

## Wireless data loggers GHM DeltaBus



### Characteristics

- Connection via
  - WLAN, Ethernet, RS485, GSM/GPRS, USB
- Acquisition of (environmental data)
  - Temperature
  - Humidity
  - Atmospheric pressure and differential pressure
  - Illuminance (lux)
  - UVA, UVB and UVC irradiance
  - Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>)
  - Solar radiation
  - Rainfall quantity
  - Wind speed and direction
  - Leaf wetness
  - Acceleration

### Application fields

- Building automation
- Meteorology
- Agriculture
- Industry
- Food industry
- Pharma industry
- Museums
- Warehouses
- Carriage of goods
- Photovoltaics

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## Product Information

### Introduction to the wireless data recording systems

A data recording system is a set of instruments which allows measuring and storing the values of certain physical quantities, such as temperature, humidity, pressure, solar radiation, etc.

A data recording system is generally made of:

- **Sensors:** they are placed at the measuring points and convert the values of the physical quantities into electrical analog or digital signals.
- **Acquisition system:** it reads and logs the electrical signals outgoing from the sensors. If the acquisition system is digital, the acquired values are kept in the system's internal memory until the memory is full.
- **PC:** the transfer of data from a digital acquisition system to a PC allows storing the measured values even after the internal memory of the acquisition system is full. The PC also allows processing and analyzing the acquired values.

### Connecting the components of the system

The components of the recording system can be connected in two different ways:

- Wired connection
- Wireless connection by radio frequency transmission

The type of connection depends on various factors, such as:

- the distance among the various components of the system;
- ease of installation;
- cost of installation;
- possibility to easily modify the system;
- electromagnetic interferences in the environment of installation.

### Advantages of the wireless connection

- **Quick and easy installation:** as it is not necessary the laying of cables and conduits, a wireless system is installed much more easily and quickly than a wired system, especially when the components are at a great distance from one another.
- **Reduction of installation costs:** the absence of cables allows a considerable saving in cost of material and labor.
- **Flexibility of the system:** the absence of fixed links between the various parts allows moving the system components at any time without problems.
- **Low maintenance:** the cables are subject to deterioration over time, the absence of cables reduces the maintenance costs of the system.

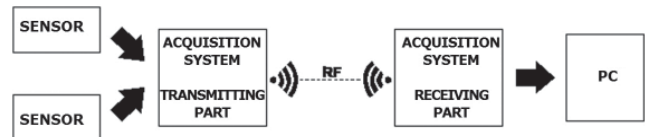
### Contraindications of the wireless connection

The operation of a wireless system can be difficult in environments with excessive electromagnetic interferences (in which case a wired shielded connection may be preferable) or in areas particularly shielded that hinder the radio transmission between the parts of the system.

### Radio frequency transmission in wireless systems

In the case of wireless connections, the acquisition system is made of a radiofrequency transmitting part and a radiofrequency receiving part:

- **Transmitting part:** positioned near the sensor, it transmits the measured values to the receiving part. The transmitter part is normally integrated in the measuring instrument to which the sensor is connected.
- **Receiving part:** positioned close to the PC, it receives the measured values and transmits them to the PC. The receiving part is usually indicated by the terms Base Unit or Access Point.

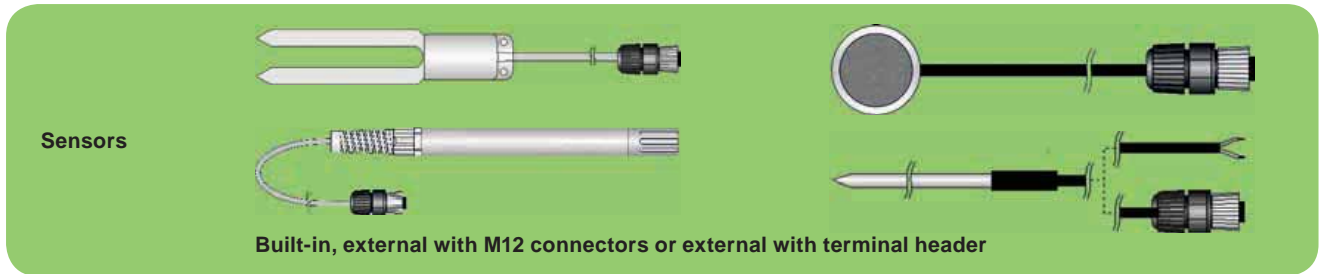


### Wireless data recording system

The transmitter part of the acquisition system can be unique for all the sensors or can be made of multiple transmitters, each of which sends the measurements of some of the sensors. The receiving part of the system is the same for all sensors.

**Product Information**

**System overview**



Radio (868 MHz)



USB, Ethernet (TCP / IP / Modbus TCP)  
 WiFi (TCP / IP), GSM / GPRS, RS485 (Modbus RTU)



## System description

The Delta OHM wireless data logging system allows the monitoring of many physical quantities in various application fields. The data loggers are available for the monitoring of:

- **Temperature**
- **Humidity**
- **Atmospheric pressure and differential pressure**
- **Illuminance (lux)**
- **UVA, UVB and UVC irradiance**
- **Carbon monoxide (CO)**
- **Carbon dioxide (CO<sub>2</sub>)**
- **Solar radiation**
- **Rainfall quantity**
- **Wind speed and direction**
- **Leaf wetness**
- **Acceleration**

The models that measure relative humidity and temperature calculate derived humidity quantities. The calculated quantities depend on the model and can be: Dew Point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Depending on the model, the external measuring probes are connected to the data logger via M12 connector or screw terminal header. Some of the models are equipped with built in sensors.

Data loggers with terminal header inputs are available for the connection of:

- Transmitters with 0÷20 or 4÷20 mA current output and 0÷50 mV, 0÷1 V or 0÷10 V voltage output
- Pt100 / Pt1000 and K, J, T, N, E type thermocouple temperature sensors
- Sensors with voltage free contact output (counting of switchings) or potentiometric output

This allows extending the monitoring capability of the system to countless other quantities, in addition to those listed above.

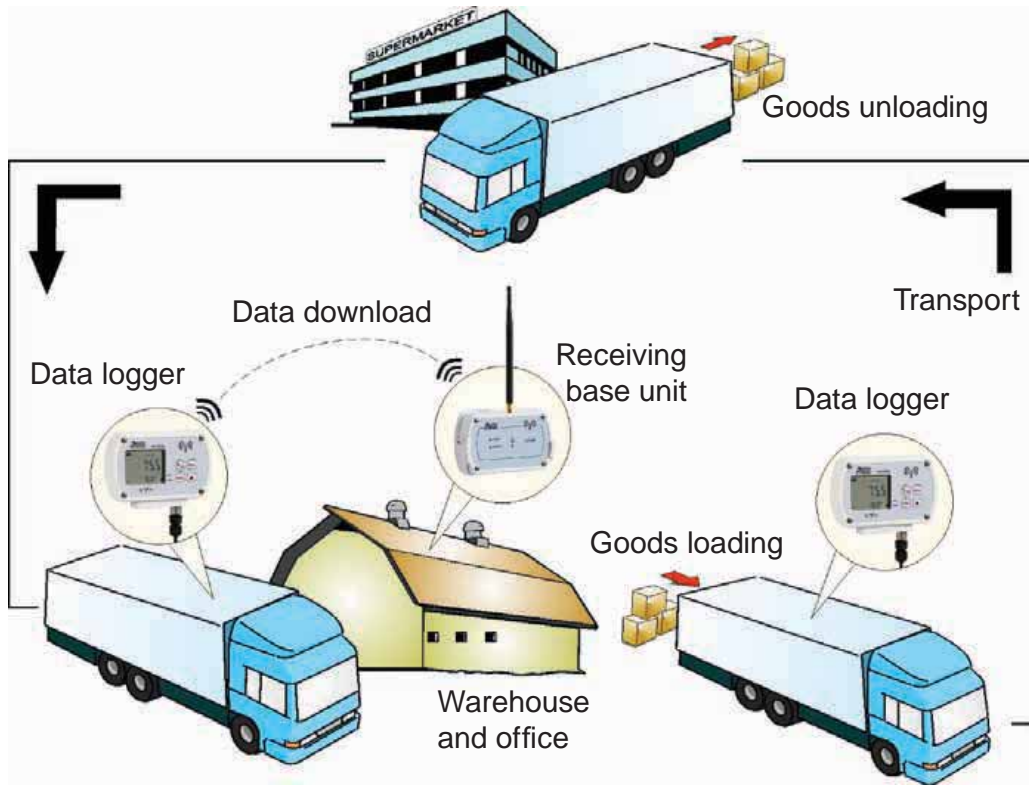
## Application fields



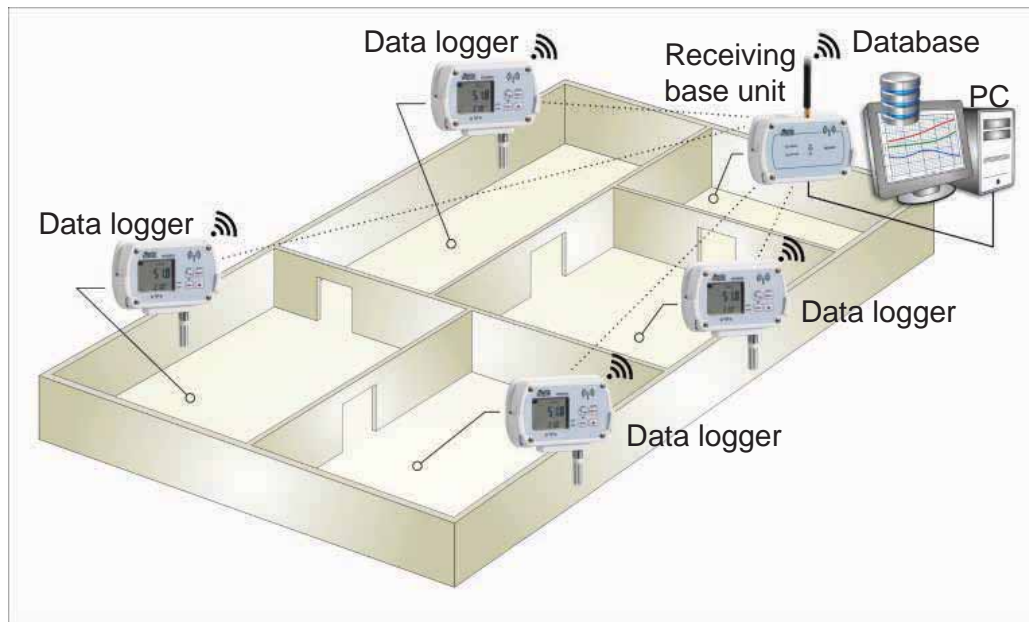
Typical application fields of the Delta OHM wireless data logging system are:

- Food services (refrigerated containers, cold storage, production and carriage of food)
- Health (storage of medicines, vaccines, blood, monitoring of incubators and operating rooms)
- Greenhouses and agriculture
- Environmental analyses (Air quality, meteorology and hydrology)
- Monitoring of solar panels
- Museums and document archives
- Transportation of perishable and fragile goods (monitoring of shocks by measuring the acceleration)
- Air conditioning
- Clean rooms
- Laboratories
- Industrial processes
- Buildings, offices, schools

**Product Information**



Monitoring of perishable (food, medicines, etc.) or fragile goods during transport.


















Example of monitoring of an environment composed of several distinct areas.

**Product Information**

**Available Data loggers**

The following tables list the HD35ED... data logger models available. Other models, in addition to those listed, can be supplied upon request for quantities.

To highlight the physical quantities measured by the data loggers, the ordering codes include some characters that identify the various quantities, according to the following convention:

	<b>1</b> = Humidity
	<b>4b</b> = Atmospheric pressure (barometer)
	<b>4</b> = Differential pressure ( <b>4r1</b> = range 1, <b>4r2</b> = range 2, etc.)
	<b>N</b> = Temperature with NTC10K sensor ( <b>N/1</b> = 1 channel, <b>N/2</b> = 2 channels, <b>N/3</b> = 3 channels)
	<b>7P</b> = Temperature with Pt100/Pt1000 sensor ( <b>7P/1</b> = 1 channel, <b>7P/2</b> = 2 channels, <b>7P/3</b> = 3 channels)
	<b>K</b> = Temperature with thermocouple sensor ( <b>K/4</b> = 4 channels)
	<b>A</b> = Carbon monoxide (CO)
	<b>B</b> = Carbon dioxide (CO <sub>2</sub> )
	<b>I</b> = Illuminance low range (0...20,000 lux), <b>I2</b> = Illuminance high range (0...200,000 lux)
	<b>U</b> = UV irradiance ( <b>U</b> =UVA, <b>UB</b> =UVB, <b>UC</b> =UVC)
	<b>R</b> = Solar radiation (pyranometer)
	<b>P</b> = Rainfall quantity
	<b>V</b> = Acceleration
	<b>L</b> = Leaf wetness
	<b>S</b> = Soil moisture

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

- TC** = Probe with cable
- TV** = Temperature and/or R.H. fixed vertical probe without cable, with high accuracy R.H. sensor
- TVI** = Temperature and R.H. fixed vertical probe without cable
- TCV** = Illuminance/UV irradiance or temperature only probe with cable and temperature/R.H. fixed vertical probe without cable, with high accuracy R.H. sensor

The models that measure temperature and humidity with combined probe with cable (models ...**TC**) use the probes of the series **HP3517...** with **high accuracy relative humidity sensor** and, depending on the model, NTC 10KΩ @ 25 °C or Pt100 temperature sensor. **The replacement of the probe HP3517... requires the recalibration of the instrument in line with the new probe.**

The models with M12 connectors equipped with inputs for measuring only the temperature use the temperature probes of the series **TP35...** with NTC 10KΩ @ 25 °C or Pt100/Pt1000 sensor.

**Product Information**

**TAB. 1A: Data loggers in housing for indoor use**

Model	Measures									Optional LCD		Inputs		Fig.	Page	
	NTC 10KΩ		Pt100 Pt1000	RH	Patm	ΔP	Lux	UV	CO	CO <sub>2</sub>	L	G	Number of M12 connectors			Built-in sensors
										Custom	Graphic					
HD35ED 7P/1 TC		•									•		1		A	60
HD35ED 7P/2 TC		•									•		2		A	60
HD35ED 7P/3 TC		•									•		3		A	60
HD35ED N/1 TC	•										•		1		A	62
HD35ED N/2 TC	•										•		2		A	62
HD35ED N/3 TC	•										•		3		A	62
HD35ED N TV	•										•				B	64
HD35ED 1 TV			•								•				B	65
HD35ED 1 TVI			•								•				B	66
HD35ED 1N TC	•		•								•		1		A	67
HD35ED 17P TC		•	•								•		1	•	A	69
HD35ED 1N TV	•		•								•			•	B	71
HD35ED 1N TVI		Sensor integrated in RH module	•								•			•	B	72
HD35ED 1N/2 TC	•		•								•		2		A	74
HD35ED 1N/2 TCV	•		•								•		1	T / RH	C	76
HD35ED 14bN TC	•		•	•							•		1	Patm	A	78
HD35ED 14bN TV	•		•	•							•			•	B	80
HD35ED 14bN TVI		Sensor integrated in RH module	•	•							•			•	B	82
HD35ED 1N4r...TV (*)	•		•		•						•			•	F	84
HD35ED 4r... (*)					•						•			•	E	86
HD35ED 1NI TCV	•		•			•					•			T / RH	C	87
HD35ED 1NI2 TCV	•		•			•					•			T / RH	C	87
HD35ED 1NI TV	•		•			•					•			•	D	89
HD35ED 14bNI TCV	•		•	•		•					•		1	T / RH Patm	C	91
HD35ED 14bNI2 TCV	•		•	•		•					•		1	T / RH Patm	C	91
HD35ED 14bNI TV	•		•	•		•					•			•	D	93
HD35ED 1NIU TCV	•		•			•	UVA				•		1	T / RH	C	95
HD35ED 1NIU TV	•		•			•	UVA				•			•	D	97

**Product Information**

**GHM DeltaBus**

Model	Measures									Optional LCD		Inputs		Fig.	Page
	NTC 10KΩ	Pt100 Pt1000	RH	Patm	ΔP	Lux	UV	CO	CO <sub>2</sub>	L	G	Number of M12 connectors	Built-in sensors		
HD35ED 1NUB TCV	•		•				UVC			•		1	T / RH	C	99
HD35ED 1NUC TCV	•		•				UVC			•		1	T / RH	C	101
HD35ED 14bNIU TCV	•		•	•		•	UVA			•		1	T / RH Patm	C	103
HD35ED 14bNIU TV	•		•	•		•	UVA			•			•	D	105
HD35ED 1NB	Sensor integrated in RH module		•						•		•		•	G	107
HD35ED 1NAB			•					•	•		•		•	G	109
HD35ED 14bNAB			•	•					•	•		•		•	G
HD35ED H	Transmitters with 0÷20 mA, 4÷20 mA, 0÷50 mV or 0÷1 V output Pt100 / Pt1000 sensors, thermocouples K, J, T, N, E Sensors with voltage free contact or potentiometric output										•	3 terminal header inputs		H	113

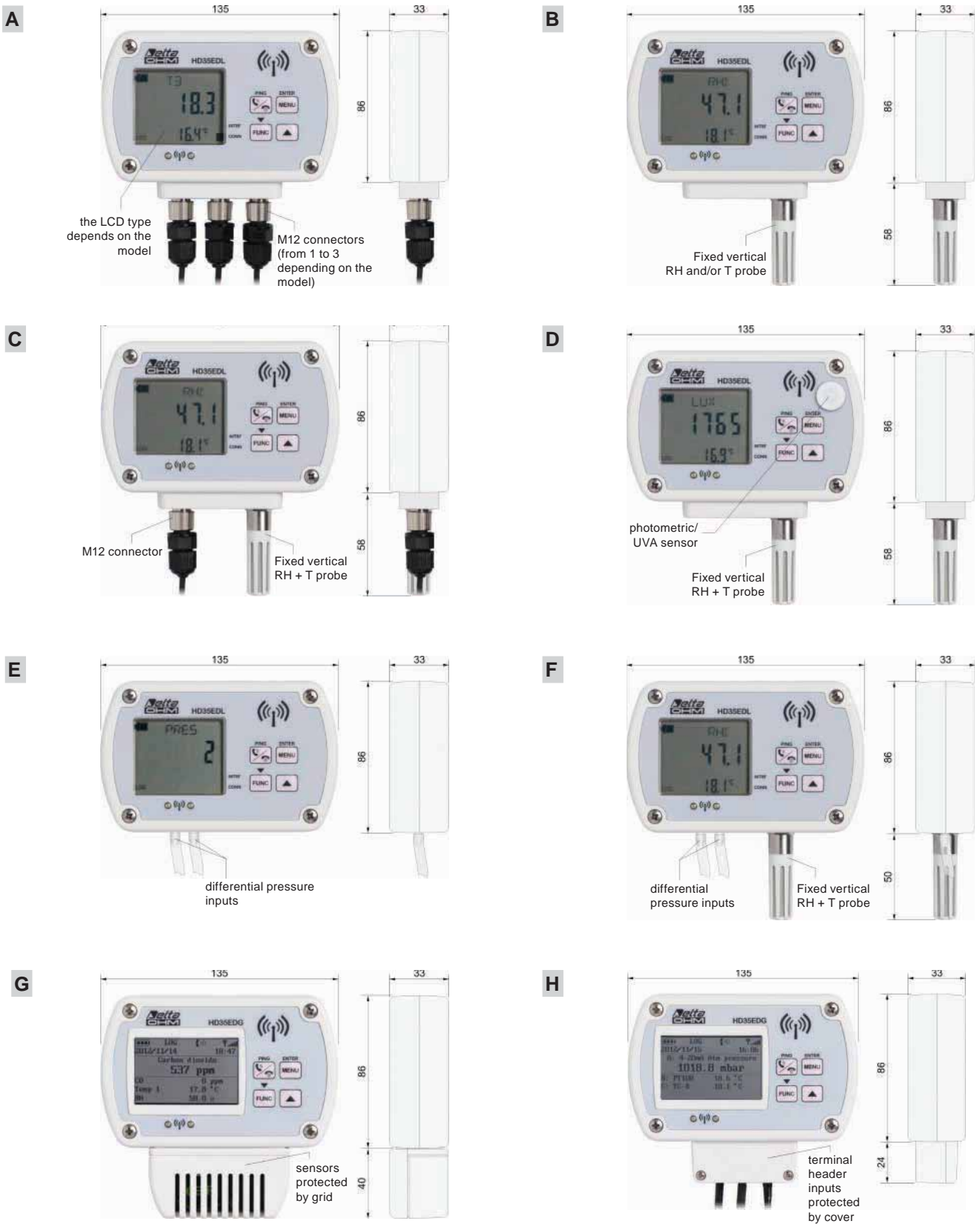
(\*) Differential pressure ranges available

Model	Measuring range
HD35ED...4r1...	-2.5...+2.5 hPa (mbar)
HD35ED...4r2...	-10...+10 hPa (mbar)
HD35ED...4r3...	-100...+100 hPa (mbar)
HD35ED...4r4...	-2000...+2000 hPa (= 2 bar)
HD35ED...4r5... (**)	-125...+125 Pa (for clean rooms)

(\*\*) The model r5 measures dynamic pressures (not suitable for the measurement of static pressures) and requires a small air flow between the two pressure inputs. Metal inputs with tube clamp ring to minimize pressure losses.



