		•	•(*)	•			1	Patm	•	•
HD50 1NB… TV	•		•		•			•	•	•
HD50 14bNB… TV	•		•	•	•			•	•	•
HD501NI… TCV	•		•			•	1	T/RH	•	•
HD5014bNI… TCV	•		•	•		•	1	T/RH/Patm	•	•
HD501NB…I… TCV	•		•		•	•	1	T/RH/CO_2	•	•
HD5014bNB…I…TCV	•		•	•	•	•	1	T/RH/CO_2 Patm	•	•
HD50GH	Transmitters with 0÷20 mA, 4÷20 mA, 0÷50 mV, 0÷1 V or 0÷10 V output Pt100 / Pt1000 sensors, thermocouples K, J, T, N, E Sensors with potentiometric output						4 terminal header inputs			•(**)

(*) RH sensor extended operating temperature range (-40…+150 °C).
(**) The model with terminal header inputs always has the graphic display (not available without display).

1 = Humidity

4b = Atmospheric pressure (barometer)

N = Temperature with NTC10K sensor
(N/1 = 1 channel, N/2 = 2 channels, N/3 = 3 channels)

7P = Temperature with Pt100/Pt1000 sensor

B = Carbon dioxide (CO_2) low range (0…5,000 ppm)
B2 = Carbon dioxide (CO_2) high range (0…10,000 ppm)

I = Illuminance low range (0…20,000 lux)
I2 = Illuminance high range (0…200,000 lux)

To indicate the fixed probe or the probe with cable, the following indications are used:

TC = Probe with cable (M12 connector)
TV = Fixed vertical probe without cable
TCV = Fixed sensors + photometric probe with cable
The data loggers are also available with **custom** (option **L**, except for the model HD50H) or **graphic** (option **G**) **LCD.**

Graphic LCD

Custom LCD

LEDs indicate the status of power supply, LAN/WLAN local network connection and alarm

Ordering codes

HD50...

TYPE OF LCD:
Blank = without LCD (not available for HD50H)
L = with custom LCD (not available for HD50H)
G = with graphic LCD

MEASURED QUANTITIES:
1 = humidity
4b = atmospheric pressure (Barometer)
N = temperature NTC10K sensor:
N/1=1 channel, **N/2**=2 channels, **N/3**=3 channels
7P = temperature Pt100 sensor
B = carbon dioxide (CO_2): **B**=low range, **B2**=high range
I = illuminance: **I**=low range, **I2**=high range
Blank = standard analog sensors

PROBE TYPE:
H = inputs for standard analog sensors
TC = probe with cable
TV = fixed vertical probe without cable
TCV = fixed sensors + photometric probe with cable

Technical Specifications

Measuring interval	1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Logging interval	1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Internal memory	Circular management or stop logging if full. The number of samples that can be stored depends on the number of quantities selected for logging Min: 323,800 values / Max: 1,165,680 values.
Interfaces	Wi-Fi (IEEE 802.11b/g/n) and Ethernet (RJ45 connector)
Protocols	Proprietary, MODBUS TCP/IP, SMTP, FTP, HTTP, NIST
Wi-Fi security settings	WEP64, WEP128, WAP, WAP2
Alarm	Acoustic by means of the internal buzzer, LED on the front panel, sending of e-mails.
Power supply	External 7…30 Vdc (no internal battery)
Power consumption	40 mA @ 24 V / 80 mA @ 12 V
Display	Optional custom or graphic LCD
LED indicators	Power supply, Network connection (LAN/WLAN) and Alarm
Operating temperature and humidity	-20…+70 °C / < 100%RH non-condensing
Housing	Material: Polycarbonate Dimensions: 130 x 90 x 40 mm (156 x 90 x 44 mm with flanges) Protection degree: IP 54 (with protective cap on RJ45 connector)
Weight	300 g approx.
Installation	Indoor wall mount

Installation

Wall mount installation by using the appropriate flanges to be fixed on the back of the housing.