**TAB. 1B: Data loggers in housing for indoor use - Figures**



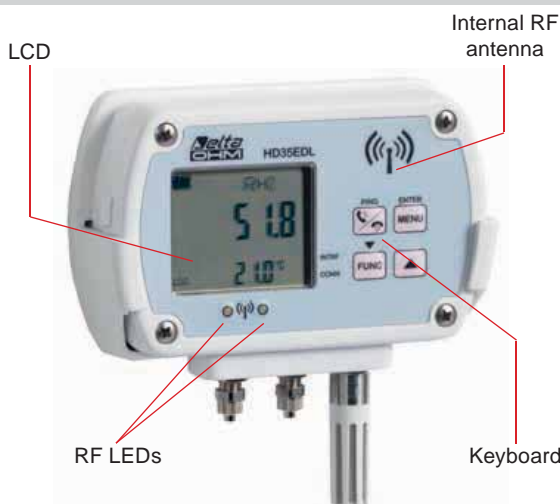
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**Product Information**

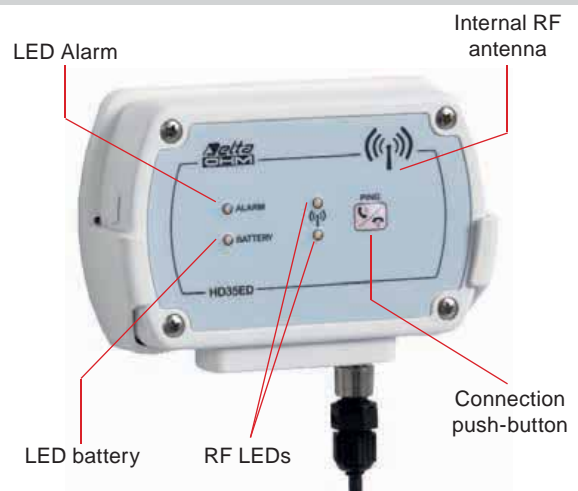
**Technical measurements**

<b>HD35ED... data loggers in housing for indoor use</b>	
Transmitting frequency	868 MHz, 902-928 MHz or 915.9-929.7 MHz depending on the model
Antenna	Internal
Transmitting range	See table 7
Measuring interval (*)	1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Logging and transmitting 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 acquired quantities (see table 2).
Alarm	Acoustic by means of the internal buzzer
Power supply	Internal 3.6 V lithium thionyl chloride (Li-SOCl <sub>2</sub> ) <b>not rechargeable</b> battery, size AA, Molex 5264 2-pole connector. In the models in housing with grid, a connector for external power supply ( <b>SWD 06</b> ) is available.
Battery autonomy (without repeaters, direct communication with HD35AP...)	1.5 years typical for CO/CO <sub>2</sub> models (with 2 min measurement and logging intervals) and for ΔP range r5 model (with 30 s measurement and logging intervals); 2 years typical for the other models, with 5 s measurement interval (10 s for HD35EDH) and 30 s logging interval.
Display	Optional. Custom or graphic LCD depending on the model (see table 1A).
Keyboard	Push-buttons for connection / PING (for testing RF). The models with LCD are provided with buttons for configuration and scrolling of the measured value.
LED indicators	RF communication status. The models without LCD are provided with alarm LED and battery level LED.
Working temperature and humidity range	-20...+70 °C (-10...+70 °C for the models with grid) / 0...85 %RH not condensing
Housing	Material: LURAN® S 777K Dimensions: see table 1B Protection degree: IP 64 (versions with M12 connectors)
Connectors for external probes with cable	Depending on the model, M12 connectors or terminal header inputs 3.5 mm pitch.
Weight	200 g approx. (version with LCD, including battery)
Installation	Wall mount support ( <b>supplied</b> ) for removable installation or flanges ( <b>optional</b> ) for fixed installation.

**Versions with LCD**



**Versions without LCD**



(\*) Some models measuring several quantities may have a minimum interval greater than 1 second (see table 2).

**Product Information**

**TAB. 2: Capacity of the internal memory of the data logger for indoor use**

Model	Number of samples that can be stored (**)	Minimum logging interval	Stored quantities (*)
HD35ED 7P/1 TC	68,000	5 s	T
HD35ED 7P/2 TC	52,000	5 s	T
HD35ED 7P/3 TC	42,000	5 s	T
HD35ED N/1 TC	68,000	1 s	T
HD35ED N/2 TC	52,000	1 s	T
HD35ED N/3 TC	42,000	1 s	T
HD35ED N TV	68,000	1 s	T
HD35ED 1 TV	68,000	1 s	RH
HD35ED 1 TVI	68,000	1 s	RH
HD35ED 1N TC	24,000	1 s	T, RH, TD, TW, AH, MR, PVP
HD35ED 17P TC	24,000	1 s	T, RH, TD, TW, AH, MR, PVP
HD35ED 1N TV	24,000	1 s	T, RH, TD, TW, AH, MR, PVP
HD35ED 1N TVI	24,000	1 s	T, RH, TD, TW, AH, MR, PVP
HD35ED 1N/2 TC	22,000	1 s	T, RH, TD, TW, AH, MR, PVP
HD35ED 1N/2 TCV	22,000	1 s	T, RH, TD, TW, AH, MR, PVP
HD35ED 14bN TC	22,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM
HD35ED 14bN TV	22,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM
HD35ED 14bN TVI	22,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM
HD35ED 1N4r...TV	22,000	1 s	T, RH, TD, TW, AH, MR, PVP, ΔP
HD35ED 4r...	68,000	1 s	ΔP
HD35ED 1NI TCV	44,000	1 s	T, RH, TD, TW, AH, MR, PVP, I
HD35ED 1NI2 TCV	44,000	1 s	T, RH, TD, TW, AH, MR, PVP, I
HD35ED 1NI TV	44,000	1 s	T, RH, TD, TW, AH, MR, PVP, I
HD35ED 14bNI TCV	36,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM, I
HD35ED 14bNI2 TCV	36,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM, I
HD35ED 14bNI TV	36,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM, I
HD35ED 1NIU TCV	32,000	1 s	T, RH, TD, TW, AH, MR, PVP, I, UVA, PUV
HD35ED 1NIU TV	32,000	1 s	T, RH, TD, TW, AH, MR, PVP, I, UVA, PUV
HD35ED 1NUB TCV	44,000	1 s	T, RH, TD, TW, AH, MR, PVP, UVB
HD35ED 1NUC TCV	44,000	1 s	T, RH, TD, TW, AH, MR, PVP, UVC
HD35ED 14bNIU TCV	32,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM, I, UVA, PUV
HD35ED 14bNIU TV	32,000	2 s	T, RH, TD, TW, AH, MR, PVP, PATM, I, UVA, PUV
HD35ED 1NB	44,000	10 s	T, RH, TD, TW, AH, MR, PVP, CO
HD35ED 1NAB	36,000	10 s	T, RH, TD, TW, AH, MR, PVP, CO, CO2
HD35ED 14bNAB	32,000	10 s	T, RH, TD, TW, AH, MR, PVP, PATM, CO, CO2
HD35ED H	from 36,000 to 68,000	5 s	depends on the inputs configuration

**(\*) List of the quantities:**

- |                                     |   |
|-------------------------------------|---|
| <b>T:</b> temperature               | <b>ΔP:</b> differential pressure                |
| <b>RH:</b> relative humidity        | <b>I:</b> illuminance                           |
| <b>TD:</b> dew point                | <b>UVA:</b> UVA irradiance                      |
| <b>TW:</b> wet bulb temperature     | <b>UVB:</b> UVB irradiance                      |
| <b>AH:</b> absolute humidity        | <b>UVC:</b> UVC irradiance                      |
| <b>MR:</b> mixing ratio             | <b>PUV:</b> proportion of UV present (μW/lumen) |
| <b>PVP:</b> partial vapour pressure | <b>CO:</b> carbon monoxide                      |
| <b>PATM:</b> atmospheric pressure   | <b>CO2:</b> carbon dioxide                      |

(\*\*) One sample consists of all the quantities measured and calculated by the data logger at the same instant of acquisition. For example, the model HD35ED1NAB measures four quantities and calculates five quantities (the derived humidity quantities) and one sample includes one temperature measure, one CO measure, one CO2 measure and six humidity measures (the relative humidity measure plus the five derived quantities).

**TAB. 3: Number of data loggers in the system as a function of the data transmission interval**

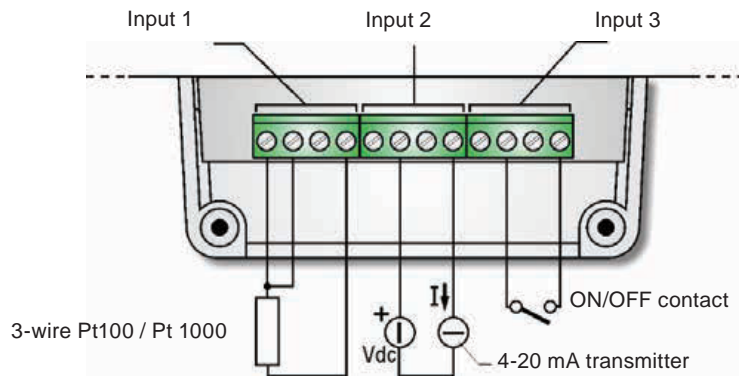
Data transmission interval	Number of data loggers manageable by the base unit	Data transmission interval	Number of data loggers manageable by the base unit
1 s	12	10 s	120
2 s	24	15 s	180
5 s	60	> 30 s	254

Table 3 refers to the case of direct connection among the base unit and the data loggers (1 "Hop"). If repeaters are present, the transmission of the data requires more time and the number of data loggers manageable by the base unit could be lower than that reported in table 3.

The number of devices in the system (base unit + repeaters + data loggers) should not exceed 255.

**Terminal header in the model HD35EDH**

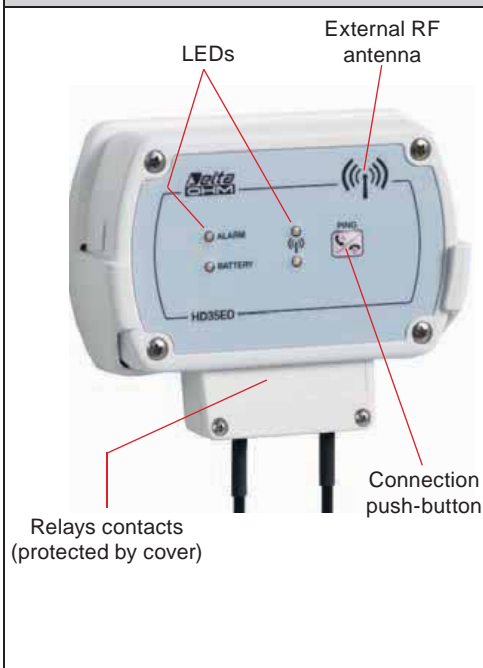
The model HD35EDH is equipped with three terminal header inputs. Each input can be configured as input for: Pt100/Pt1000, thermocouple, 0/4...20 mA (the shunt resistance is internal), 0...50 mV, 0...1 V or potentiometer. Only input 3 can also be configured as pulse counter (counting of switchings of a voltage free contact).



**Example of connection of HD35EDH model inputs**

**Product Information**

**HD35ED-ALM alarm module**



Power supply	Internal 3.6 V lithium thionyl chloride (Li-SOCl <sub>2</sub> ) <b>not rechargeable</b> battery, size AA, Molex 5264 2-pole connector
Battery autonomy	1 year in typical operating conditions <b>(the actual autonomy depends on how often the alarm condition is generated)</b>
Transmitting frequency	868 MHz, 902-928 MHz or 915.9-929.7 MHz, depending on the model
Antenna	Whip internal
Transmitting range	See table 7
Keyboard	Push-button for connection / PING (for testing RF)
LED indicators	Presence of alarm, battery charge level, RF communication status.
Relay	2 bistable relays with voltage free contact Contact: max 1A @ 30Vdc resistive load
Working temperature and humidity range	-10...+70 °C / 0...85 %RH not condensing
Housing	Material: LURAN® S 777K Dimensions: 135 x 110 x 33 mm
Weight	200 g approx. (including battery)
Installation	Wall mount support ( <b>supplied</b> ) for removable installation or flanges ( <b>optional</b> ) for fixed installation

## WATERPROOF VERSIONS FOR OUTDOOR USE

### WATERPROOF VERSIONS FOR OUTDOOR USE AND INDUSTRIAL APPLICATIONS (HD35EDW... series)

For outdoor use or in severe environmental conditions (e.g. in the case of industrial applications), data loggers in housing with front dimensions 120 x 80 mm and IP 67 protection degree are available.

To ensure IP 67 seal, the data loggers have no front keys.



**Outdoor transmitting station  
with data logger of the series HD35EDW...**

**Receiving station  
with base unit HD35AP**

The housing of the waterproof versions can be wall mounted or, in the case of outdoor installation, fixed on a 40 mm diameter mast by means of the HD2003.77/40 clamping. For outdoor installation, the data logger can be supplied with the **protection shield from solar radiations (HD9217TF1)**.

For outdoor installation on a mast, the data logger can be supplied with the mast clamping already mounted on the back of the housing and provided with internal over-voltage protection devices, connected to the clamping. For the correct operation of the protection devices, the yellow/green cable with faston connector fixed to the clamping must be connected to ground.

The outdoor installation of the combined temperature and relative humidity probe requires the protection from solar radiations HD9007A-1 or HD9007A-2.

The following tables list the **HD35EDW...** data logger models available in waterproof housing. Other models, in addition to those listed, can be supplied upon request for quantities.  
All the models **HD35EDW...** are also available with **custom LCD** (option L).

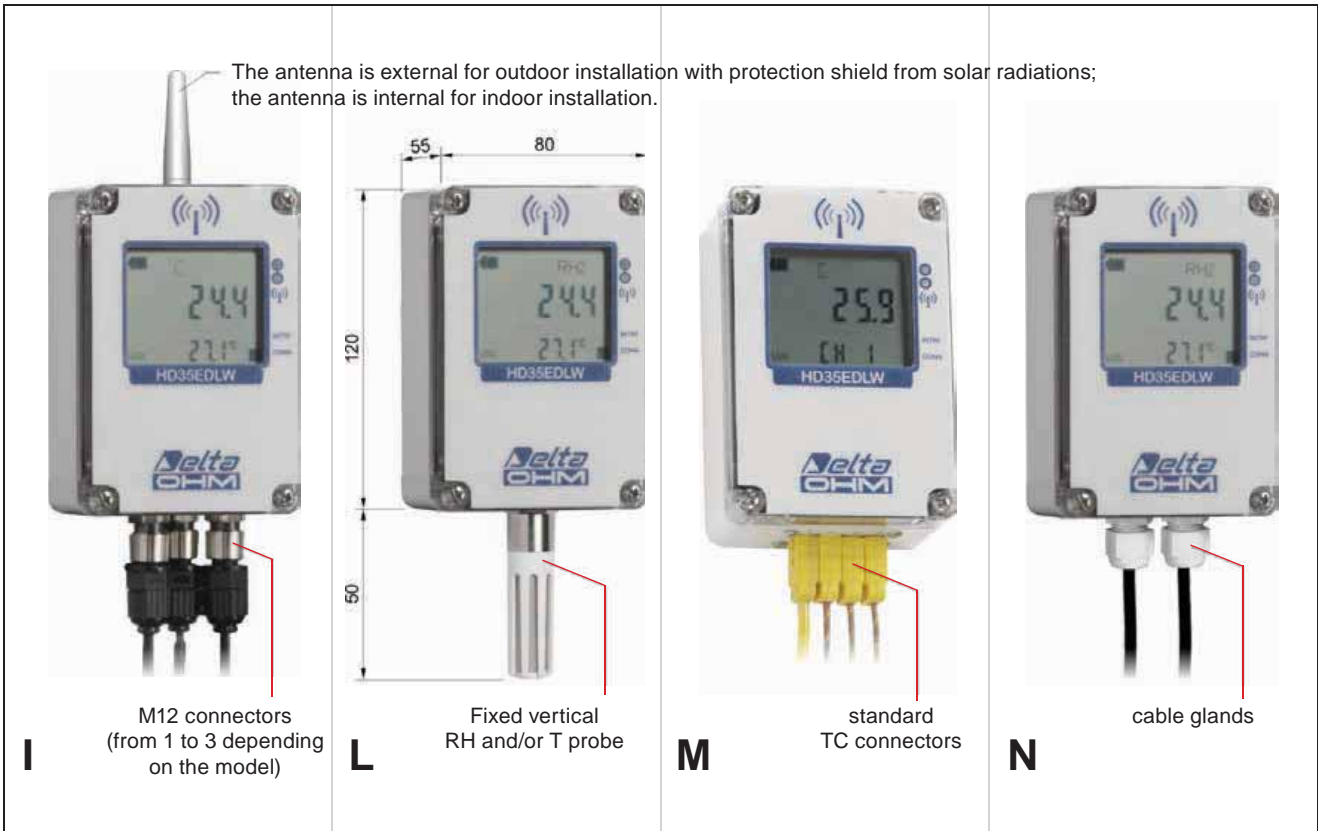
**TAB. 4A: Data loggers in waterproof housing for outdoor use**

Model	Measures													Inputs		Fig.	Page
	Temperature				RH	Patm	PYRA	Rainfall	a	Leaf	CO2	Lux	Number of M12 connectors	Built-in sensors			
	NTC 10KΩ	Pt100 Pt1000	TC	Solar panel													
HD35EDW 7P/1 TC		•												1		I	122
HD35EDW 7P/2 TC		•												2		I	
HD35EDW 7P/3 TC		•												3		I	
HD35EDW N/1 TC	•													1		I	124
HD35EDW N/2 TC	•													2		I	
HD35EDW N/3 TC	•													3		I	
HD35EDW N TV	•														•	L	126
HD35EDW N TV61	•																127
HD35EDW K/4 TC			•											4 standard TC conn.		M	128
HD35EDW 1 TV					•										•	L	129
HD35EDW 1 TVI					•										•	L	130
HD35EDW 1N TC	•				•									1		I	131
HD35EDW 17P TC		•			•									1		I	133
HD35EDW 1N TV	•				•										•	L	135
HD35EDW 1N TVI	Sensor integrated in RH module				•										•	L	137
HD35EDW 1N/2 TC	•				•									2		I	139
HD35EDW 14bN TC	•				•	•								1	Patm	I	141
HD35EDW 14b7P TC		•			•	•								1	Patm	I	143
HD35EDW 1NV	Sensor integrated in RH module				•				•						•	L	145
HD35EDW R TC							•							1		I	147
HD35EDW 1NR TC	•				•		•							2		I	149
HD35EDW 7PR TC			•				•							2		I	151
HD35EDW 1N7PR TC	•			•	•		•							3		I	153
HD35EDW RP TC							•	•						2		I	155
HD35EDW P TC								•						1		I	157
HD35EDW 1NL TC	•				•						•			2		I	159
HD35EDW S TC	Soil temperature and moisture													1		I	161
HD35EDLW 1NB TV	•				•							•			•	I	118

**Product Information**

Modell	Measures												Inputs		Fig.	Page	
	NTC 10KΩ	Pt100 Pt1000	TC	Solar panel	RH	Patm	PYRA	Rainfall	a	Leaf	CO2	Lux	Number of M12 connectors	Built-in sensors			
HD35EDLW 1NI2 TCV	•				•								•	1	T/RH		120
HD35EDLW 1NBI TCV	•				•								•	•	T/RH/CO2		116
HD35EDW H	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 voltage free contact or potentiometric output												4 terminal header inputs		N	165	
HD35EDW-MB	Sensors with RS485 MODBUS-RTU output												4 terminal header inputs		N	167	

**TAB. 4B: Data logger in waterproof housing for outdoor use - figures**

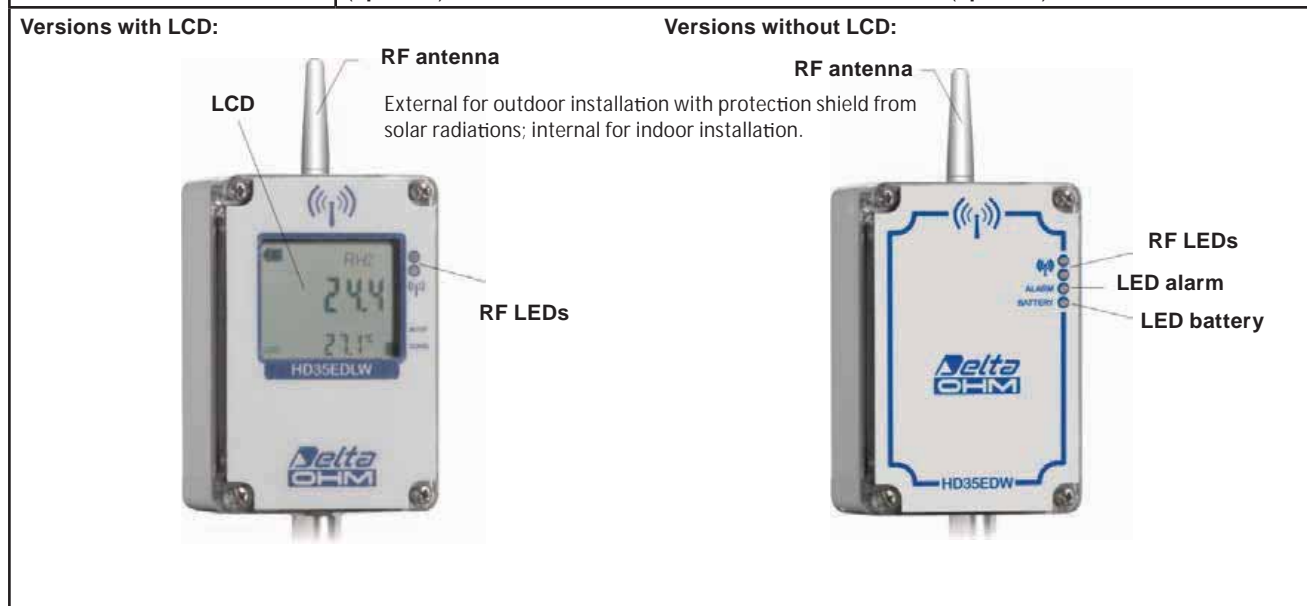




**Product Information**

**Technical specifications**

<b>HD35EDW... data loggers in waterproof housing for outdoor use</b>	
Transmitting frequency	868 MHz, 902-928 MHz or 915.9-929.7 MHz depending on the model
Antenna	External for outdoor installation with protection shield from solar radiations. Internal for indoor installation.
Transmitting range	See table 7
Measuring interval (*)	1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Logging and trans-mitting interval (*)	1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Internal memory	Circular management or stop logging when full. The number of samples that can be stored depends on the number of acquired quantities (see table 5).
Alarm	Acoustic by means of the internal buzzer
Power supply	Internal 3.6 V lithium thionyl chloride (Li-SOCl <sub>2</sub> ) not rechargeable battery, size AA (size C for HD35EDWK/4TC and HD35EDWH), Molex 5264 2-pole connector. Optional 24 Vac/dc power supply.
Battery autonomy (without repeaters, direct communication with HD35AP...)	4 years typical for HD35EDWK/4 and HD35EDWH models (with 10 s measurement interval and 30 s logging interval); 2 years typical for the other models, with 5 s measurement interval (10 s for HD35EDW7P/...TC, HD35EDW14bNTC, HD35EDW14b7PTC, HD35EDWWBGT) and 30 s logging interval.
Display	Optional custom LCD
Push-buttons	Push-button for connection inside the instrument
LED indicators	RF communication status. The models without LCD are provided with alarm LED and battery level LED.
Working temperature and humidity range	-20...+70 °C / 0...100 %RH (-10...+60 °C for HD35EDW1NV)
Housing	Material: Polycarbonate Dimensions: see table 4B Protection degree: IP 67
Connectors for external probes	Depending on the model: M12 connectors, thermocouple connectors or terminal header inputs 3.5 mm pitch.
Weight	250 g approx. (including battery)
Installation	Wall mounted or fixed to the 40 mm diameter mast by means of the HD2003.77/40 clamping ( <b>optional</b> ). Protection shield from solar radiations HD9217TF1 ( <b>optional</b> ) for outdoor installation.



(\*) Some models measuring several quantities may have a minimum interval greater than 1 second (see table 7).

**TAB. 5: Capacity of the internal memory of the data loggers in housing for outdoor use**

Model	Number of samples that can be stored (**)	Minimum logging interval	Stored quantities (*)
HD35EDW 7P/1 TC	68,000	5 s	T
HD35EDW 7P/2 TC	52,000	5 s	T
HD35EDW 7P/3 TC	42,000	5 s	T
HD35EDW N/1 TC	68,000	1 s	T
HD35EDW N/2 TC	52,000	1 s	T
HD35EDW N/3 TC	42,000	1 s	T
HD35EDW N TV	68,000	1 s	T
HD35EDW K/4 TC	36,000	5 s	T
HD35EDW 1 TV	68,000	1 s	RH
HD35EDW 1 TVI	68,000	1 s	RH
HD35EDW 1N TC	24,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP
HD35EDW 17P TC	24,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP
HD35EDW 1N TV	24,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP
HD35EDW 1N TVI	24,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP
HD35EDW 1N/2 TC	22,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP
HD35EDW 14bN TC	22,000	2 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP, P <sub>ATM</sub>
HD35EDW 14b7P TC	22,000	2 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP, P <sub>ATM</sub>
HD35EDW R TC	42,000	1 s	R, D <sub>R</sub> , mV
HD35EDW 1NR TC	24,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, R, D <sub>R</sub> , mV
HD35EDW 7PR TC	36,000	1 s	T, R, D <sub>R</sub> , mV
HD35EDW 1N7PR TC	22,000	1 s	T, RH, T <sub>D</sub> , AH, R, D <sub>R</sub> , mV
HD35EDW P TC	36,000	1 s	P, D <sub>P</sub> , I <sub>P</sub>
HD35EDW 1NL TC	22,000	1 s	T, RH, T <sub>D</sub> , T <sub>W</sub> , AH, MR, PVP, H <sub>LEAF</sub>
HD35EDW S TC	52,000	1 s	T, H <sub>SOIL</sub>
HD35EDW 1NB TV	30,000	10 s	RH, T, CO <sub>2</sub>
HD35EDW 1Ni2 TCv	30,000	10 s	RH, T, I
HD35EDW 1NiB TCv	26,000	10 s	RH, T, CO <sub>2</sub> , I
HD35EDW H	from 28,000 to 58,000	5 s	depends on the inputs configuration
HD35EDW-MB	from 14,000 to 52,000	1 s	RS 485 MODBUS-RTU

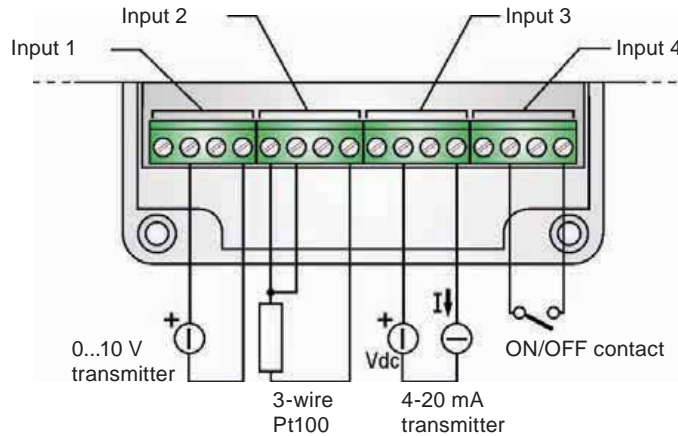
**(\*) List of the quantities:**

- |  |  |
|--|--|
| <b>T:</b> temperature                        | <b>R:</b> solar radiation (pyranometer)                          |
| <b>RH:</b> relative humidity                 | <b>D<sub>R</sub>:</b> daily solar radiation (Wh/m <sup>2</sup> ) |
| <b>T<sub>D</sub>:</b> dew point              | <b>mV:</b> pyranometer output in mV                              |
| <b>T<sub>W</sub>:</b> wet bulb temperature   | <b>P:</b> rainfall quantity                                      |
| <b>AH:</b> absolute humidity                 | <b>D<sub>P</sub>:</b> daily rainfall quantity                    |
| <b>MR:</b> mixing ratio                      | <b>I<sub>P</sub>:</b> rainfall rate (mm/h)                       |
| <b>PVP:</b> partial vapour pressure          | <b>H<sub>LEAF</sub>:</b> leaf wetness                            |
| <b>P<sub>ATM</sub>:</b> atmospheric pressure | <b>H<sub>SOIL</sub>:</b> soil moisture                           |
| <b>CO<sub>2</sub>:</b> carbon dioxide        | <b>I:</b> illuminance  |

**(\*\*)** One sample consists of all the quantities measured and calculated by the data logger at the same instant of acquisition. For example, the model HD35EDW1N7P TC measures two quantities and calculates five quantities (the derived humidity quantities) and one sample includes one temperature measure and six humidity measurements (the relative humidity measure plus the five derived quantities).

### Terminal header in the model HD35EDH

The model HD35EDWH is equipped with four terminal header inputs. Each input can be configured as input for: Pt100/Pt1000, thermocouple, 0/4...20 mA (the shunt resistance is internal), 0...50 mV, 0...1 V, 0...10 V or potentiometer. Only input 4 can also be configured as pulse counter (counting of switchings of a voltage free contact).



**Example of connection of DHD35EDWH model inputs**

The model HD35EDWH is also available with 7...28 Vdc external power supply (HD35EDWHE, without battery).

**MEASUREMENT CHARACTERISTICS (instrument in line with the sensor; for all data loggers except the versions with terminal header inputs)**

<b>Temperature – NTC10KΩ sensor</b> For HD35ED...N...TC and HD35ED...TV	
Sensor	NTC 10 kΩ @ 25 °C
Measuring range	-40...+105 °C
Resolution (of the instrument)	0.1 °C
Accuracy	± 0.3 °C in the range 0...+70 °C / ± 0.4 °C outside
Stability	0.1 °C/year
<b>Temperature – Sensor integrated in the RH module</b> For HD35ED...TVI, HD35ED...B, HD35ED...AB and HD35EDW1NV	
Sensor	Sensor integrated in the humidity module
Measuring range	-40...+105 °C
Resolution (of the instrument)	0.1 °C
Accuracy	± 0.2 °C in the range 0...+60 °C ± (0.2 – 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Stability	0.05 °C/year
<b>Temperature - Pt100/Pt1000 Sensor</b> For HD35ED...7P...TC	
Sensor	Pt100 / Pt1000 1/3 DIN Dünnsfilm
Measuring range	-100...+350 °C max. for probes measuring only temperature (the measuring range can be limited by the operating temperature of the probe used) -40...+150 °C for T/RH combined probes DHD3517ETC...
Resolution (of the instrument)	0.1 °C
Accuracy	1/3 DIN
Stability	0.1 °C/year
<b>Temperature - Thermocouple sensor</b> For HD35EDW...K...TC	
Thermocouple type	K, J, T, N, E The inputs are isolated from each other (60 V insulation)
Measuring range	type K: -200...+1370 °C      type J: -100...+750 °C type T: -200...+400 °C      type N: -200...+1300 °C type E: -200...+750 °C
Resolution	0.1 °C
Accuracy (excluding probe error)	type K: ± 0.1 °C (< 600 °C)      type J: ± 0.1 °C ± 0.2 °C (> 600 °C)      type T: ± 0.1 °C type N: ± 0.1 °C (< 600 °C) ± 0.2 °C (> 600 °C) type E: ± 0.1 °C (< 300 °C) ± 0.2 °C (> 300 °C)
<b>Relative humidity – High accuracy sensor</b> For HD35ED...TC and HD35ED...TV	
Sensor	Capacitive
Measuring range	0...100 %RH
Resolution (of the instrument)	0.1 %
Accuracy	± 1.5 %RH (0..90 %RH) / ± 2 %RH (remaining range)
Sensor working temperature	-20...+80 °C standard -40...+150 °C with probe HP3517E...
Response time	T90 < 20 s (air speed = 2 m/s, without filter)
Temperature drift	±2% in all the working temperature range
Stability	1%/year

<b>Relative humidity</b> For HD35ED...TVI, HD35ED...B, HD35ED...AB and HD35EDW1NV models					
Sensor	Capacitive				
Measuring range	0...100 %RH				
Resolution (of the instrument)	0.1 %				
Accuracy	± 1.8 %RH (0..80 %RH) ± [1.8 + 0,11 * (UR-80)] %RH (remaining range)				
Sensor working temperature	-40...+105 °C (R.H.max=[100-2*(T-80)] @ T=80...105 °C)				
Response time	T63 < 4 s (air speed = 2 m/s, without filter)				
Temperature drift	±2% in all the working temperature range				
Stability	< 0.5%/year				
<b>Soil moisture</b>					
Measuring principle	Capacitive				
Measuring range	0...100% VWC (Volumetric Water Content)				
Resolution (of the instrument)	0.1%				
Accuracy	± 3 % between 0 and 0.57 m3/m3 (standard mineral soil up to 5 mS/cm)				
Sensor working temperature	-40...+60 °C				
<b>Leaf wetness</b>					
Sensor	Capacitive				
Measuring range	0...100% of leaf area wetness				
Resolution (of the instrument)	0.1%				
Accuracy (@ 23 °C)	± 5 %				
Sensor working temperature	-30...+60 °C				
<b>Atmospheric pressure</b>					
Sensor	Piezoresistive				
Measuring range	300...1100 hPa				
Resolution (of the instrument)	0.1 hPa				
Accuracy	± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C				
Stability	1 hPa/year				
Temperature drift	±3 hPa between -20...+60 °C				
<b>Differential pressure</b>					
Sensor	range 1...4: Piezoresistive range 5: Thermal mass flow sensing element				
Measuring range	Depending on the model:				
	range 1	range 2	range 3	range 4	range 5
	±2.5 hPa	±10 hPa	±100 hPa	±2000 hPa	±125 Pa
Resolution (of the instrument)	0.001 hPa	0.005 hPa	0.05 hPa	1 hPa	0.01 Pa
Accuracy	range 1...4: ± 1% f.s. range 5: ± 3% of reading, ± 0.1 Pa @ 0 Pa over the entire compensated temperature range (0...50 °C)				
Connection	Tube Ø 5 mm. In the model r5 it is recommended to use tubes with at least 5 mm internal diameter.				

**Product Information**

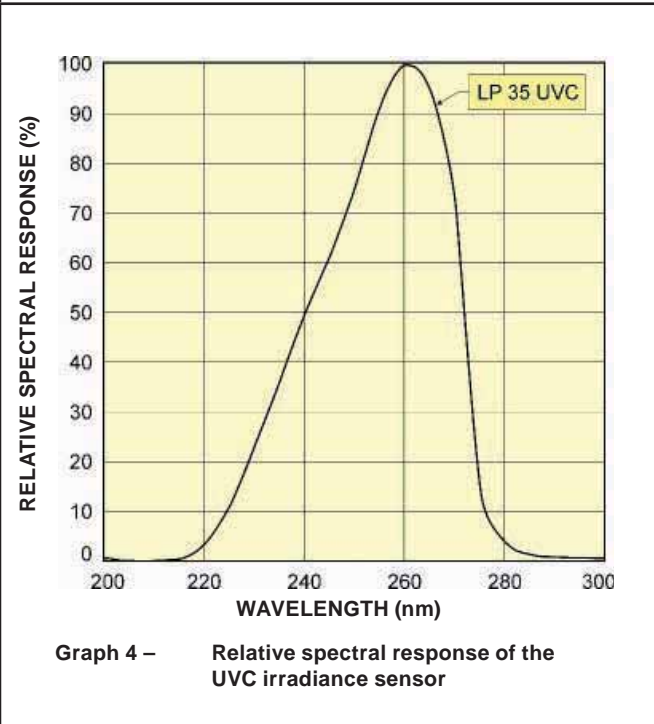
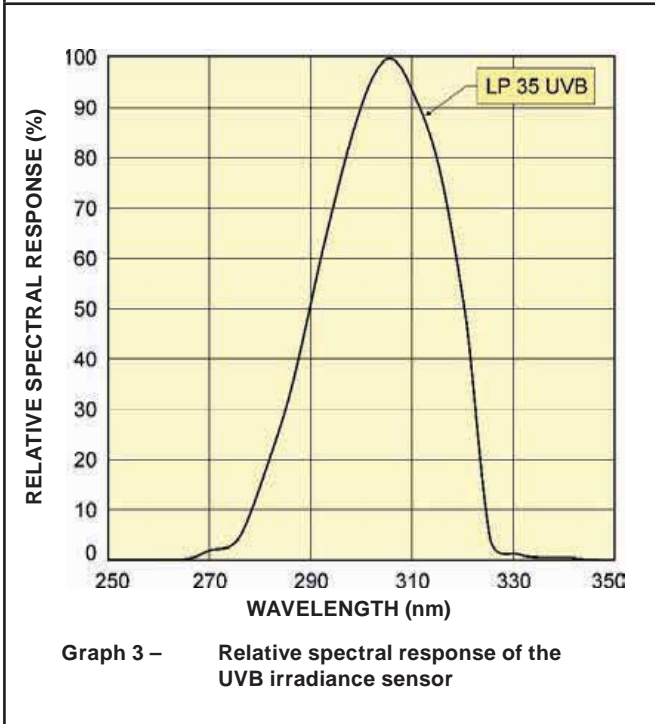
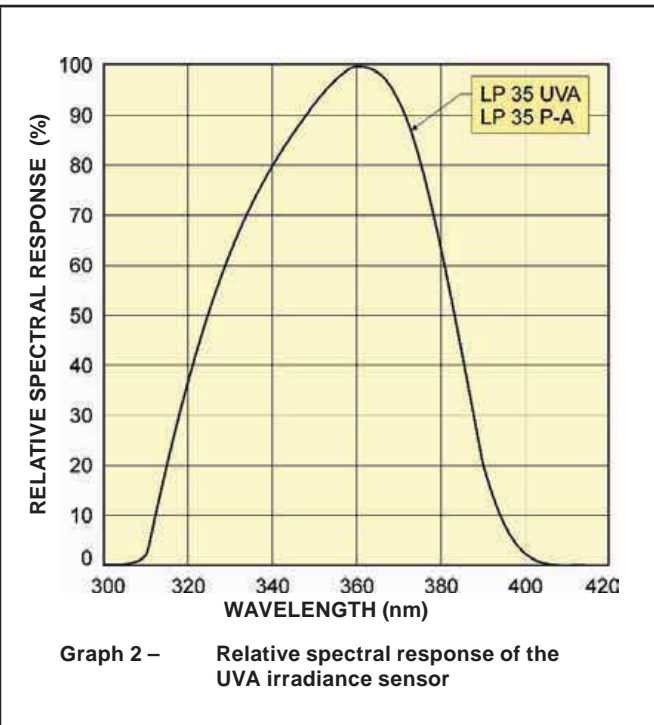
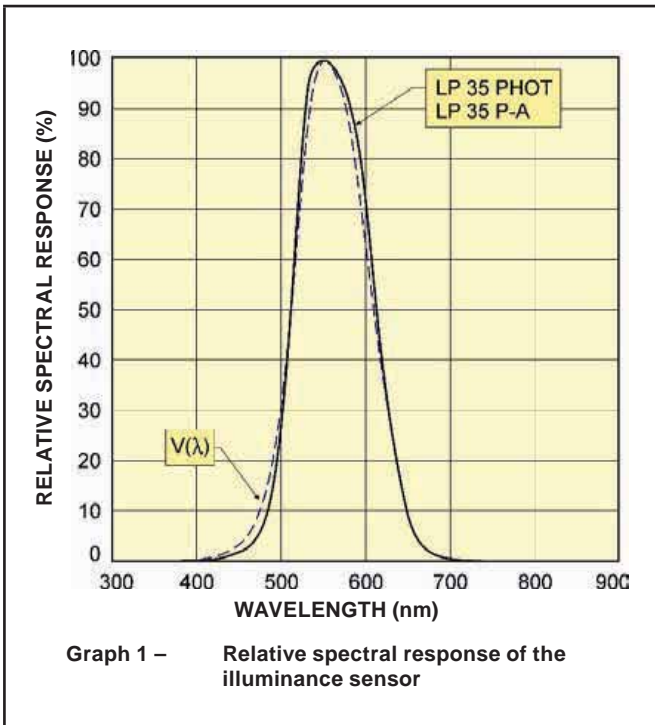
<b>Carbon monoxide (CO)</b>	
Sensor	Electrochemical cell
Measuring range	0 ... 500 ppm
Resolution (of the instrument)	1 ppm
Accuracy	±3 ppm +3% of the measure
Working temperature	-5...50 °C
Response time	T90 < 50 s
Stability	5% of the measure/year
Sensor life	> 5 years under normal environmental conditions
<b>Carbon dioxide (CO2)</b>	
Sensor	Non-Dispersive Infrared (NDIR)
Measuring range	0...5000 ppm
Resolution (of the instrument)	1 ppm
Accuracy	±(50 ppm+3% of the measure) @ 20 °C and 1013 hPa
Working temperature	-5...50 °C
Response time	T90 < 120 s (air speed = 2 m/s)
Stability	5% of the measure/5 years
Temperature drift	0.1% f.s. / °C
<b>Acceleration</b>	
Sensor	Tri-axial accelerometer
Measuring range	0...16 g
Resolution (of the instrument)	< 0,05 g (function of measured value)
Accuracy	< 0,1 g (function of measured value)
<b>Wind speed – Characteristics of the HD54.3 cup anemometer</b>	
Sensor	Passive 3-cup anemometer
Measuring range	1...65 m/s
Resolution (of the instrument)	0.1 m/s
Accuracy	±0.14 m/s @ 10 m/s installed on a flat terrain site
Offset	0.35 m/s
Gain	0.765 m s-1/Hz
Distance constant (63% recovery)	2.55 m @ 5 m/s / 2.56 m @ 10 m/s (ASTM D 5096-02)
<b>Wind direction – Characteristics of the HD54.D vane</b>	
Sensor	Continuous rotation potentiometric vane
Measuring range	0...359.9°
Resolution (of the instrument)	0.1°
Accuracy	< 1%
Dead band	4° typical, 8° max.
Threshold	1 m/s

<b>Rainfall quantity</b>	
Sensor	Tipping bucket with NC or NO configurable contact
Resolution (of the instrument)	Configurable 0.1 – 0.2 – 0.5 mm/tipping
Other characteristics not reported depends on the sensor connected, please refer to the data sheet of the chosen rain gauge.	
<b>Solar radiation</b>	
Sensor	Thermopile
Measuring range	0...2000 W/m <sup>2</sup>
Resolution (of the instrument)	1 W/m <sup>2</sup>
Sensitivity	Configurable in mV/(kW m <sup>-2</sup> )
Other characteristics not reported depends on the sensor connected, please refer to the data sheet of the chosen pyranometer. The instrument also displays the mV signal of the pyranometer.	
<b>Illuminance</b>	
Sensor	Photodiode
Messbereich	I: 0...20,000 lux I2: 0...200,000 lux
Auflösung (des Datenloggers)	I: 1 lux (0...2,000 lux), 10 lux (>2,000 lux) I2: 10 lux (0...20,000 lux), 100 lux (>20,000 lux)
Spectral range	According to photopic curve V(λ)
Spectral response	See graph 1
α (temperature coefficient) f6(T)	<0.05% K
Calibration uncertainty	<4%
f'1 (according to photopic curve V(λ))	<6%
f2 (response according to the cosine law)	<3%
f3 (linearity)	<1%
f4 (instrument reading error)	<0.5%
f5 (fatigue)	<0.5%
Class	B
Drift after 1 year	<1%
Operating temperature	0...50 °C
Reference Standard	CIE n°69 – UNI 11142
<b>UVA irradiance</b>	
Sensor	Photodiode
Measuring range	0...10,000 mW/m <sup>2</sup>
Resolution (of the instrument)	1 mW/m <sup>2</sup> (0...2,000 mW/m <sup>2</sup> ) / 5 mW/m <sup>2</sup> (> 2,000... mW/m <sup>2</sup> )
Spectral range	UVA, peak ≅ 360 nm
Spectral response	See graph 2
Calibration uncertainty	<5%
f2 (response according to the cosine law)	<6%
f3 (linearity)	<1%
f4 (instrument reading error)	±1 digit
f5 (fatigue)	<0.5%
Drift after 1 year	<2%
Operating temperature	0...50 °C

**Product Information**

<b>UVB irradiance</b>	
Sensor	Photodiode
Measuring range	0...100 W/m <sup>2</sup>
Resolution (of the instrument)	0.01 W/m <sup>2</sup> (0...10 W/m <sup>2</sup> ) / 0.1 W/m <sup>2</sup> (10...100 W/m <sup>2</sup> )
Spectral range	UVB, peak $\cong$ 305 nm
Spectral response	See graph 3
Calibration uncertainty	<5%
f2 (response according to the cosine law)	<6%
f3 (linearity)	<2%
f4 (instrument reading error)	$\pm 1$ digit
f5 (fatigue)	<0.5%
Drift after 1 year	<2%
Operating temperature	0...50 °C
<b>UVC irradiance</b>	
Sensor	Photodiode
Measuring range	0...100 W/m <sup>2</sup>
Resolution (of the instrument)	0.01 W/m <sup>2</sup> (0...10 W/m <sup>2</sup> ) / 0.1 W/m <sup>2</sup> (10...100 W/m <sup>2</sup> )
Spectral range	UVC, peak $\cong$ 260 nm
Spectral response	See graph 4
Calibration uncertainty	<5%
f2 (response according to the cosine law)	<6%
f3 (linearity)	<1%
f4 (instrument reading error)	$\pm 1$ digit
f5 (fatigue)	<0.5%
Drift after 1 year	<2%
Operating temperature	0...50 °C





## Product Information

### Characteristics of the terminal header inputs (HD35ED...H):

Pt100 / Pt1000	
Measuring range	-200...+650 °C
Resolution	0.1 °C
Accuracy	± 0.1 °C (excluding probe error)
Sensor coefficient	$\alpha = 0.00385 \text{ }^{\circ}\text{X}^{-1}$
Connection	2, 3 or 4 wires
Thermocouple	
Thermocouple type	K, J, T, N, E. The inputs are not isolated, use thermocouples with isolated hot junction.
Measuring range	type K: -200...+1370 °C    type J: -100...+750 °C type T: -200...+400 °C    type N: -200...+1300 °C type E: -200...+750 °C
Resolution	0.1 °C
Accuracy (excluding probe error)	type K: ± 0.1 °C (< 600 °C)    type J: ± 0.1 °C ± 0.2 °C (> 600 °C)    type T: ± 0.1 °C type N: ± 0.1 °C (< 600 °C) ± 0.2 °C (> 600 °C) type E: ± 0.1 °C (< 300 °C) ± 0.2 °C (> 300 °C)
0/4...20 mA input	
Shunt resistance	Internal (50 Ω)
Resolution	16 bits
Accuracy	± 2 µA
0...50 mV, 0...1 V and 0...10 V inputs (0...10 V only in HD35EDWH)	
Input resistance	100 MΩ
Resolution	16 bits
Accuracy	± 0.01% f.s.
Input for counting the switchings of a voltage-free contact	
Switching frequency	50 Hz max.
Hold Time	10 ms min.
Potentiometric input	
Potentiometer	Typically 10 kΩ.
Resolution	16 bit
Accuracy	± 0,01% f.s.

## Product Information

### Access Points

The base unit is available in the following versions:

- HD35AP, with the USB output only.
- HD35APD, with the USB output only. "Dongle" version powered only by the PC USB port (without internal battery and without input for the external power supply). Available with internal (HD35APD) or external (HD35APD-EXT) antenna.
- HD35APS, with:
  - USB output
  - RS485 output with MODBUS RTU protocol

The base unit acts as a multiplexer to address the MODBUS commands from the PC/PLC to the devices in the network.

- HD35APW, with:
  - USB output
  - Wi Fi interface for the connection to the wireless local network
  - ETHERNET interface for the cable connection to the local network

Permits (if the Internet connection via local network is available) sending alarm e-mail and the recorded data via e-mail or to an FTP address (\*).

Allows using the MODBUS TCP/IP protocol (version of the MODBUS protocol for the communication via the ETHERNET connection).

Multi-client feature: multiple HD35APW base units can be connected to the same local network.

Integrated web server with monitor function.

- HD35APG, with:
  - USB output
  - integrated GSM module

Permits sending alarm e-mail or SMS and the recorded data via e-mail or to an FTP address (\*).

Allows the communication with the PC via the GSM network through the GPRS TCP/IP protocol.

(\*) In the basic version, the data are sent via FTP with an interval of not less than 2 minutes and only if in the network there are up to 5 data loggers. For the full FTP functionality, the PLUS option has to be requested.

**TAB 6: Comparison among the versions of base units HD35AP...**

	HD35AP	HD35APD	HD35APS	HD35APW	HD35APG
<b>Connection systems</b>					
USB	•	•	•	•	•
RS485			•		
Wi-Fi				•	
Ethernet				•	
GSM/GPRS					•
<b>Protocols</b>					
Proprietary on USB	•	•	•	•	•
Proprietary on TCP/IP				•	•
Modbus RTU			•		
Modbus TCP/IP				•	
SMS commands					•
<b>Data download</b>					
Automatical data download in the Database	•	•	•	•	•
Sending of data via e-mail				•	•
Sending of data to an FTP address				•	•
Integrated web server				•	
<b>Alarms</b>					
Alarm thresholds	•	•	•	•	•
Alarm SMSes					•
Alarm e-mails				•	•

Product Information

HD35AP... base unit (except HD35APD...)		
	Versions	<b>HD35AP:</b> USB output only <b>HD35APS:</b> USB and RS485 MODBUS-RTU outputs <b>HD35APW:</b> USB output, Wi Fi and ETHERNET interface <b>HD35APG:</b> USB output and GSM module
	Power supply	Internal 3.7 V lithium ion <b>rechargeable</b> battery, capacity 2250 mA/h, JST 3-pole connector <b>Optional</b> 6 Vdc external power adapter (SWD06) Powered directly from the PC USB port (*)
	Power consumption	30 mA without Ethernet/Wi-Fi and with typical GSM activity (**) 160 mA with Ethernet, 275 mA with Wi-Fi
	Battery autonomy (typical)	<b>3 days if not connected to the local network and with typical GSM activity (**)</b> <b>11 hours with Ethernet, 8 hours with Wi-Fi</b>
	Transmitting frequency	868 MHz, 902-928 MHz or 915.9-929.7 MHz depending on the model
	Antenna	Whip external
	Transmitting range	See table 7
	Serial outputs	USB with Mini USB type connector (cable <b>CP23</b> ) RS485 with <b>MODBUS-RTU</b> protocol (HD35APS only)
	Ethernet connection	Only in HD35APW model. Permits (if the Internet connection is available) sending alarm <b>e-mail</b> and the recorded data via <b>e-mail</b> or to an <b>FTP</b> address (***). Allows the <b>MODBUS TCP/IP</b> protocol. With integrated Web server.
	Wi Fi connection	Only in HD35APW model. Permits (if the Internet connection is available) sending alarm <b>e-mail</b> and the recorded data via <b>e-mail</b> or to an <b>FTP</b> address (***). Allows the <b>MODBUS TCP/IP</b> protocol. With integrated Web server.
	GSM connection	Only in HD35APG model. For sending alarm <b>e-mail</b> or <b>SMS</b> and data via <b>e-mail</b> or <b>FTP</b> (***). Allows the <b>GPRS TCP/IP</b> protocol.
	Internal memory	The number of samples that can be stored depends on the type of data loggers connected. The capacity is 226,700 samples if all the data loggers record 7 quantities.
	LED indicators	Presence of external power supply, battery charge level, RF communication status.
	Working temperature and humidity range	-10...+60 °C / 0...85 % RH not condensing
	Housing	Material: LURAN® S 777K Dimensions: 135 x 86 x 33 mm (excluding antenna)
	Weight	200 g approx. (including battery)
Installation	Wall mount support ( <b>supplied</b> ) for removable installation or flanges ( <b>optional</b> ) for fixed installation	

(\*) The connection of the SWD06 external power supply is recommended if the Ethernet, Wi Fi or GSM transmission is used.

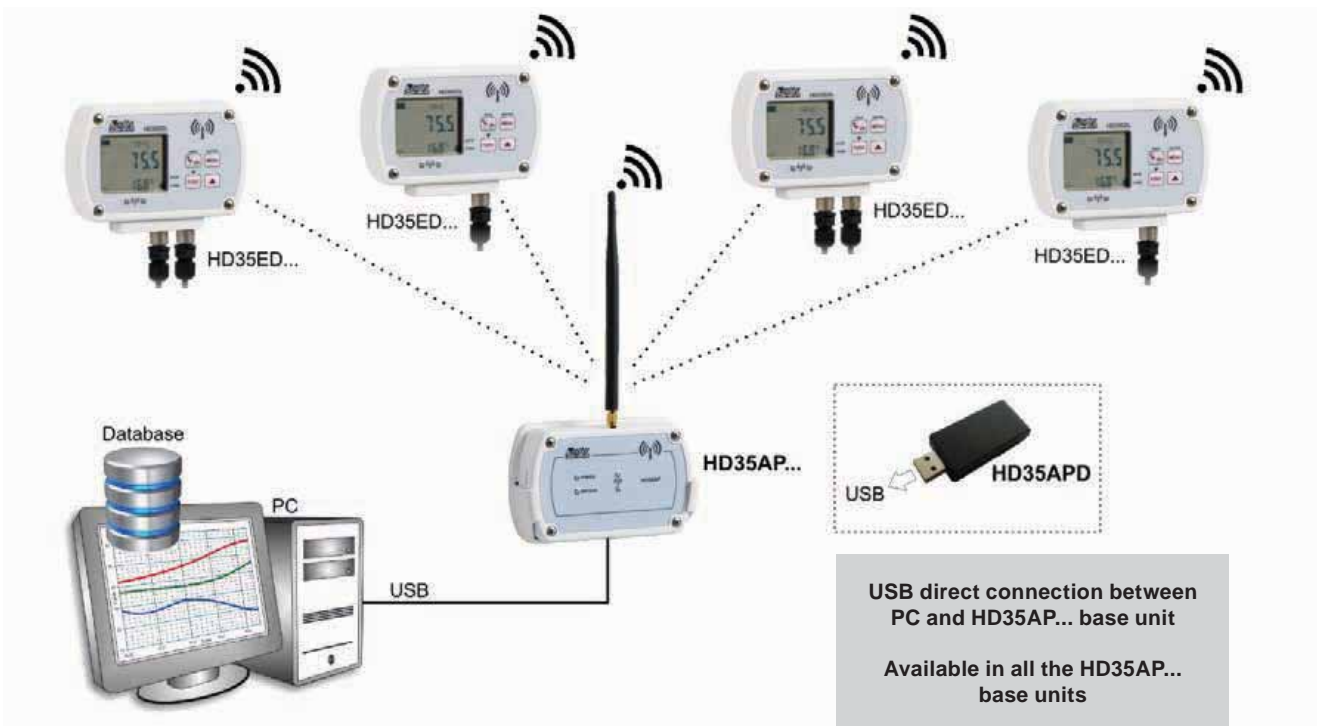
(\*\*) The intensive use of the GSM transmission can significantly increase the power consumption and reduce the battery life.

(\*\*\*) In the basic version, the data are sent via FTP with an interval of not less than 2 minutes and only if in the network there are up to 5 data loggers. For the full FTP functionality, the PLUS option has to be requested.

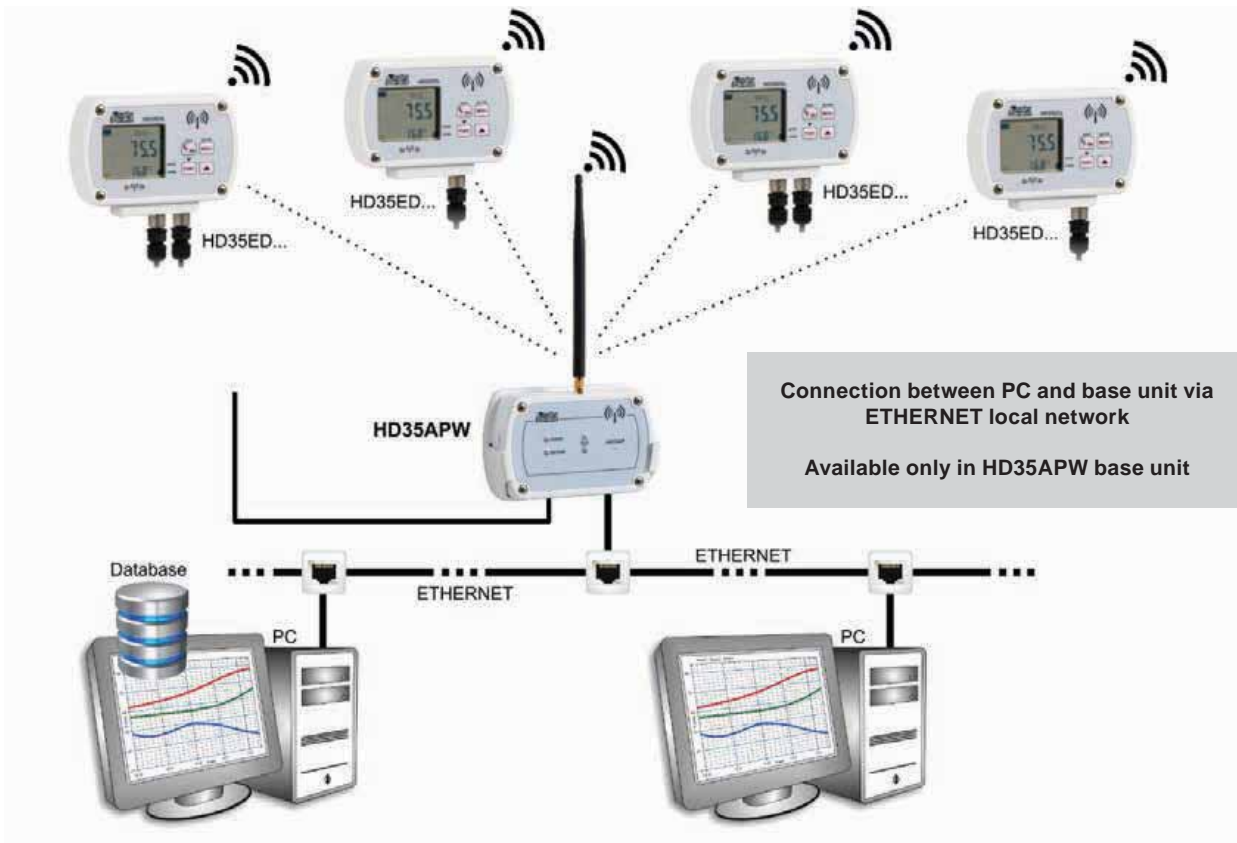
**Product Information**

HD35APD... base unit		
	Versions	<b>HD35APD:</b> with internal antenna <b>HD35APD-EXT:</b> with whip external antenna
	Power supply	Powered directly from the PC USB port
	Transmitting frequency	868 MHz or 902-928 MHz depending on the model (915.9-929.7 MHz not available)
	Transmitting range	See table 7
	Output	USB with type A connector
	Internal memory	The number of samples that can be stored depends on the type of data loggers connected. The capacity is 226,700 samples if all the data loggers record 7 quantities.
	LED indicators	RF communication status
	Working temperature and humidity range	-10...+60 °C / 0...85 %RH not condensing
	Dimensions	62 x 25,5 x 13,2 mm (excluding antenna)

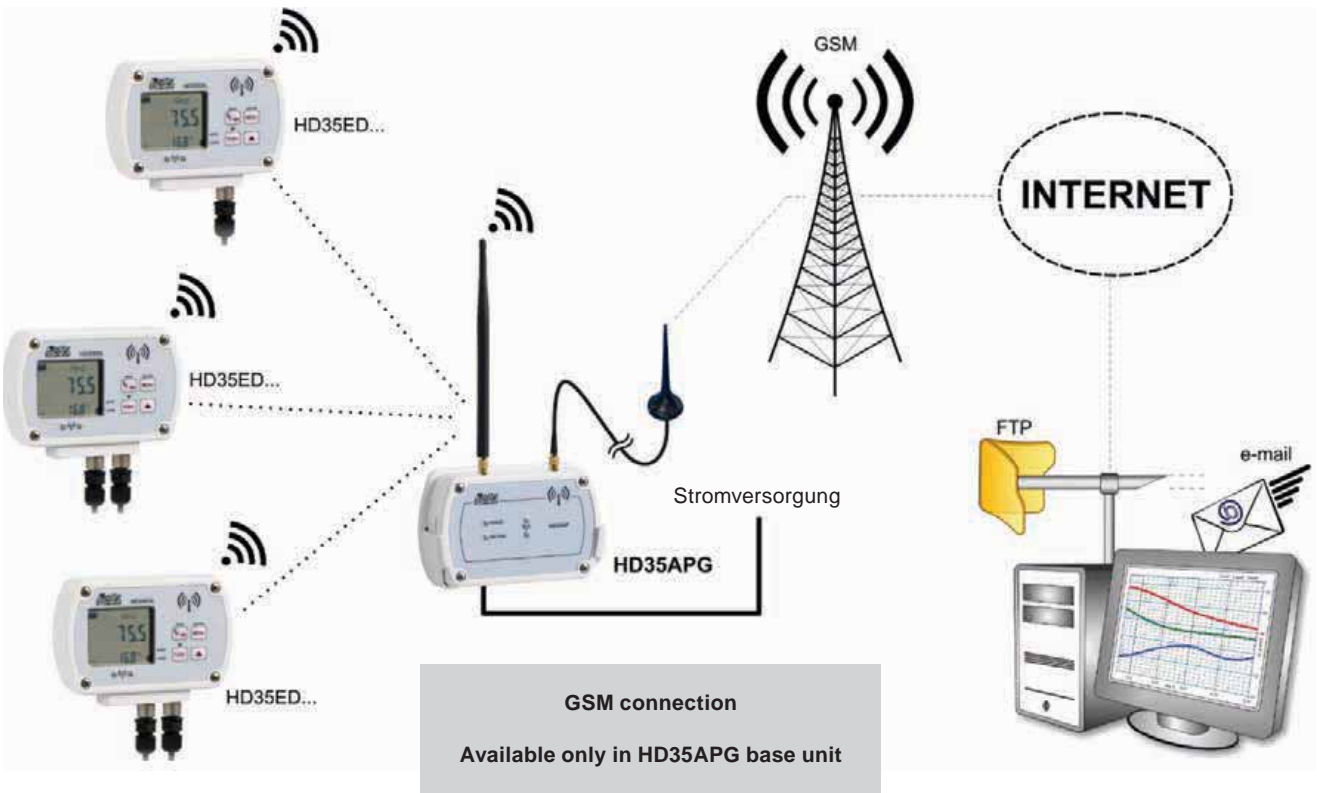
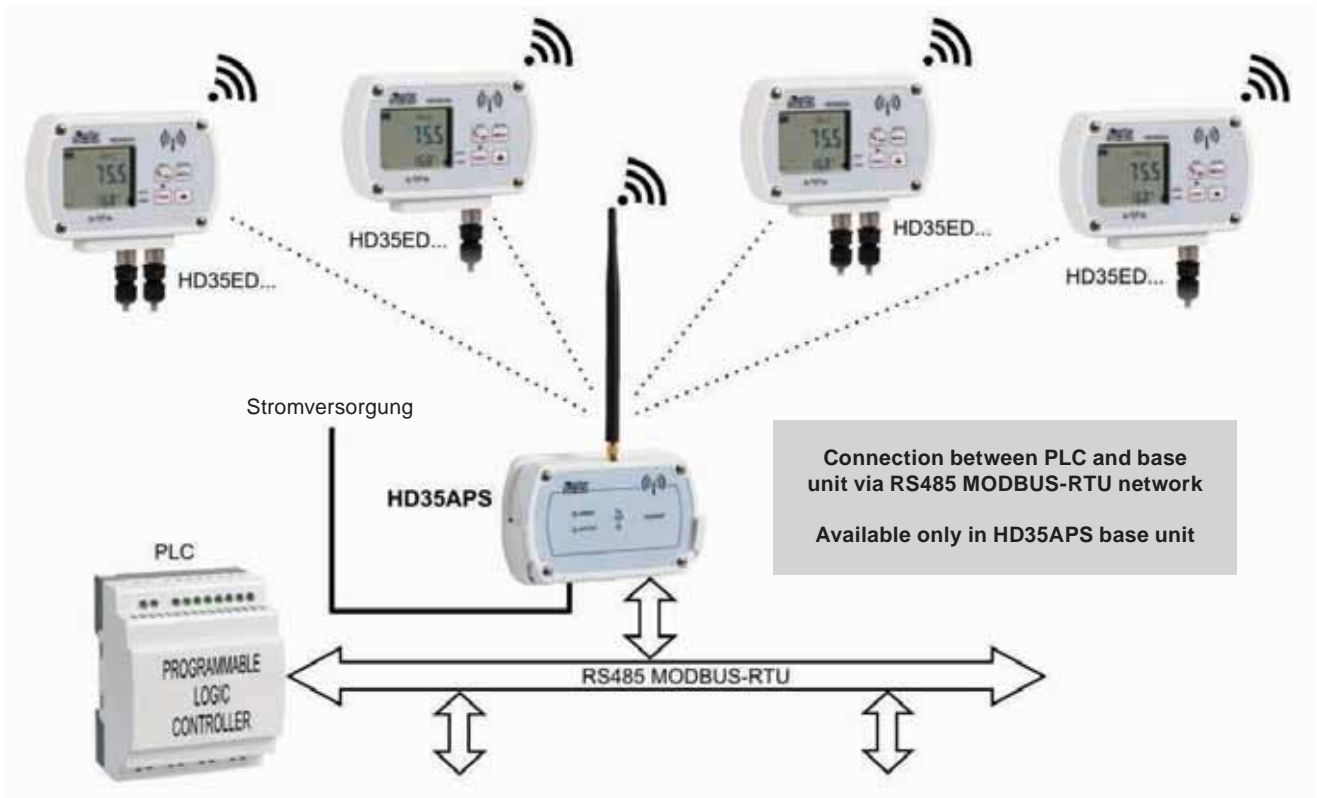
**Examples for base unit connection systems**



**Product Information**



... professionelle Messtechnik „MADE IN GERMANY“





**Product Information**

**Transmitting frequency**

All the models (except HD35APD...) are available in three versions, depending on the transmitting frequency band:

- 868 MHz (in compliance with the european normative EN 300 220);
- 902-928 MHz (in compliance with U.S. FCC part 15 section 247 and I.C. RSS 210 regulations);
- 915.9-929.7 MHz (in compliance with ARIB STD-T108 standard).

The base unit HD35APD is available only with 868 MHz or 902-928 MHz frequency band.

The 902-928 MHz frequency band can be reduced to 915-928 MHz (Australia) or 921 928 MHz (New Zealand).

The wireless transmission of the Delta OHM system is extremely robust against radio frequency interference. The system is able to detect any RF interference in the transmission channel, and to transfer, upon request, the data communication in another channel of the same transmitting band. The correctness of the transmitted data is ensured by the bidirectional communication between the base unit and the remote data loggers.

**Transmitting range and repeaters**

To increase the distance between the base unit and the data loggers, the HD35RE... repeaters are used. More repeaters in cascade can be used („multi-hop“ network). Depending on the RF frequency band, the typical transmitting range between two devices in open field (the range could be reduced if there are obstacles between the devices) is:

**TAB. 7: Transmitting range**

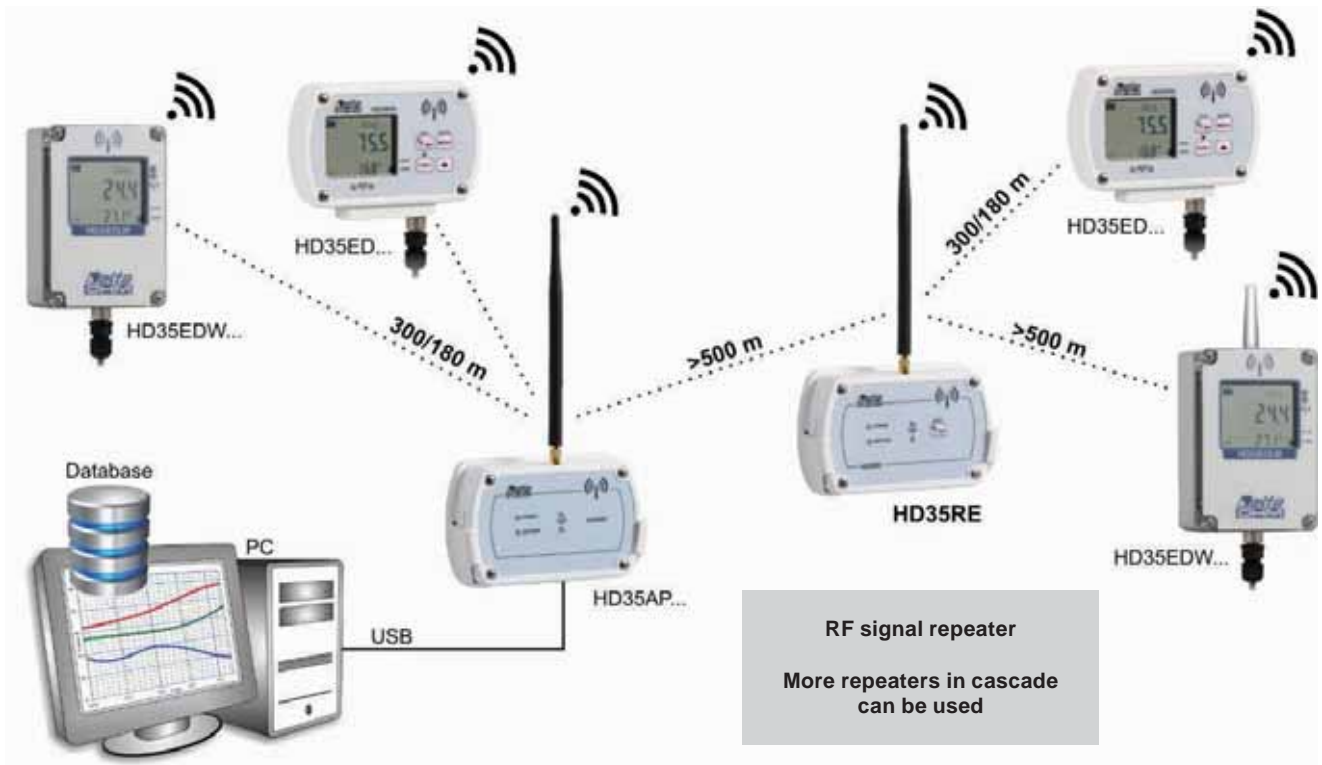
	HD35RE...	HD35AP... (except HD35APD...)	HD35APD-EXT	HD35APD
<b>868 MHz frequency band</b>				
HD35ED... with internal antenna	300 m	300 m	300 m	180 m
HD35ED... with external antenna HD35RE...	>500 m	>500 m	300 m	180 m
<b>902-928 MHz frequency band</b>				
HD35ED... with internal antenna	180 m	180 m	180 m	180 m
HD35ED... with external antenna HD35RE...	>500 m	>500 m	300 m	180 m
<b>915.9-929.7 MHz frequency band</b>				
HD35ED... with internal antenna	300 m	300 m	---	---
HD35ED... with external antenna HD35RE...	>500 m	>500 m	---	---

**Product Information**

HD35RE repeater		
	Power supply	Internal 3.7 V lithium ion <b>rechargeable</b> battery, capacity 2250 mA/h, JST 3-pole connector <b>Optional</b> 6 Vdc external power adapter ( <b>SWD06</b> ) Powered directly from the PC USB port
	Power consumption	30 mA
	Battery autonomy	3 days typical
	Transmitting frequency	868 MHz, 902-928 MHz or 915.9-929.7 MHz depending on the model
	Antenna	Whip external
	Transmitting range	See table 7
	Serial outputs	USB with Mini USB type connector (cable <b>CP23</b> ) <b>Only for configuration and firmware update, not for data download</b>
	LED indicators	Presence of external power supply, battery charge level, RF communication status.
	Keyboard	Push-button for connection / PING (for testing RF)
	Working temperature and humidity range	-10...+60 °C / 0...85 %RH not condensing
	Housing	Material: LURAN® S 777K Dimensions: 135 x 86 x 33 mm (excluding antenna)
	Weight	200 g approx. (including battery)
	Installation	Wall mount support ( <b>supplied</b> ) for removable installation or flanges ( <b>optional</b> ) for fixed installation
	HD35REW repeater	
	Power supply	Internal 3.6 V lithium thionyl chloride (Li-SOCI2) <b>not rechargeable</b> battery, capacity 8400 mA/h, size C, Molex 5264 2-pole connector
	Battery autonomy	2 years typical (repeating the signal of 5 data loggers transmitting every 30 s)
	Transmitting frequency	868 MHz, 902-928 MHz or 915.9-929.7 MHz depending on the model
	Antenna	Whip external
	Transmitting range	See table 7
	LED indicators	Battery charge level, RF communication status.
	Push-buttons	Push-button for connection inside the instrument
	Working temperature and humidity range	-20...+70 °C / 0...100 %RH not condensing
	Housing	Material: Polycarbonate Dimensions: 80 x 120 x 55 mm (excluding antenna) Protection degree: IP 67
	Weight	250 g approx. (including battery)
	Installation	Wall mounted or fixed to the 40 mm diameter mast by means of the HD2003.77/40 clamping ( <b>optional</b> ). Protection shield from solar radiations HD9217TF1 ( <b>optional</b> ) for outdoor installation.

**Warning:** unlike HD35RE repeaters, which have external power supply, the HD35REW repeaters are powered only by the internal battery. To extend the battery life, the RF stage of the HD35REW repeaters is not continuously active; therefore, the HD35REW repeaters are subject to the following restrictions:

- o the alarm events may be reported with a certain delay;
- o the reconfiguration of the system may take longer; furthermore, if the configuration of a data logger with LCD is changed via the logger keyboard, the change is not notified to the base unit and to the HD35AP-S software.



**Product Information**

# ORDERING CODES

## BASE UNIT / ACCESS POINT

**HD35AP...** Base unit for the interfacing between the PC and the data loggers of the system. USB connection. In addition to the USB output, one of the following options is available:

- o RS485 with MODBUS-RTU protocol (option S)
- o Wi-Fi interface and Ethernet connection with integrated Web server (option W)
- o GSM module (option G)

Powered by the PC USB port or external power adapter SWD06 (optional). The unit is supplied with: internal lithium ion rechargeable battery HD35 BAT1, software HD35AP S basic, wall mount support HD35.03, operating manual.

**The radio frequency (868, 902-928 or 915.9-929.7 MHz) has to be specified when ordering.**

The serial cable **CP23** and the kit **HD35.11K** (pair of flanges, pin for padlock and padlock) for fixed installation have to be ordered separately.

HD35APD and HD35APD-EXT are without internal battery, without input for the external power supply and do not require the serial cable and the support. HD35APD and HD35APD-EXT are not available with radio frequency 915.9-929.7 MHz (Japan).

HD35AP      1.      2.  
 -

1.	Type of connection	
	<b>0</b>	USB output only
	<b>D</b>	USB output only, dongle version with internal antenna
	<b>D-EXT</b>	USB output only, dongle version with external antenna
	<b>S</b>	USB output and RS485 output with MOD-BUS-RTU protocol
	<b>W</b>	USB output, Wi-Fi interface and ETHERNET connection with Web server integrated
	<b>G</b>	USB output and GSM module

2.	Radio frequency	
	<b>E</b>	868 MHz (Europe)
	<b>U</b>	902-928 MHz (U.S.A. and Canada)
	<b>J</b>	915.9-929.7 MHz (Japan)

## REPEATER

**HD35RE** RF signal repeater. Housing for indoor. Powered by the PC USB port or external power adapter SWD06 (optional).

Supplied with: internal lithium ion **rechargeable battery HD35 BAT1**, wall mount support HD35.03, operating manual.

**The radio frequency (868, 902-928 or 915.9-929.7 MHz) has to be specified when ordering.**

The serial cable **CP23** and the kit **HD35.11K** (pair of flanges, pin for padlock and padlock) for fixed installation **have to be ordered separately.**

**HD35REW** RF signal repeater. Waterproof housing. Powered by the internal battery.

Supplied with: internal lithium ion **rechargeable battery BAT-2013DB**, operating manual.

**The radio frequency (868, 902-928 or 915.9-929.7 MHz) has to be specified when ordering.**

The shield from solar radiations **HD9217TF1** and the clamp **HD2003.77/40** for fixing to the mast or the flange **HD35.24W** for fixing to the wall **have to be ordered separately.**

HD35RE      1.      2.  
 -

1.	Housing	
	<b>0</b>	for indoor use
	<b>W</b>	waterproof

2.	Radio frequency	
	<b>E</b>	868 MHz (Europe)
	<b>U</b>	902-928 MHz (U.S.A. and Canada)
	<b>J</b>	915.9-929.7 MHz (Japan)

**Product Information**

**ALARM MODULE**

**HD35ED-ALM** Module with two relay outputs for signalling alarm events. Powered by the internal 3.6V **not rechargeable** lithium thionyl chloride (Li-SOCl<sub>2</sub>) **battery**.  
Supplied with: internal 3.6V **not rechargeable** lithium thionyl chloride (Li-SOCl<sub>2</sub>) **battery HD35 BAT2**, wall mount support **HD35.03**, operating manual.  
**The radio frequency (868, 902-928 or 915.9-929.7 MHz) has to be specified when ordering.**  
The kit **HD35.11K** (pair of flanges, pin for padlock and padlock) for fixed installation **has to be ordered separately.**

1.

HD35ED-ALM -

<b>1.</b>	<b>Radio frequency</b>	
	<b>E</b>	868 MHz (Europe)
	<b>U</b>	902-928 MHz (U.S.A. and Canada)
	<b>J</b>	915.9-929.7 MHz (Japan)

**DATA LOGGERS**

**HD35ED...** Wireless data logger that stores the measures in the internal memory and transmits the acquired data to the base unit automatically at regular intervals or upon request. **Optional LCD.** Acoustic alarm with internal buzzer. Powered by the internal **not rechargeable battery**.  
Supplied with: internal 3.6V not rechargeable lithium thionyl chloride (Li-SOCl<sub>2</sub>) battery, wall mount support **HD35.03** (models for indoor only), operating manual.  
**The radio frequency (868, 902-928 or 915.9-929.7 MHz) has to be specified when ordering.**  
The kit HD35.11K (pair of flanges, pin for padlock and padlock) for the fixed installation of the housing for indoor use has to be ordered separately.  
For the versions in waterproof housing, **please specify when ordering whether the installation will be outdoor with protection shield from solar radiations and if the housing has to be supplied with the mast clamping HD2003.77/40 already installed.**  
**The external probes have to be ordered separately.**

1.  2.  3.  - 4.

HD35ED

<b>1.</b>	<b>LCD</b>	
	<b>0</b>	without LCD
	<b>L</b>	with custom LCD
	<b>G</b>	with graphic LCD
	The type of LCD (custom or graphic) is not a choice, but enforced by the data logger model.	
<b>2.</b>	<b>Measured quantities</b>	
	See table 1A for the combinations of quantities measured by the available data loggers. <b>Other models can be supplied upon request.</b>	
	<b>1</b>	Humidity
	<b>4b</b>	Atmospheric pressure (barometer)
	<b>4</b>	Differential pressure: <b>4r1</b> =range 1, <b>4r2</b> =range 2, ...(**)
	<b>N</b>	Temperature NTC10K probe: <b>N/1</b> =1 channel, <b>N/2</b> =2 channels, <b>N/3</b> =3 channels
	<b>7P</b>	Temperature Pt100/Pt1000 probe: <b>7P/1</b> =1 channel, <b>7P/2</b> =2 channels, <b>7P/3</b> =3 channels
	<b>A</b>	Carbon monoxide (CO)

	<b>B</b>	Carbon dioxide (CO <sub>2</sub> )
	<b>I</b>	Illuminance (lux): <b>I1</b> =low range, <b>I2</b> =high range
	<b>U</b>	UV irradiance ( <b>U</b> =UVA, <b>UB</b> =UVB, <b>UC</b> =UVC)
	(**) For the differential pressure ranges available see table 1A.	
<b>3.</b>	<b>Probe type</b>	
	<b>0</b>	Internal probes protected by grid
	<b>H</b>	Terminal header inputs
	<b>TC</b>	Probe with cable
	<b>TV</b>	Combined T/R.H. fixed vertical probe without cable, with high accuracy R.H. sensor
	<b>TVI</b>	Combined T/R.H. fixed vertical probe without cable
<b>4.</b>	<b>Radio frequency</b>	
	<b>E</b>	868 MHz (Europe)
	<b>U</b>	902-928 MHz (U.S.A. and Canada)
	<b>J</b>	915.9-929.7 MHz (Japan)

**Product Information**

**WATERPROOF 120 X 80 mm HOUSING FOR OUTDOOR USE**

HD35E      1.      2.      3.      4.  
 W       -

<b>1.</b>	<b>LCD</b>	
	<b>0</b>	without LCD
	<b>L</b>	with custom LCD
<b>2.</b>	<b>Measured quantities</b>	
	See table 4A for the combinations of quantities measured by the available data loggers. <b>Other models can be supplied upon request.</b>	
	<b>1</b>	Humidity
	<b>4b</b>	Atmospheric pressure (barometer)
	<b>N</b>	Temperature NTC10K probe: <b>N/1=1 channel, N/2=2 channels, N/3=3 channels</b>
	<b>7P</b>	Temperature Pt100/Pt1000 probe: <b>7P/1=1 channel, 7P/2=2 channels, 7P/3=3 channels</b>
	<b>K</b>	Temperature thermocouple: <b>K/4=4 channels</b>
	<b>P</b>	Rainfall quantity
	<b>R</b>	Solar radiation (pyranometer)
	<b>S</b>	Soil moisture and temperature
	<b>L</b>	Leaf wetness
	<b>V</b>	Acceleration
	<b>B</b>	Carbon dioxide (CO <sub>2</sub> )
	<b>I</b>	Illuminance (Lux): <b>I=low range, I2=high range</b>

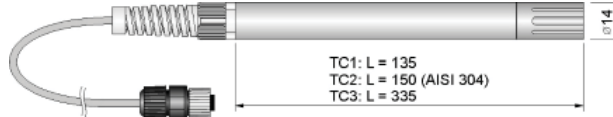
<b>3.</b>	<b>Probe type</b>	
	<b>0</b>	Internal probes protected by grid
	<b>H</b>	terminal header inputs
	<b>TC</b>	Probe with cable
	<b>TV</b>	Combined T/R.H. fixed vertical probe without cable, with high accuracy R.H. sensor
	<b>TVI</b>	Combined T/R.H. fixed vertical probe without cable
<b>4.</b>	<b>Radio frequency</b>	
	<b>J</b>	915.9-929.7 MHz (Japan)
	<b>E</b>	868 MHz (Europe)
	<b>U</b>	902-928 MHz (U.S.A. and Canada)

**Product Information**

**SENSORS**

**TEMPERATURE AND RELATIVE HUMIDITY COMBINED SENSORS**

**HP3517...** Temperature and relative humidity combined probe with high accuracy R.H. probe.



- R.H. sensor : Capacitive
- Temperature sensor : NTC 10 kΩ @ 25 °C (HP3517TC...)  
Pt100 1/3 DIN (HP3517ETC...)
- R.H. sensor measuring range : 0...100 % RH
- Temperature sensor measuring range : -40...+105 °C (HP3517TC... with NTC 10 kΩ probe)  
-40...+150 °C (HP3517ETC... with Pt100 probe)
- R.H. sensor operating range : -20...+80 °C standard  
-40...+150 °C with option **E**
- Accuracy : ± 1.5 %rF (0..90 %RH) / ± 2 %RH (remaining range)
- Cable length : 2, 5 oder 10 m standard
- Connection : 4-pole M12 female connector

HP3517      1.      2.      3.

           -     

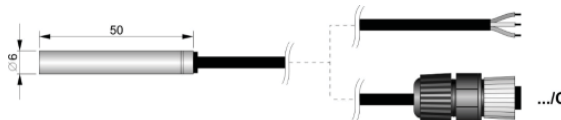
1.	RH sensor operating temperature	
<b>0</b>	-20...+80 °C	
<b>E</b>	-40...+150 °C	
2.	Stem length	
<b>TC1</b>	135 mm	
<b>TC2</b>	150 mm (AISI 304)	
<b>TC3</b>	335 mm	

3.	Cable length	
<b>2</b>	2 m	
<b>5</b>	5 m	
<b>10</b>	10 m	

- HD9007A-1** 12-ring protection from solar radiations. Supplied with mounting bracket.
- HD9007A-2** 16-ring protection from solar radiations. Supplied with mounting bracket.
- HD9007T26.2** Fitting for Ø 14 mm probes for the protections from solar radiations HD9007A-1 and HD9007A-2.

**Pt100 AND Pt1000 TEMPERATURE PROBES**

**TP35.1...** 3-wire 1/3 DIN Pt1000 temperature probe.



- Temperature range : -50...+105 °C
- Accuracy : 1/3 DIN
- Dimensions : Ø 6 x 50 mm
- Cable length : 3, 5 or 10 m standard, **other lengths on request**
- Connection : open wires or 4-pole M12 female connector (option **/C**)
- Material : AISI 316 stainless steel tube

TP35.1      1.      2.

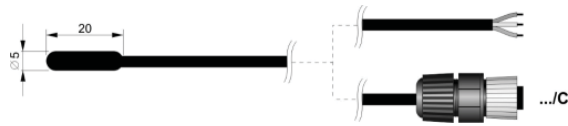
    

1.	Cable length	
<b>3</b>	3 m	
<b>5</b>	5 m	
<b>10</b>	10 m	

2.	Cable termination	
<b>0</b>	open wires	
<b>/C</b>	4-pole M12 female connector	

**Product Information**

**TP35.2...** 3-wire 1/3 DIN Pt1000 temperature sensor.



Temperature range : 0...+70 °C  
 Accuracy : 1/3 DIN  
 Dimensions : Ø 5 x 20 mm  
 Cable length : 3 or 5 m standard, **other lengths on request**  
 Connection : Open wires or 4-pole M12 female connector (option /C)  
 Material : Thermoplastic rubber

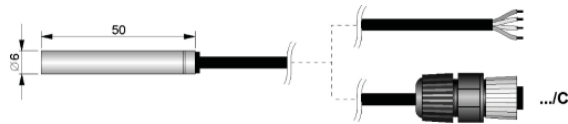
**TP35.2**      1.      2.

1. Cable length	
3	3 m
5	5 m

2. Cable termination	
0	open wires
/C	4-pole M12 female connector

**TP35.4...** 4-wire 1/3 DIN Pt100 temperature sensor.



Temperature range : -50...+105 °C  
 Accuracy : 1/3 DIN  
 Dimensions : Ø 6 x 50 mm  
 Cable length : 3, 5 oder 10 m standard, **other lengths on request**  
 Connection : open wires or 4-pole M12 female connector (option /C)  
 Material : AISI 316 stainless steel tube

**TP35.4**      1.      2.

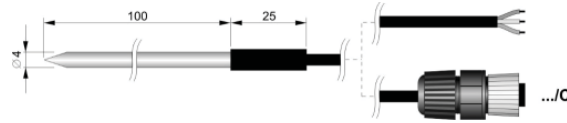
1. Cable length	
3	3 m
5	5 m
10	10 m

2. Cable termination	
0	open wires
/C	4-pole M12 female connector



**Product Information**

**TP35.5...** 4-wire 1/3 DIN **Pt1000** penetration temperature sensor.



Temperature range : -40...+300 °C  
 Accuracy : 1/3 DIN  
 Dimensions : Ø 4 x 100 mm  
 Cable length : 3 oder 5 m standard, **other lengths on request**  
 Connection : open wires or 4-pole M12 female connector (option /C)  
 Material : AISI 316 stainless steel tube

1.  2.

1. Cable length	
3	3 m
5	5 m

2. Cable termination	
0	open wires
/C	4-pole M12 female connector

**TP35878ISS...** 1/3 DIN **Pt100** contact temperature sensor for solar panel.



Temperature range : -40...+85 °C  
 Accuracy : 1/3 DIN  
 Dimensions : Ø 30 mm  
 Cable length : 5 oder 10 m standard, **other lengths on request**  
 Connection : 4-pole M12 female connector

1.

1. Cable length	
5	5 m
10	10 m

**TP35.5AF.5** Stainless steel temperature sensor. 4-wire class A wire wound Pt100 sensor. Stem dimensions: Ø 3 x 60 mm. Cable length: 5 m. Cable termination: open wires. Shield: Inox + Teflon.

**TP35.5AF.5/C** Stainless steel temperature sensor. 4-wire class A wire wound Pt100 sensor. Stem dimensions: Ø 3 x 60 mm. Cable length: 5 m. Cable termination: 4-pole M12 female connector. Shield: Inox + Teflon.

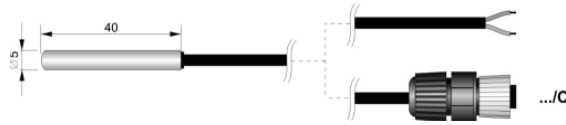
**TP35.5AF1.2** Stainless steel temperature sensor. 4-wire class A wire wound Pt100 sensor. Stem dimensions: Ø 12 x 150 mm. Cable length: 2 m. Cable termination: open wires. Teflon insulated cable.

**TP35.5AF1.2/C** Stainless steel temperature sensor. 4-wire class A wire wound Pt100 sensor. Stem dimensions: Ø 12 x 150 mm. Cable length: 2 m. Cable termination: 4-pole M12 female connector. Teflon insulated cable.

**Product Information**

**NTC 10KΩ @ 25 °C TEMPERATURE SENSORS**

**TP35N1...** NTC 10KΩ @ 25 °C temperature sensor.



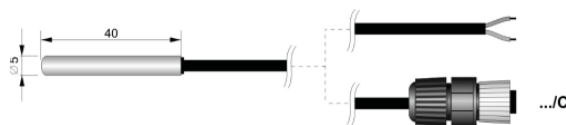
Temperature range : -20...+85 °C  
 Accuracy : ± 0.3 °C in the range 0...+70 °C / ± 0.4 °C outside  
 Dimensions : Ø 5 x 40 mm  
 Cable length : 3, 5 oder 10 m standard, **other lengths on request**  
 Connection : open wires or 4-pole M12 female connector (option /C)  
 Material : AISI 316 stainless steel tube

TP35N1 - 1. 2.

1. Cable length	
3	3 m
5	5 m
10	10 m

2. Cable termination	
0	open wire
/C	4-pole M12 female connector

**TP35N2...** NTC 10KΩ @ 25 °C temperature sensor.



Temperature range : 0...+70 °C  
 Accuracy : ± 0.3 °C  
 Dimensions : Ø 6 x 50 mm  
 Cable length : 3, 5 or 10 m standard, **other lengths on request**  
 Connection : open wires or 4-pole M12 female connector (option /C)  
 Material : AISI 316 stainless steel tube

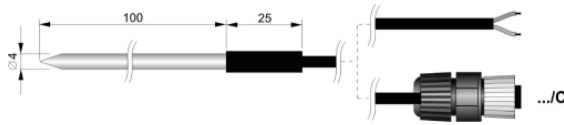
TP35N2 - 1. 2.

1. Cable length	
3	3 m
5	5 m
10	10 m

2. Cable termination	
0	open wires
/C	4-pole M12 female connector

**Product Information**

**TP35N5...**      **NTC 10KΩ @ 25 °C** temperature sensor.



Temperature range           : -20...+105 °C  
 Accuracy                     : ± 0.3 °C in the range 0...+70 °C / ± 0.4 °C outside  
 Dimensions                 : Ø 4 x 100 mm  
 Cable length                : 3 or 5 m standard, **other length on request**  
 Connection                 : open wires or 4-pole M12 female connector (option **/C**)  
 Material                     : AISI 316 stainless steel tube

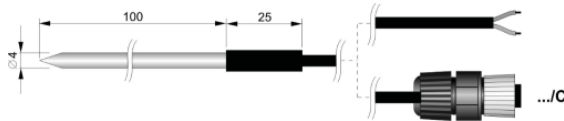
TP35N1 -      **1.**      **2.**  
     

1.	Cable length	
3	3	3 m
5	5	5 m

2.	Cable termination	
0	0	open wires
/C	/C	4-pole M12 female connector

**THERMOCOUPLE TEMPERATURE SENSORS**

**TP35K6.5...**      **K-type thermocouple** sensor with isolated hot junction.



Max. temperature           : -50...+750 °C  
 Accuracy                     : class 1 according to IEC 60584-2  
 Dimensions                 : Ø 3 x 150 mm  
 Cable length                : 5 m standard, **other lengths on request**  
 Connection                 : open wires  
 Material                     : AISI 316 stainless steel tube

## Product Information

### PHOTOMETRIC - RADIOMETRIC SENSORS

- LP 35 PHOT** Photometric sensor for measuring illuminance, CIE photopic filter, spectral response according to the standard photopic curve, diffuser for cosine correction. Measuring range: 0.1...200,000 lux. Cable length 2m.
- LP 35 P-A** Combined sensor with two sensors for measuring illuminance, with standard photopic spectral response, and irradiance in the **UVA** spectral range 315 nm...400 nm, diffuser for cosine correction. Illuminance measuring range: 0.3...20.000 lux. Irradiance measuring range: 1...10.000 mW/m<sup>2</sup>. Cable length 2m.
- LP 35 UVA** Radiometric sensor for measuring irradiance in the **UVA** spectral range 315 nm...400 nm, diffuser for cosine correction. Measuring range: 1...10.000 mW/m<sup>2</sup>. Cable length 2m.
- LP 35 UVB** Radiometric sensor for measuring irradiance in the **UVB** spectral range 280 nm...315 nm, diffuser for cosine correction. Measuring range: 1•10<sup>-3</sup>...100 W/m<sup>2</sup>. Cable length 2m.
- LP 35 UVC** Radiometric sensor for measuring irradiance in the **UVC** spectral range 220 nm...280 nm, diffuser for cosine correction. Measuring range: 1•10<sup>-3</sup>...100 W/m<sup>2</sup>. Cable length 2m.
- LP BL** Base with levelling device. Upon request for assembly with the sensor when placing the order. For photometric and radiometric probes.
- LP BL3** Adjustable wall support for Ø 30 mm photometric and radiometric sensor.

### PYRANOMETERS

- LP PYRA 02** **First Class** pyranometer according to ISO 9060. Output in  $\mu\text{V}/(\text{Wm}^{-2})$ . Supplied with: shade disk, cartridge with silica-gel crystals, 2 spare sachets, levelling device, connector and calibration report. **On request 5 or 10 m cables with 4-pole M12 connectors.**
- LP PYRA 03** **Second Class** pyranometer according to ISO 9060. Output in  $\mu\text{V}/(\text{Wm}^{-2})$ . Supplied with levelling device and calibration report. **On request shade disk and 5 or 10 m cables with 4-pole M12 connectors.**
- LP SILICON-PYRA 04** Pyranometer with silicon photodiode for measuring the **global solar irradiance**, diffuser for cosine correction. Spectral range 350...1100 nm. Typical sensitivity: 10  $\mu\text{V}/\text{W m}^{-2}$ . Measuring range: 0...2000 W/m<sup>2</sup>. Fixed cable 5 m long..

### RAIN GAUGES

- HD2013** Rain gauge with tipping bucket, area 400 cm<sup>2</sup>, for temperature range +4 °C... +60 °C. Standard resolution 0.2 mm. On request when placing the order resolution 0.1 or 0.5 mm. Output contact normally closed.
- HD2013R** Rain gauge with tipping bucket, area 400 cm<sup>2</sup>, equipped with heater for temperature range 20 °C...+60 °C. Standard resolution 0.2 mm. On request when placing the order resolution 0.1 or 0.5 mm. Output contact normally closed. Power voltage 12 Vdc or 24 Vdc  $\pm$  10% / power absorption 165 W.
- HD2015** Rain gauge with tipping bucket, area 200 cm<sup>2</sup>, for temperature range +4 °C... +60 °C. Standard resolution 0.2 mm. On request when placing the order resolution 0.1 or 0.5 mm. Output contact normally closed.
- HD2015R** Rain gauge with tipping bucket, area 200 cm<sup>2</sup>, equipped with heater for temperature range 20 °C...+60 °C. Standard resolution 0.2 mm. On request when placing the order resolution 0.1 or 0.5 mm. Output contact normally closed. Power voltage 12 Vdc or 24 Vdc  $\pm$  10% / power absorption 50 W.

### LEAF WETNESS PROBES

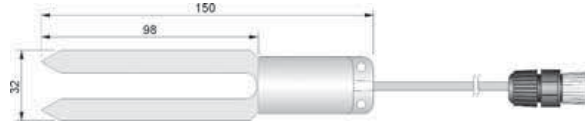
- HD3501.5** Leaf wetness probe with double sensitive surface. IP 67 protection degree. 5 m cable ending with M12 connector.
- HD3501.10** Leaf wetness probe with double sensitive surface. IP 67 protection degree. 10 m cable ending with M12 connector.



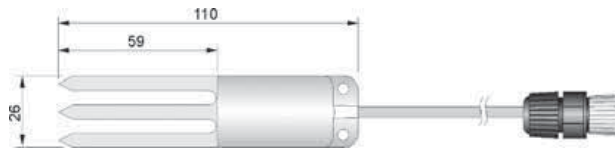
## Product Information

### SOIL MOISTURE PROBES

**HD3510.1** 2-electrode probe for measuring the soil humidity. With integrated NTC 10 k $\Omega$  temperature sensor. M12 connector. 5 m cable.



**HD3510.2** 3-electrode probe for measuring the soil humidity in restricted volumes. With integrated NTC 10 k $\Omega$  temperature sensor. M12 connector. 5 m cable.



### WIND SPEED AND DIRECTION PROBES

**HD54.3** Passive cup anemometer. Measuring range: 1...65 m/s. Operating conditions: -40...+60 °C / 0...100% RH. Rod mounting. Height 81 mm assembled.

**HD54.D** Wind direction vane probe. Measuring range: 0...360°. Dead band: typical 4°, maximum 8°. Threshold: 1 m/s. Operating conditions: 40...+60 °C / 0...100% RH. Rod mounting. Dimensions: 210 x 120 mm.

## ACCESSORIES

- HD35AP-S** Further copy of the CD-ROM with HD35AP-S basic software for the system configuration, the real time viewing of the measures and the data download. The access to the data is allowed only from the PC where the Data Base is installed. For Windows® operating systems.
- HD35AP-PLUS** Advanced version of the HD35AP-S software that provides access to the Data Base from all the PCs connected in the network to the server where the Data Base is installed. For Windows® operating systems.
- CP23** Direct USB connection cable with male mini USB connector on the side of the instrument and male A type USB connector on the side of the PC.
- CPM12-8P.2** 8-pole cable. Length 2 m. 8-pole M12 connector on one side, free wires on the other. For RS485 connection to HD35APS base unit.
- CPM12-8P.5** 8-pole cable. Length 5 m. 8-pole M12 connector on one side, free wires on the other. For RS485 connection to HD35APS base unit.
- CPM12-8P.10** 8-pole cable. Length 10 m. 8-pole M12 connector on one side, free wires on the other. For RS485 connection to HD35APS base unit.
- SWD06** Mains power adapter 100-240 Vac / 6 Vdc - 1 A.
- HD35.03** Plastic support for the removable installation of base unit, repeaters and data loggers in housing for indoor use.
- HD35.11K** Pair of flanges made of anodized aluminium alloy for the fixed installation of base unit, repeaters and data loggers in housing for indoor use. Pin for padlock and padlock included.
- HD35.24W** Flange for fixing to the wall the models HD35EDW... in waterproof housing.
- HD35-ANT** Spare external RF antenna for the base units HD35AP... (except HD35APD-EXT) and the repeater HD35RE (not for HD35REW).
- HD35-ANT2** Spare external RF antenna for the base unit HD35APD-EXT.

## Product Information

<b>HD35-ANT3</b>	Spare external RF antenna for the repeater HD35REW and the data loggers HD35EDW... with external antenna.
<b>HD35-BAT1</b>	3.7 V lithium ion rechargeable battery, capacity 2250 mA/h, 3-pole JST connector. For the base units HD35AP... and the repeater HD35RE.
<b>HD35-BAT2</b>	3.6 V lithium thionyl chloride (Li-SOCl <sub>2</sub> ) not rechargeable battery, size AA, 2-pole Molex 5264 connector. For the alarm module HD35ED ALM and the data loggers HD35ED....
<b>BAT-2013DB</b>	3.6 V lithium thionyl chloride (Li-SOCl <sub>2</sub> ) not rechargeable battery, size C, 2-pole Molex 5264 connector. For the repeater HD35REW and the data loggers HD35EDWK/4TC, HD35EDWH and HD35EDM...TC.
<b>HD2003.77/40</b>	Clamp to fix the waterproof housing to the 40 mm diameter mast.
<b>HD2003.71K</b>	40 mm diameter mast kit, height 2 m, in two pieces.
<b>HD2003.75</b>	Pointed grounding rod for 40 mm diameter mast.
<b>HD2003.78</b>	Flange for 40 mm diameter mast, to be fastened on the floor.
<b>HD2005.20</b>	Anodized aluminum tripod kit with adjustable legs for installing environmental sensors. It can be fixed on a flat base with screws or to the ground with pegs.
<b>HD9217TF1</b>	Protection shield from solar radiations for outdoor installation. For the HD35EDW... waterproof data loggers.
<b>HD32MT4.6</b>	Protection shield from solar radiations for outdoor installation. For the HD35EDM...TC waterproof data loggers.

## Accessories for humidity sensors

<b>HD75</b>	75% RH saturated solution for checking the relative humidity sensors, supplied with threaded ring for 14 mm diameter probes M12x1 thread.
<b>HD33</b>	33% RH saturated solution for checking the relative humidity sensors, supplied with threaded ring for 14 mm diameter probes M12x1 thread.

## Accessories for CO sensors

<b>MINICAN.12A</b>	Nitrogen can for CO calibration at 0 ppm. Volume 20 litres. With regulating valve.
<b>MINICAN.12A1</b>	Nitrogen can for CO calibration at 0 ppm. Volume 20 litres. Without regulating valve.
<b>ECO-SURE-2E CO</b>	CO spare probe.
<b>HD37.36</b>	Connection tube kit between instrument and nitrogen can for CO calibration.

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## Base unit HD35AP



- with USB output

### Characteristics

Device acting as an interface between the network data loggers that are positioned in the measurement sites, and the PC. It receives via wireless the data acquired by the remote data loggers and communicate with the PC via the USB output.

Does not require the installation of USB drivers.

Directly powered by the USB port of the PC, if connected, or by the external 6 Vdc power supply. Internal backup battery.

If the PC is not connected, the internal memory allows the storage of the measurement data received from the data loggers (the memory is managed in circular mode: when the memory is full, the oldest data are overwritten by the new ones).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) towards data loggers with internal antenna. > 500 m (E, J, U) towards repeaters and data loggers with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Power supply	: Internal lithium-ion 3.7 V rechargeable battery, 2250 mA/h capacity, JST 3 pole connector. Optional external 6 Vdc power supply (SWD06). Directly powered by a PC USB port.
Current consumption	: 30 mA
Battery life	: 3 days typical
USB output	: Yes, with Mini USB connector (CP23 cable)
RS485 output	: No
Ethernet connection	: No
Wi Fi connection	: No
GSM connection	: No
Operating conditions	: -10...+60 °C / 0...85% RH non condensing
Dimensions	: 135 x 86 x 33 mm (excluding antenna)
Weight	: 200 g approx.
Housing	: LURAN® S 777K

### Connection to PC

#### USB connection



**Product Information**

**Ordering codes**

1.  
HD35AP. -

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

## Base unit HD35APG



- with USB output and integrated GSM module

### Characteristics

Device acting as an interface between the network data loggers that are positioned in the measurement sites, and the PC. It receives via wireless the data acquired by the remote data loggers and communicate with the PC via the USB output or the GSM connection.

Does not require the installation of USB drivers.

The integrated GSM module allows e-mail or SMS alarm transmission and stored data transmission via e-mail or to an FTP address. SMS messages containing commands can be sent by a mobile phone to the base unit, to change some GSM settings of the unit.

Directly powered by the USB port of the PC, if connected, or by the external 6 Vdc power supply. Internal backup battery.

If the PC is not connected, the internal memory allows the storage of the measurement data received from the data loggers (the memory is managed in circular mode: when the memory is full, the oldest data are overwritten by the new ones).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Connection to PC

#### USB connection



### Technical data

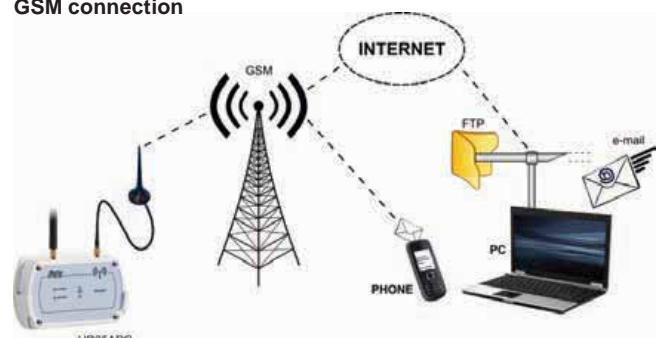
Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) towards data loggers with internal antenna. > 500 m (E, J, U) towards repeaters and data loggers with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Power supply	: Internal lithium-ion 3.7 V rechargeable battery, 2250 mA/h capacity, JST 3 pole connector. Optional external 6 Vdc power supply (SWD06). Directly powered by a PC USB port (*).
Current consumption	: 30 mA (**)
Battery life	: 3 days typical (**)
USB output	: Yes, with Mini USB connector (CP23 cable)
RS485 output	: No
Ethernet connection	: No
Wi Fi connection	: No
GSM connection	: Yes, for the transmission of alarm e-mail or SMS and data by e mail or FTP (***)
Operating conditions	: -10...+60 °C / 0...85 %RH non condensing
Dimensions	: 135 x 86 x 33 mm (excluding antenna)
Weight	: 200 g approx.
Housing	: LURAN® S 777K

(\*) The connection of the SWD06 external power supply is recommended if the GSM transmission is used.

(\*\*) With typical GSM activity (an intensive use of the GSM transmission can significantly increase the consumption and reduce the battery life).

(\*\*\*) In the basic version, the data are transmitted via FTP with a minimum interval equal to 2 minutes and only if in the network there are up to 5 data loggers. For the full FTP functionality, the PLUS option has to be requested.

#### GSM connection



**Product Information**

**Ordering codes**

HD35APG. - <sup>1.</sup>

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Base unit HD35APS



- with USB and RS485 Modbus-RTU outputs

## Characteristics

Device acting as an interface between the network data loggers that are positioned in the measurement sites, and the PC/PLC. It receives via wireless the data acquired by the remote data loggers and communicate with the PC/PLC via the USB output or the RS485 with Modbus-RTU protocol output.

Does not require the installation of USB drivers. In RS485 Modbus RTU mode, the base unit operates as a multiplexer for the transmission of Modbus commands from PC/PLC to network devices. Directly powered by the USB port of the PC, if connected, or by the external 6 Vdc power supply. Internal backup battery.

If the PC is not connected, the internal memory allows the storage of the measurement data received from the data loggers (the memory is managed in circular mode: when the memory is full, the oldest data are overwritten by the new ones).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

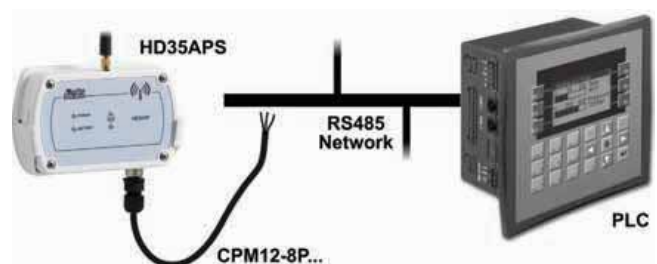
Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) towards data loggers with internal antenna. > 500 m (E, J, U) towards repeaters and data loggers with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Power supply	: Internal lithium-ion 3.7 V rechargeable battery, 2250 mA/h capacity, JST 3 pole connector. Optional external 6 Vdc power supply (SWD06). Directly powered by a PC USB port.
Current consumption	: 30 mA
Battery life	: 3 days typical
USB output	: Yes, with Mini USB connector (CP23 cable)
RS485 output	: Yes, with Modbus-RTU protocol
Ethernet connection	: No
Wi Fi connection	: No
GSM connection	: No
Operating conditions	: -10...+60 °C / 0...85 %RH non condensing
Dimensions	: 135 x 95 x 33 mm (excluding antenna)
Weight	: 200 g approx.
Housing	: LURAN® S 777K

## Connection to PC

### USB connection



### RS485 connection



**Product Information**

**Ordering codes**

HD35APS.      1.  
-     

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

## Base unit HD35APW



- with USB output, Ethernet connection and Wi-Fi interface

### Characteristics

Device acting as an interface between the network data loggers that are positioned in the measurement sites, and the PC/PLC. It receives via wireless the data acquired by the remote data loggers and communicate with the PC/PLC via the USB output or the Ethernet or Wi-Fi local network.

Does not require the installation of USB drivers.  
Directly powered by the USB port of the PC, if connected, or by the external 6 Vdc power supply. Internal backup battery.

If the PC is not connected, the internal memory allows the storage of the measurement data received from the data loggers (the memory is managed in circular mode: when the memory is full, the oldest data are overwritten by the new ones).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) towards data loggers with internal antenna. > 500 m (E, J, U) towards repeaters and data loggers with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Power supply	: Internal lithium-ion 3.7 V rechargeable battery, 2250 mA/h capacity, JST 3 pole connector. Optional external 6 Vdc power supply (SWD06). Directly powered by a PC USB port (*).
Current consumption	: 30 mA (without Ethernet/Wi-Fi) 160 mA (with Ethernet), 275 mA (with Wi-Fi)
Battery life	: 3 days typ. if not connected to local network 11 hours typ. (Ethernet), 8 hours typ. (Wi-Fi)
USB output	: Yes, with Mini USB connector (CP23 cable)
RS485 output	: No
Ethernet connection	: ion of alarm e-mail and data by e-mail or FTP (**). Supports the Modbus TCP/IP protocol.
Wi Fi connection	: Yes. Allows the transmission of alarm e-mail and data by e mail or FTP (**). Supports the Modbus TCP/IP protocol.
GSM connection	: No
Operating conditions	: -10...+60 °C / 0...85 %RH non condensing
Dimensions	: 135 x 86 x 33 mm (excluding antenna)
Weight	: 200 g approx.
Housing	: LURAN® S 777K

(\*) The connection of the SWD06 external power supply is recommended if the Ethernet or Wi Fi transmission is used.

(\*\*) In the basic version, the data are transmitted via FTP with a minimum interval equal to 2 minutes and only if in the network there are up to 5 data loggers. For the full FTP functionality, the PLUS option has to be requested.

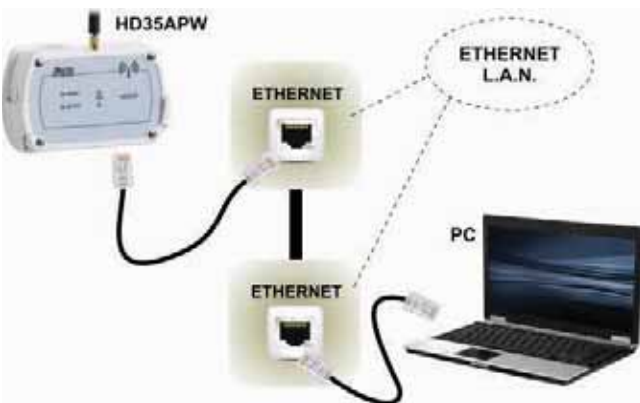


**Connection to PC**

**USB connection**



**Ethernet connection**



**Wi-Fi connection**



**Odering Codes**

HD35APW. - <sup>1.</sup>

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless repeater HD35RE



- Range extender

## Characteristics

The device is able to act as a bridge between the base unit HD35AP... and the remote data loggers HD35ED..., allowing the communication distance between data loggers and base unit to be increased.

Several repeaters in cascade can be used.  
 External 6 Vdc power supply. Internal backup battery.

Configuration via HD35AP S software. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

- Transmission frequency : Factory configurable at choice among:  
 868 MHz, 902-928 MHz, 915-928 MHz,  
 921-928 MHz or 915,9-929,7 MHz  
 depending on the frequency in use in  
 the country of installation
- Transmission range : In open field:  
 300 m (E, J)/ 180 m (U) towards data  
 loggers with internal antenna.  
 > 500 m (E, J, U) towards base unit,  
 repeaters and data loggers with  
 external antenna.  
 (can be reduced in presence of  
 obstacles or adverse atmospheric  
 conditions)
- Power supply : Internal lithium-ion 3.7 V rechargeable  
 battery, 2250 mA/h capacity,  
 JST 3 pole connector.  
 Optional external 6 Vdc power supply  
 (SWD06).  
 Directly powered by a PC USB port.
- Current consumption : 30 mA
- Battery life : 3 days typical
- Operating conditions : -10...+60 °C / 0...85 % RH non condensing
- Dimensions : 135 x 86 x 33 mm (excluding antenna)
- Weight : 200 g approx.
- Housing : LURAN® S 777Kr the full FTP  
 functionality, the PLUS option has  
 to be requested.

## Extending the transmission range



## Ordering codes

HD35RE. - <sup>1.</sup>

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless repeater HD35REW



- **Waterproof wireless repeater**

## Characteristics

The device is able to act as a bridge between the base unit HD35AP... and the remote data loggers HD35ED..., allowing the communication distance between data loggers and base unit to be increased.

Several repeaters in cascade can be used.  
 Powered by the internal battery. Suitable for places where the external power supply is not available.

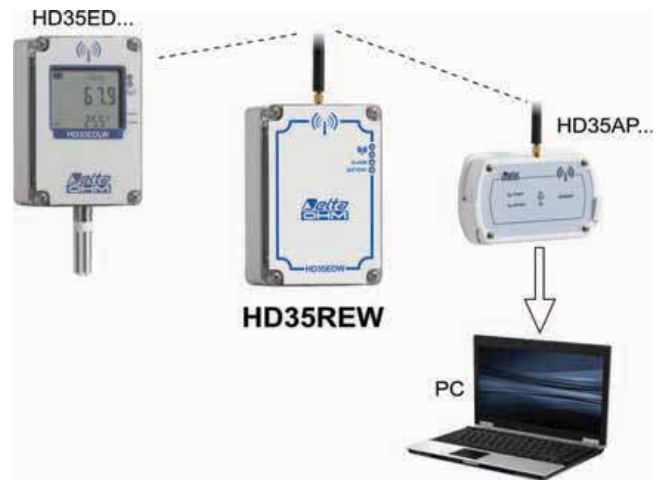
Configuration via HD35AP S software.

Installation: wall mount or fixing to a 40 mm diameter mast through the clamping HD2003.77/40 (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation.

## Technical data

- Transmission frequency : Factory configurable at choice among:  
 868 MHz, 902-928 MHz, 915-928 MHz,  
 921-928 MHz or 915,9-929,7 MHz  
 depending on the frequency in use in  
 the country of installation
- Transmission range : In open field:  
 300 m (E, J)/ 180 m (U) towards data  
 loggers with internal antenna.  
 > 500 m (E, J, U) towards base unit,  
 repeaters and data loggers with  
 external antenna.  
 (can be reduced in presence of obstacles  
 or adverse atmospheric conditions)
- Power supply : Internal 3.6 V lithium thionyl chloride  
 (Li-SOCl<sub>2</sub>) not rechargeable battery,  
 capacity 8400 mAh, size C, Molex 5264  
 2 pole connector.
- Battery life : 2 years typical (repeating the signal of  
 5 data loggers transmitting every 30 s)
- Operating conditions : -20...+70 °C / 0...100 %RH  
 non condensing
- Dimensions: : 120 x 80 x 55 mm (excluding antenna)
- Weight : 250 g approx.
- Housing : Polycarbonate
- Protection degree : IP 67

## Extending the transmission range



## Ordering codes

HD35REW. -

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED7P/...TC HD35EDG7P/...TC



- 1, 2 or 3-input temperature wireless data logger for Pt100/Pt1000 sensor temperature sensors with cable

## Characteristics

Temperature wireless data logger. Graphic LCD display (only with option G). It stores the measures in its internal memory (from 42,000 to 68,000 samples depending on the number of inputs) and transmits the logged data to the base unit automatically at regular intervals or upon request.  
 Depending on the model, one, two or three inputs with M12 connector for temperature sensors with Pt100 / Pt1000 sensor:

- HD35ED7P/1 – HD35EDG7P/1: one input
- HD35ED7P/2 – HD35EDG7P/2: two inputs
- HD35ED7P/3 – HD35EDG7P/3: three inputs

Acoustic alarm with internal buzzer. Configuration via HD35AP-S software or front keyboard (only version with LCD).

Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

**Temperature**  
 Sensor : Pt100 / Pt1000 1/3 DIN thin film  
 Measuring range : -100...+350 °C  
 (the measuring range can be limited by the operating temperature of the used probe)  
 Resolution : 0.1 °C  
 Accuracy : 1/3 DIN  
 Long-term stability : 0.1 °C / year

**Instrument**  
 Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation  
 Transmission range : 300 m (E, J) / 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)  
 Logging interval : 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil chloride (Li-SOCl<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
 Battery life : 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...85 %RH non condensing  
 Dimensions : 135 x 102 x 33 mm (excluding the probes)  
 Weight : 200 g approx.  
 Housing : LURAN® S 777K  
 Protection degree : IP 64

## Sensors

**TP35.1...:** stainless steel temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -50...+105 °C. Dimensions: Ø 6 x 50 mm. 4-pole M12 connector.



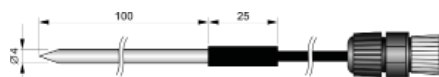
**TP35.2...:** thermoplastic rubber temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: 0...+70 °C. Dimensions Ø 5 x 20 mm. 4-pole M12 connector.



**TP35.4...:** stainless steel temperature sensor. 4-wire 1/3 DIN Pt100 sensor. Operating temperature: 50...+105 °C. Dimensions: Ø 6 x 50 mm. 4-pole M12 connector.



**TP35.5...:** stainless steel penetration temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -40...+300 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

HD35ED -  <sup>1.</sup> 7P/  <sup>2.</sup> TC.  <sup>3.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Number of inputs</b>
0	1
1	2
2	3
<b>3.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

TP35.1. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.2. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m

TP35.4. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.5. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m

# Wireless data logger HD35EDN/...TC HD35EDLN/...TC



- 1, 2 or 3-input temperature wireless data logger for NTC sensor temperature sensors with cable

## Characteristics

Temperature wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (from 42,000 to 68,000 samples depending on the number of inputs) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Depending on the model, one, two or three inputs with M12 connector for temperature sensors with NTC10KΩ sensor:

- HD35EDN/1 – HD35EDLN/1:** one input (68,000 samples)
- HD35EDN/2 – HD35EDLN/2:** two inputs (52,000 samples)
- HD35EDN/3 – HD35EDLN/3:** three inputs (42,000 samples)

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD).

Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C (the measuring range can be limited by the operating temperature of the used sensor)
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85%RH non condensing
Dimensions	: 135 x 102 x 33 mm (excluding the probes)
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

## Sensors

**TP35.1...:** stainless steel temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -50...+105 °C. Dimensions: Ø 6 x 50 mm. 4-pole M12 connector.



**TP35.2...:** thermoplastic rubber temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: 0...+70 °C. Dimensions Ø 5 x 20 mm. 4-pole M12 connector.



**TP35.4...:** stainless steel temperature sensor. 4-wire 1/3 DIN Pt100 sensor. Operating temperature: 50...+105 °C. Dimensions: Ø 6 x 50 mm. 4-pole M12 connector.



**TP35.5...:** stainless steel penetration temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -40...+300 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

HD35ED -  <sup>1.</sup> N/  <sup>2.</sup> TC.  <sup>3.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Number of inputs</b>
0	1
1	2
2	3
<b>3.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

TP35.1. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.2. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m

TP35.4. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.5. -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable lenght</b>
0	cable 3 m
1	cable 5 m

# Wireless data logger

## HD35EDNTV

## HD35EDLNTV



- Temperature wireless data logger with fixed vertical sensor

### Characteristics

Temperature wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature fixed vertical sensor with NTC10KΩ temperature sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Temperature

Sensor : NTC 10 kΩ @ 25 °C  
Measuring range : -40...+105 °C  
Resolution : 0.1 °C  
Accuracy : ± 0.3 °C in the range 0...+70 °C  
                  ± 0.4 °C outside  
Long-term stability : 0.1 °C / year

#### Instrument

Transmission frequency : Factory configurable at choice among:  
868 MHz, 902-928 MHz, 915-928 MHz,  
921-928 MHz or 915,9-929,7 MHz  
depending on the frequency in use in  
the country of installation  
Transmission range : 300 m (E, J)/ 180 m (U) in open field  
(can be reduced in presence of  
obstacles or adverse atmospheric  
conditions)  
Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
Power supply : Non rechargeable lithium thionil  
chloride (Li-SOCl<sub>2</sub>) internal battery,  
3.6 V, AA format, 2-pole Molex 5264  
connector  
Battery life : 2 years typical (without repeaters,  
measurement interval 5 s and log  
interval 30 s)  
Operating conditions : -20...+70 °C / 0...85 %RH  
non condensing  
Dimensions : 135 x 144 x 33 mm  
Weight : 200 g approx.  
Housing : LURAN® S 777K  
Protection degree : IP 64

### Ordering codes

HD35ED -  1. NTV.  2.

<b>1.</b>	<b>LCD</b>
	0 without LCD
	L with custom LCD
<b>2.</b>	<b>Radio frequency</b>
	J 915.9-929.7 MHz (Japan)
	E 868 MHz (Europe)
	U 902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger

## HD35ED1TV

## HD3535EDL1TV



- Humidity wireless data logger with fixed vertical sensor

### Characteristics

Humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Relative humidity fixed vertical sensor with high accuracy R.H. sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor : Capacitive  
 Measuring range : 0...100% RH  
 Resolution : 0.1% RH  
 Accuracy : ± 1.5 %RH (0..90 %RH)  
 (@ 23 °C) : ± 2 %RH (remaining range)  
 Sensor operating temperature : -20...+80 °C  
 Temperature drift : ±2% over the whole operating temperature range  
 Long-term stability : % / year

#### Instrument

Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation  
 Transmission range : 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)  
 Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil chloride (Li-SOCI2) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
 Battery life : 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...85 %RH non condensing  
 Dimensions : 135 x 144 x 33 mm  
 Weight : 200 g approx.  
 Housing : LURAN® S 777K  
 Protection degree : IP 64

### Ordering codes

HD35ED -  1.  2. 1TV.

<b>1.</b>	<b>LCD</b>
	0 without LCD
	L with custom LCD
<b>2.</b>	<b>Radio frequency</b>
	J 915.9-929.7 MHz (Japan)
	E 868 MHz (Europe)
	U 902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1TVI

## HD3535EDL1TVI



- Humidity wireless data logger with fixed vertical sensor

### Characteristics

Humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Relative humidity fixed vertical sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor : Capacitive  
 Measuring range : 0...100% RH  
 Resolution: : 0.1% RH  
 Accuracy : ± 1.8 %RH (0..80 % RH)  
 (@ 23 °C) : ± [1.8 + 0.11 \* (RH -80)] % RH (remaining range)  
 Sensor operating : -40...+105 °C (R.H. max=[100-2\*(T-80)]  
 temperature @ T=80...105 °C)  
 Temperature drift : ±2% over the whole operating temperature range  
 Long-term stability : 0.5% / year

#### Instrument

Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation  
 Transmission range : 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of stacles or adverse atmospheric conditions)  
 Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil chloride (Li-SOCl<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
 Battery life : 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...85 %RH non condensing  
 Dimensions : 135 x 144 x 33 mm  
 Weight : 200 g approx.  
 Housing : LURAN® S 777K  
 Protection degree : IP 64

### Ordering codes

HD35ED -  1.  2. 1TVI.

<b>1.</b>	<b>LCD</b>
	0 without LCD
	L with custom LCD
<b>2.</b>	<b>Radio frequency</b>
	J 915.9-929.7 MHz (Japan)
	E 868 MHz (Europe)
	U 902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1NTC

## HD35EDL1NTC



**GHM** deltaBus

- **Temperature and humidity wireless data logger for T/RH combined sensor with cable**

### Characteristics

Temperature and humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request. One input with M12 connector for the HP3517TC... temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 102 x 33 mm (excluding the sensor)
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Sensors**

**HP3517TC...**: temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. 4-pole M12 connector.



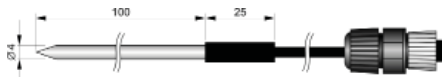
**TP3N1...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: -20...+85 °C. Dimensions: Ø 5 x 40 mm. 4-pole M12 connector.



**TP35N2...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 0...+70 °C. Dimensions Ø 6 x 50 mm. Double insulation. 4-pole M12 connector.



**TP35N5...**: stainless steel penetration temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 20...+105 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **1NTC.**  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517** -  <sup>1.</sup> .  <sup>2.</sup>

<b>1.</b>	<b>Cable length</b>
0	cable 135 mm
1	cable 335 mm
<b>2.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

**TP35N1.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N2.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N5.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 5 m

# Wireless data logger HD35ED17PTC HD35EDL17PTC



**GHM** deltaBus

- **Temperature and humidity wireless data logger for T/RH combined sensor with cable**

## Characteristics

Temperature and humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3517ETC... temperature and relative humidity combined sensor with Pt100 temperature sensor and high accuracy R.H. sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -40...+150 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: Thin film 1/3 DIN Pt100
Measuring range	: -40...+150 °C
Resolution	: 0.1 °C
Accuracy	: 1/3 DIN
Long-term stability	: 0.1 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 102 x 33 mm (excluding the probe)
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

## Sensors

**HP3517ETC...**: temperature and relative humidity combined sensor with high accuracy R.H. sensor and Pt100 temperature sensor. 4 pole M12 connector.



**Ordering codes**

HD35ED -  1.  2. 17PTC.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

HP3517E -  1.  2.

<b>1.</b>	<b>Cable lenght</b>
0	cable 135 mm
1	cable 335 mm
<b>2.</b>	<b>Cable lenght</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

# Wireless data logger

## HD35ED1NTV

## HD35EDL1NTV



- **Temperature and humidity wireless data logger with T/RH fixed vertical sensor**

### Characteristics

Temperature and humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request. Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor : Capacitive  
Measuring range : 0...100% RH  
Resolution : 0.1% RH  
Accuracy : ± 1.5 %RH (0..90 %RH)  
(@ 23 °C) : ± 2 %RH (remaining range)  
Sensor operating temperature : -20...+80 °C  
Temperature drift : ±2% over the whole operating temperature range  
Long-term stability : 1% / year

#### Temperature

Sensor : NTC 10 kΩ @ 25 °C  
Measuring range : -40...+105 °C  
Resolution : 0.1 °C  
Accuracy : ± 0.3 °C in the range 0...+70 °C  
± 0.4 °C outside  
Long-term stability : 0.1 °C / year

#### Instrument

Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation  
Transmission range : 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)  
Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
Power supply : Non rechargeable lithium thionil chloride (Li-SOCI<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
Battery life : 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
Operating conditions : -20...+70 °C / 0...85 %RH non condensing  
Dimensions : 135 x 144 x 33 mm  
Weight : 200 g approx.  
Housing : LURAN® S 777K  
Protection degree : IP 64

### Ordering codes

HD35ED -  1.  2. 1NTV.

<b>1.</b>	<b>LCD</b>
	0 without LCD
	L with custom LCD
<b>2.</b>	<b>Radio frequency</b>
	J 915.9-929.7 MHz (Japan)
	E 868 MHz (Europe)
	U 902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1NTVI

## HD35EDL1NTVI



**GHM** deltaBus

- **Temperature and humidity wireless data logger with T/RH fixed vertical sensor**

### Characteristics

Temperature and humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with temperature sensor integrated in the R.H. module.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.8 %RH (0..80 % RH) : ± [1.8 + 0.11 * (RH - 80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

#### Temperature

Sensor	: Sensor integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 144 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64



**Ordering codes**

HD35ED -  1.  2. INTVI.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED1N/2TC HD35EDL1N/2TC



- **Temperature and humidity wireless data logger for T/RH combined sensor and temperature sensor with cable**

## Characteristics

Temperature and humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Two inputs with M12 connector for the HP3517TC... temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor, and for the temperature only sensor with NTC10KΩ probe.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure. Acoustic alarm with internal buzzer. Configuration via HD35AP-S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH)
	: ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C
	: ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 102 x 33 mm (excluding the probes)
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Sensors**

**HP3517TC...**: temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. 4-pole M12 connector.



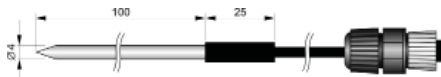
**TP3N1...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: -20...+85 °C. Dimensions: Ø 5 x 40 mm. 4-pole M12 connector.



**TP35N2...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 0...+70 °C. Dimensions: Ø 6 x 50 mm. Double insulation. 4-pole M12 connector.



**TP35N5...**: stainless steel penetration temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 20...+105 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup>  <sup>2.</sup> 1N/2TC.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517** -  <sup>1.</sup>  <sup>2.</sup>

<b>1.</b>	<b>Cable length</b>
0	cable 135 mm
1	cable 335 mm
<b>2.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

**TP35N1.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N2.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N5.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m

# Wireless data logger HD35ED1N/2TCV HD35EDL1N/2TCV



- **Temperature and humidity wireless data logger with T/RH fixed vertical sensor, temperature only sensor with cable**

## Characteristics

Temperature and humidity wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with **NTC10KΩ** temperature sensor and **high accuracy R.H. sensor**. One input with M12 connector for the temperature only sensor with **NTC10KΩ** sensor.

**Calculated quantities:** dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via **HD35AP-S** software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical Data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 102 x 33 mm (excluding the probe)
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Sensors**

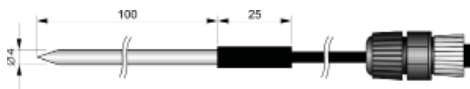
**TP35N1...**: stainless steel temperature sensor.  
 NTC10KΩ @ 25 °C sensor. Operating temperature: -20...+85 °C.  
 Dimensions: Ø 5 x 40 mm. 4-pole M12 connector.



**TP35N2...**: stainless steel temperature sensor.  
 NTC10KΩ @ 25 °C sensor. Operating temperature: 0...+70 °C.  
 Dimensions: Ø 6 x 50 mm. Double insulation.  
 4-pole M12 connector.



**TP35N5...**: stainless steel penetration temperature sensor.  
 NTC10KΩ @ 25 °C sensor. Operating temperature: 20...+105 °C.  
 Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **1N/2TCV.**  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**TP35N1.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N2.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N5.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m

# Wireless data logger HD35ED14bNTC HD35EDL14bNTC



- **Temperature, humidity and atmospheric pressure wireless data logger for T/RH combined sensor with cable**

## Characteristics

Temperature, humidity and atmospheric pressure wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3517TC... temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) : ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 102 x 33 mm (excluding the probe)
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Sensors**

**HP3517TC...**: temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **14bNTC.**  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517** -  <sup>1.</sup> .  <sup>2.</sup>

<b>1.</b>	<b>Cable length</b>
0	cable 135 mm
1	cable 335 mm
<b>2.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

# Wireless data logger

## HD35ED14bNTV

## HD35EDL14bNTV



**GHM** deltaBus

- **Temperature, humidity and atmospheric pressure wireless data logger with T/RH fixed vertical sensor**

### Characteristics

Temperature, humidity and atmospheric pressure wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH)
	: ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C
	: ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C
	: ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 144 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64



**Ordering codes**

HD35ED -  <sup>1.</sup> 14bNTV.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED14bNTVI HD35EDG14bNTVI



**GHM** deltaBus

- **Temperature, humidity and atmospheric pressure wireless data logger with T/RH fixed vertical sensor**

## Characteristics

Temperature, humidity and atmospheric pressure wireless data logger. Graphic LCD display (only with option G). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with temperature sensor integrated in the R.H. module. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.8 %RH (0..80 % RH) ± 1.8 %RH (0..80 % RH) ± [1.8 + 0.11 * (RH -80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

### Temperature

Sensor	: Probe integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionyl chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 144 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Ordering codes**

HD35ED -  <sup>1.</sup> 14bNTVI.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED1N4r...TV HD35EDL1N4r...TV



**GHM** deltaBus

- Temperature, humidity and differential pressure wireless data logger with T/RH fixed vertical sensor

## Characteristics

Temperature, humidity and differential pressure wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Pressure input for Ø 5 mm tubes.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Diff. pressure

Sensor	: r1...r4: Piezo-resistive r5: thermal mass flow sensing element
Measuring range	: r1: ±2.5 hPa r2: ±10 hPa r3: ±100 hPa r4: ±2000 hPa r5: ±125 Pa (for clean rooms (**))
Resolution	: r1: 0.001 hPa r2: 0.005 hPa r3: 0.05 hPa r4: 1 hPa r5: 0.01 Pa
Accuracy	: r1...r4: ± 1% f.s. r5: ± 3% of reading, ± 0.1 Pa @ 0 Pa over the whole compensated temperature range (0...50 °C)
Connection	: Tube Ø 5 mm (**)

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCI2) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: r1...r4: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s) r5: 1.5 years typical (without repeaters, measurement and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 144 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

(\*) The model r5 measures dynamic pressures (not suitable for the measurement of static pressures) and requires a small air flow between the two pressure inputs. Metal inputs with tube clamp ring to minimize pressure losses.

(\*\*) In the model r5 it is recommended to use tubes with at least 5 mm internal diameter.

**Ordering codes**

HD35ED -  1.  2.  1N4r  TV.  3.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Measuring range</b>
0	±2,5 hPa
1	±10 hPa
2	±100 hPa
3	±2000 hPa
4	±125 Pa
<b>3.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED4r... HD35EDL4r...



● **Differential pressure wireless data logger**

### Characteristics

Differential pressure wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Pressure input for Ø 5 mm tubes.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

**Diff. pressure**

- Sensor : r1...r4: Piezo-resistive  
r5: thermal mass flow sensing element
- Measuring range : r1: ±2.5 hPa  
r2: ±10 hPa  
r3: ±100 hPa  
r4: ±2000 hPa  
r5: ±125 Pa (for clean rooms (\*\*))
- Resolution : r1: 0.001 hPa  
r2: 0.005 hPa  
r3: 0.05 hPa  
r4: 1 hPa  
r5: 0.01 Pa
- Accuracy : r1...r4: ± 1% f.s.  
r5: ± 3% of reading, ± 0.1 Pa @ 0 Pa over the whole compensated temperature range (0...50 °C)
- Connection : Tube Ø 5 mm (\*\*)

**Instrument**

Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation

- Transmission range : 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
- Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
- Power supply : Non rechargeable lithium thionil chloride (Li-SOCl<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
- Battery life : r1...r4: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
r5: 1.5 years typical (without repeaters, measurement and log interval 30 s)
- Operating conditions : -20...+70 °C / 0...85 %RH non condensing
- Dimensions : 135 x 94 x 33 mm
- Weight : 200 g approx.
- Housing : LURAN® S 777K
- Protection degree : IP 64

(\*) The model r5 measures dynamic pressures (not suitable for the measurement of static pressures) and requires a small air flow between the two pressure inputs. Metal inputs with tube clamp ring to minimize pressure losses.

(\*\*) In the model r5 it is recommended to use tubes with at least 5 mm internal diameter.

### Ordering codes

HD35ED -  4e  .

<b>1. LCD</b>		
	0	without LCD
	L	with custom LCD
<b>2. Measuring range</b>		
	0	±2,5 hPa
	1	±10 hPa
	2	±100 hPa
	3	±2000 hPa
	4	±125 Pa
<b>3. Radio frequency</b>		
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1NI...TCV

## HD35EDL1NI...TCV



- Temperature, humidity and illuminance wireless data logger

### Characteristics

Temperature, humidity and illuminance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (44,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10K $\Omega$  temperature sensor and high accuracy R.H. sensor. One input with M12 connector for the LP 35 PHOT illuminance sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: $\pm 1.5$ %RH (0..90 %RH) $\pm 2$ %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: $\pm 2\%$ over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 k $\Omega$ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: $\pm 0.3$ °C in the range 0...+70 °C $\pm 0.4$ °C outside
Long-term stability	: 0.1 °C / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: I: 0...20,000 lux I2: 0...200,000 lux
Resolution	: I: 1 lux (0...2,000 lux), 10 lux (>2,000 lux) I2: 10 lux (0...20,000 lux), 100 lux (>20,000 lux)
Spectral range	: According to standard photopic curve V( $\lambda$ )
$\alpha$ (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f'1 (according to photopic response V( $\lambda$ ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector

Battery life : 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...85 %RH non condensing  
 Dimensions : 135 x 144 x 33 mm  
 Weight : 200 g approx.  
 Housing : LURAN® S 777K  
 Protection degree : IP 64

**Ordering codes**

HD35ED -  1.  2.  3.  
 1N TVC.

**Sensors**

**P 35 PHOT**

Photometric sensor for the measurement of illuminance, CIE photopic filter, spectral response in accordance with standard photopic vision, diffuser for cosine correction.  
 Measurement range: 0...200,000 lux. Cable length 2m.

**LP BL**

Base with level. On request, to be assembled to the sensor upon ordering.



**LP BL3**

Adjustable wall support.



<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Lux range</b>	
	0	0...20,000 lux
	1	0...200,000 lux
<b>3.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger

## HD35ED1NITV

## HD35EDL1NITV



● **Temperature, humidity and illuminance wireless data logger**

### Characteristics

Temperature, humidity and illuminance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (44,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Integrated illuminance sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy ±	: 1.5 %RH (0..90 %RH)
(@ 23 °C)	: ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C
	: ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: 0...20,000 lux
Resolution	: 1 lux (0...2,000 lux), 10 lux (>2,000 lux)
Spectral range	: According to standard photopic curve V(λ)
α (temperature coefficient)	: <0.05% K
f6(T)	
Calibration uncertainty	: <4%
f1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Ordering codes**

HD35ED -  <sup>1.</sup> 1NITV.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED14bNI...TCV HD35EDL14bNI...TCV



- **Temperature, humidity, atmospheric pressure and illuminance wireless data logger**

## Characteristics

Temperature, humidity, atmospheric pressure and illuminance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (36,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. One input with M12 connector for the LP 35 PHOT illuminance sensor. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Illuminance

Sensor	: Photodiode
Measuring range	: I: 0...20,000 lux, I2: 0...200,000 lux
Resolution	: I: 1 lux (0...2,000 lux), 10 lux (>2,000 lux) I2: 10 lux (0...20,000 lux), 100 lux (>20,000 lux)
Spectral range	: According to standard photopic curve V(λ)
α (temperature coefficient)	: <0.05% K
f6(T)	
Calibration uncertainty	: <4%
f'1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)

**Product Information**

Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil chloride (Li-SOCl<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
 Battery life : 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...85 %RH non condensing  
 Dimensions : 135 x 144 x 33 mm  
 Weight : 200 g  
 Housing : LURAN® S 777K  
 Protection degree : IP 64

**Ordering codes**

HD35ED -  1. 14bN  2. TCV.  3.

**Sensors**

**P 35 PHOT**

Photometric sensor for the measurement of illuminance, CIE photopic filter, spectral response in accordance with standard photopic vision, diffuser for cosine correction. Measurement range: 0...200,000 lux. Cable length 2m.

**LP BL**

Base with level. On request, to be assembled to the sensor upon ordering.



**LP BL3**

Adjustable wall support.



<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Lux range</b>	
	0	0...20,000 lux
	1	0...200,000 lux
<b>3.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED14bNITV

## HD35EDL14bNITV



- **Temperature, humidity, atmospheric pressure and illuminance wireless data logger**

### Characteristics

Temperature, humidity, atmospheric pressure and illuminance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (36,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Integrated illuminance sensor. Integrated pressure sensor. Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy	: ± 1.5 %RH (0..90 %RH)
(@ 23 °C)	: ± 2 %RH (remaining range)
Sensor operating temperature:	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: 0...20,000 lux
Resolution	: 1 lux (0...2,000 lux), 10 lux (>2,000 lux)
Spectral range	: According to standard photopic curve V(λ)
α (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f'1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 144 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Ordering codes**

HD35ED -  <sup>1.</sup> 14bNITV.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1NIUTCV

## HD35EDL1NIUTCV



- **Temperature, humidity, illuminance and UVA irradiance wireless data logger**

### Characteristics

Temperature, humidity, illuminance and UVA irradiance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (32,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. One input with M12 connector for the LP 35 P-A illuminance and UVA irradiance combined sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure, proportion of UV present (μW/lumen).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: 0...20,000 lux
Resolution	: 1 lux (0...2,000 lux), 10 lux (>2,000 lux)
Spectral range	: According to standard photopic curve V(λ)
α (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

#### UVA Irradiance

Sensor	: Photodiode
Measuring range	: 0...10,000 mW/m2
Resolution	: 1 mW/m2 (0...2,000 mW/m2) 5 mW/m2 (> 2,000 mW/m2)
Spectral range	: UVA, peak ≅ 360 nm
Calibration uncertainty	: <5%
f2 (response as cosine law)	: <6%
f3 (linearity)	: <1%
f4 (instrument reading error)	: ± 1 digit
f5 (fatigue)	: <0.5%
One year drift	: <2%
Operating temperature	: 0...50 °C

**Instrument**

Transmission frequency : Factory configurable at choice among:  
 868 MHz, 902-928 MHz, 915-928 MHz,  
 921-928 MHz or 915,9-929,7 MHz  
 depending on the frequency in use in  
 the country of installation

Transmission range : 300 m (E, J)/ 180 m (U) in open field  
 (can be reduced in presence of  
 obstacles or adverse atmospheric  
 conditions)

Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min

Power supply : Non rechargeable lithium thionil  
 chloride (Li-SOCl<sub>2</sub>) internal battery,  
 3.6 V, AA format, 2-pole Molex 5264  
 connector

Battery life : 2 years typical (without repeaters,  
 measurement interval 5 s and log  
 interval 30 s)

Operating conditions : -20...+70 °C / 0...85 %RH  
 non condensing

Dimensions : 135 x 126 x 33 mm

Weight : 200 g approx.

Housing : LURAN® S 777K

Protection degree : IP 64

**Ordering codes**

HD35ED -  1. 14bN  2. TCV.  3.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Lux range</b>	
	0	0...20,000 lux
	1	0...200,000 lux
<b>3.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Sensors**

**P 35 PHOT**

Photometric sensor for the measurement of illuminance,  
 CIE photopic filter, spectral response in accordance with standard  
 photopic vision, diffuser for cosine correction.  
 Measurement range: 0...200,000 lux. Cable length 2m.

**LP BL**

Base with level. On request, to be assembled to the  
 probe upon ordering.



**LP BL3**

Adjustable wall support.





# Wireless data logger

## HD35ED1NIUTV

## HD35EDL1NIUTV



- **Temperature, humidity, illuminance and UVA irradiance wireless data logger**

### Characteristics

Temperature, humidity, illuminance and UVA irradiance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (32,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10K $\Omega$  temperature sensor and high accuracy R.H. sensor. Integrated illuminance and UVA irradiance combined sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure, proportion of UV present ( $\mu$ W/lumen).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy	: $\pm 1.5$ %RH (0..90 %RH)
(@ 23 °C)	: $\pm 2$ %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: $\pm 2$ % over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 k $\Omega$ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: $\pm 0.3$ °C in the range 0...+70 °C $\pm 0.4$ °C outside
Long-term stability	: 0.1 °C / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: 0...20,000 lux
Resolution	: 1 lux (0...2,000 lux), 10 lux (>2,000 lux)
Spectral range	: According to standard photopic curve V( $\lambda$ )
$\alpha$ (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f'1 (according to photopic response V( $\lambda$ ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

#### UVA Irradiance

Sensor	: Photodiode
Measuring range	: 0...10,000 mW/m <sup>2</sup>
Resolution	: 1 mW/m <sup>2</sup> (0...2,000 mW/m <sup>2</sup> ) 5 mW/m <sup>2</sup> (> 2,000 mW/m <sup>2</sup> )
Spectral range	: UVA, peak $\approx$ 360 nm
Calibration uncertainty	: <5%
f2 (response as cosine law)	: <6%
f3 (linearity)	: <1%
f4 (instrument reading error)	: $\pm 1$ digit
f5 (fatigue)	: <0.5%
One year drift	: <2%
Operating temperature	: 0...50 °C

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J) / 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Ordering codes**

HD35ED -  1.  2. 1NIUTV.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED1NUBTCV HD35EDL1NUBTCV



- **Temperature, humidity and UVB irradiance wireless data logger**

## Characteristics

Temperature, humidity and UVB irradiance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (44,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. One input with M12 connector for the LP 35 UVB irradiance sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### UVB Irradiance

Sensor	: Photodiode
Measuring range	: 0...100 W/m2
Resolution	: 0.01 W/m2 (0...10 W/m2) 0.1 W/m2 (10...100 W/m2)
Spectral range	: UVB, peak ≅ 305 nm
Calibration uncertainty	: <5%
f2 (response as cosine law):	<6%
f3 (linearity)	: <2%
f4 (instrument reading error)	: ± 1 digit
f5 (fatigue)	: <0.5%
One year drift	: <2%
Operating temperature	: 0...50 °C

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl2) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Sensors**

**P 35 PHOT**

Photometric sensor for the measurement of illuminance, CIE photopic filter, spectral response in accordance with standard photopic vision, diffuser for cosine correction.  
 Measurement range: 0...200,000 lux. Cable length 2m.

**LP BL**

Base with level. On request, to be assembled to the sensor upon ordering.



**LP BL3**

Adjustable wall support.



**Ordering codes**

HD35ED -  1.  2.  3.  
 1NUB.  TCV.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Lux range</b>	
	0	0...20,000 lux
	1	0...200,000 lux
<b>3.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED1NUCTCV HD35EDL1NUCTCV



- **Temperature, humidity and UVC irradiance wireless data logger**

## Characteristics

Temperature, humidity and UVC irradiance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (44,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. One input with M12 connector for the LP 35 UVC irradiance sensor. Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability:	0.1 °C / year

### UVC Irradiance

Sensor	: Photodiode
Measuring range	: 0...100 W/m2
Resolution:	: 0.01 W/m2 (0...10 W/m2) 0.1 W/m2 (10...100 W/m2)
Spectral range	: UVC, peak ≅ 260 nm
Calibration uncertainty	: <5%
f2 (response as cosine law)	: <6%
f3 (linearity)	: <1%
f4 (instrument reading error)	: ± 1 digit
f5 (fatigue)	: <0.5%
One year drift	: <2%
Operating temperature	: 0...50 °C

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl2) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K
Protection degree	: IP 64

**Sensors**

**LP 35 UVC:**

Probe for the measurement of UVC irradiance in 220 nm...280 nm spectral range, diffuser for cosine correction.  
 Measurement range: 1•10-3...100 W/m2. Cable length 2m.

**LP BL**

Base with level. On request, to be assembled to the probe upon ordering.



**LP BL3**

Adjustable wall support.



**Ordering codes**

HD35ED -  <sup>1.</sup> 1NUCTCV.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35ED14bNIUTCV HD35EDL14bNIUTCV



- **Temperature, humidity, atmospheric pressure, illuminance and UVA irradiance wireless data logger**

## Characteristics

Temperature, humidity, atmospheric pressure, illuminance and UVA irradiance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (32,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10K $\Omega$  temperature sensor and high accuracy R.H. sensor. One input with M12 connector for the LP 35 P-A illuminance and UVA irradiance combined sensor. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure, proportion of UV present ( $\mu$ W/lumen).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: $\pm$ 1.5 %RH (0..90 %RH) $\pm$ 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: $\pm$ 2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 k $\Omega$ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: $\pm$ 0.3 °C in the range 0...+70 °C $\pm$ 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: $\pm$ 0.5 hPa (800...1100 hPa) @ T=25°C $\pm$ 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Illuminance

Sensor	: Photodiode
Measuring range	: 0...20,000 lux
Resolution	: 1 lux (0...2,000 lux), 10 lux (>2,000 lux)
Spectral range	: According to standard photopic curve V( $\lambda$ )
$\alpha$ (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f1 (according to photopic response V( $\lambda$ ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

### UVA Irradiance

Sensor	: Photodiode
Measuring range	: 0...10,000 mW/m <sup>2</sup>
Resolution	: 1 mW/m <sup>2</sup> (0...2,000 mW/m <sup>2</sup> ) 5 mW/m <sup>2</sup> (> 2,000 mW/m <sup>2</sup> )
Spectral range	: UVA, peak $\approx$ 360 nm
Calibration uncertainty	: <5%
f2 (response as cosine law)	: <6%
f3 (linearity)	: <1%
f4 (instrument reading error)	: $\pm$ 1 digit
f5 (fatigue)	: <0.5%
One year drift	: <2%
Operating temperature	: 0...50 °C

**Instrument**

Transmission frequency : Factory configurable at choice among:  
 868 MHz, 902-928 MHz, 915-928 MHz,  
 921-928 MHz or 915,9-929,7 MHz  
 depending on the frequency in use in  
 the country of installation

Transmission range : 00 m (E, J)/ 180 m (U) in open field  
 (can be reduced in presence of  
 obstacles or adverse atmospheric  
 conditions)

Logging interval: : 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min

Power supply : Non rechargeable lithium thionil  
 chloride (Li-SOCl<sub>2</sub>) internal battery,  
 3.6 V, AA format, 2-pole Molex 5264  
 connector

Battery life : 2 years typ. (without repeaters,  
 measurement interval 10 s and log  
 interval 30 s)

Operating conditions : -20...+70 °C / 0...85 %RH  
 non condensing

Dimensions : 135 x 144 x 33 mm

Weight : 200 g approx.

Housing : LURAN® S 777K

Protection degree : IP 64

**Ordering codes**

HD35ED -  1. 14bNIUTCV.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Sensors**

**LP 35 P-A:**  
 2-sensor combined sensor for the measurement of illuminance,  
 with standard photopic spectral response, and UVA irradiance in  
 315 nm...400 nm spectral range, diffuser for cosine correction.  
 Measurement range: 0...20,000 mW/m<sup>2</sup>. Cable length 2m.

**LP BL**  
 Base with level. On request, to be assembled to  
 the sensor upon ordering.



**LP BL3**  
 Adjustable wall support.





# Wireless data logger

## HD35ED14bNIUTV

## HD35EDL14bNIUTV



- **Temperature, humidity, atmospheric pressure, illuminance and UVA irradiance wireless data logger**

### Characteristics

Temperature, humidity, illuminance and UVA irradiance wireless data logger. Custom LCD display (only with option L). It stores the measures in its internal memory (32,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Integrated illuminance and UVA irradiance combined sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure, proportion of UV present (μW/lumen).

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: 0...20,000 lux
Resolution	: 1 lux (0...2,000 lux), 10 lux (>2,000 lux)
Spectral range	: According to standard photopic curve V(λ)
α (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0.5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C
Reference standard	: CIE n°69 – UNI 11142

#### UVA Irradiance

Sensor	: Photodiode
Measuring range	: 0...10,000 mW/m2
Resolution	: 1 mW/m2 (0...2,000 mW/m2) 5 mW/m2 (> 2,000 mW/m2)
Spectral range	: UVA, peak ≅ 360 nm
Calibration uncertainty	: <5%
f2 (response as cosine law)	: <6%
f3 (linearity)	: <1%
f4 (instrument reading error)	: ± 1 digit
f5 (fatigue)	: <0.5%
One year drift	: <2%
Operating temperature	: 0...50 °C

**Instrument**

Transmission frequency : Factory configurable at choice among:  
868 MHz, 902-928 MHz, 915-928 MHz,  
921-928 MHz or 915,9-929,7 MHz  
depending on the frequency in use in  
the country of installation

Transmission range : 300 m (E, J)/ 180 m (U) in open field  
(can be reduced in presence of  
obstacles or adverse atmospheric  
conditions)

Logging interval : 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min

Power supply : Non rechargeable lithium thionil  
chloride (Li-SOCl<sub>2</sub>) internal battery,  
3.6 V, AA format, 2-pole Molex 5264  
connector

Battery life : 2 years typ. (without repeaters,  
measurement interval 10 s and log  
interval 30 s)

Operating conditions : -20...+70 °C / 0...85 %RH  
non condensing

Dimensions : 135 x 144 x 33 mm

Weight : 200 g approx.

Housing : LURAN® S 777K

Protection degree : IP 64

**Ordering codes**

HD35ED -  1.  2. 14bNIUTV.

<b>1.</b>	<b>LCD</b>
	0 without LCD
	L with custom LCD
<b>2.</b>	<b>Radio frequency</b>
	J 915.9-929.7 MHz (Japan)
	E 868 MHz (Europe)
	U 902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1NB

## HD35EDG1NB



- **Temperature, humidity and carbon dioxide (CO<sub>2</sub>) wireless data logger**

### Characteristics

Temperature, humidity and carbon dioxide wireless data logger. Graphic LCD display (only with option G). It stores the measures in its internal memory (44,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

The sensors are all inside the housing.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP-S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.8 %RH (0..80 % RH) ± [1.8 + 0.11 * (RH -80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

#### Temperature

Sensor	: Sensor integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

#### Carbon dioxide (CO<sub>2</sub>)

Sensor	: Non-dispersive infrared rays (NDIR)
Measuring range	: 0...5000 ppm
Resolution	: 1 ppm
Accuracy	: ±(50 ppm+3% of measurement) @ 20 °C and 1013 hPa
Operating temperature	: -5...50 °C
Response time	: T90 < 120 s (air speed= 2 m/s)
Stability	: 5% of measurement/5 years
Temperature drift	: 0.1% f.s. / °C

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range:	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 1.5 years typical (without repeaters, measurement and log interval 2 min)
Operating conditions	: -10...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K

**Product Information**

**Ordering codes**

HD35ED -  1NB

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED1NAB

## HD35EDG1NAB



**GHM** deltaBus

- **Temperature, humidity, carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) wireless data logger**

### Characteristics

Temperature, humidity, carbon monoxide and dioxide wireless data logger. Graphic LCD display (only with option G). It stores the measures in its internal memory (36,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

The sensors are all inside the housing.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.8 %RH (0..80 % RH) ± [1.8 + 0.11 * (RH -80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

#### Temperature

Sensor	: Sensor integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

#### Carbon monoxide (CO)

Sensor	: Electrochemical cell
Measuring range	: 0 ... 500 ppm
Resolution	: 1 ppm
Accuracy	: ±3 ppm+3% of measurement
Operating temp.	: -5...50 °C
Response time	: T90 < 50 s
Stability	: 5% of measurement /year
Sensor life	: > 5 years in normal environmental conditions

#### Carbon dioxide (CO<sub>2</sub>)

Sensor	: Non-dispersive infrared rays (NDIR)
Measuring range	: 0...5000 ppm
Resolution	: 1 ppm
Accuracy	: ±(50 ppm+3% of measurement) @ 20 °C and 1013 hPa
Operating temperature	: -5...50 °C
Response time	: T90 < 120 s (air speed= 2 m/s)
Stability	: 5% of measurement/5 years
Temperature drift	: 0.1% f.s. / °C

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 1.5 years typical (without repeaters, measurement and log interval 2 min)
Operating conditions	: -10...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K

**Ordering codes**

HD35ED -  <sup>1.</sup> 1NAB.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with graphic LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35ED14bNAB

## HD35EDG14bNAB



- **Temperature, humidity, atmospheric pressure, carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) wireless data logger**

### Characteristics

Temperature, humidity, atmospheric pressure, carbon monoxide and dioxide wireless data logger. Graphic LCD display (only with option G). It stores the measures in its internal memory (32,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request. The sensors are all inside the housing.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy	: ± 1.8 %RH (0..80 % RH)
(@ 23 °C)	: ± [1.8 + 0.11 * (RH -80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

#### Temperature

Sensor	: Sensor integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

#### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

#### Carbon monoxide (CO)

Sensor	: Electrochemical cell
Measuring range	: 0 ... 500 ppm
Resolution	: 1 ppm
Accuracy	: ±3 ppm+3% of measurement
Operating temp.	: -5...50 °C
Response time	: T90 < 50 s
Stability	: 5% of measurement /year
Sensor life	: > 5 years in normal environmental conditions

#### Carbon dioxide (CO<sub>2</sub>)

Sensor	: Non-dispersive infrared rays (NDIR)
Measuring range	: 0...5000 ppm
Resolution	: 1 ppm
Accuracy	: ±(50 ppm+3% of measurement) @ 20 °C and 1013 hPa
Operating temperature	: -5...50 °C
Response time	: T90 < 120 s (air speed= 2 m/s)
Stability	: 5% of measurement/5 years
Temperature drift	: 0.1% f.s. / °C

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 1.5 years typical (without repeaters, measurement and log interval 2 min)
Operating conditions	: -10...+70 °C / 0...85 % RH non condensing
Dimensions	: 135 x 126 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K

**Ordering codes**

HD35ED -  <sup>1.</sup> 14bNAB.  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with graphic LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger

## HD35EDH

## HD35EDGH



- **Wireless data logger with three terminal header inputs for standard sensors**

### Characteristics

Wireless data logger with three terminal header inputs for the connection of transmitters with 4÷20 mA, 0÷1 V or 0÷50 mV output, Pt100/Pt1000 sensors, K, J, T, N, E thermocouples, sensors with voltage free contact output (max. one sensor) and potentiometric sensors.

Graphic LCD display (only with option G). It stores the measures in its internal memory (from 36,000 to 68,000 samples depending on the number and type of connected sensors) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software or front keyboard (only version with LCD). Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

### Technical data

#### Pt100/Pt1000

Measuring range	: -200...+650 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.1 °C (excluding probe error)
Sensor coefficient	: $\alpha=0.00385$ °C <sup>-1</sup>
Connection	: 2, 3 or 4 wires

#### Thermocouple

Thermocouple type	: K, J, T, N, E (inputs not isolated, use thermocouples with isolated hot junction)
Measuring range	: K: -200...+1370 °C    J: -100...+750 °C E: -200...+750 °C    T: -200...+400 °C N: -200...+1300 °C
Resolution	: 0.1 °C
Accuracy (excluding probe error)	: K: ± 0.1°C (< 600°C)    E: ± 0.1°C (< 300°C) ± 0.2°C (> 600°C)    ± 0.2°C (> 300°C) N: ± 0.1°C (< 600°C)    J: ± 0.1°C ± 0.2°C (> 600°C)    T: ± 0.1°C

#### Input 0/4...20mA

Shunt resistance	: Internal (50 Ω)
Resolution	: 16 bit
Accuracy	: ± 2 μA

#### Input 0...50mV/1V

Input resistance	: 100 MΩ
Resolution	: 16 bit
Accuracy	: ± 0.01% f.s.

#### Voltage-free contact

Switching frequency	: 50 Hz max.
Hold Time	: 10 ms min.

#### Potentiometer

Value	: Typical 10 kΩ
Resolution	: 16 bit
Accuracy	: ± 0.01% f.s.

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -10...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 110 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K

**Sensors**

**TP35.1...:** stainless steel temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -50...+105 °C. Dimensions: Ø 6 x 50 mm. Cable ending with free wires.



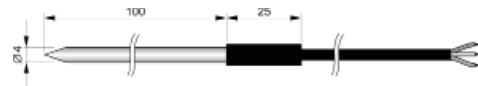
**TP35.2...:** thermoplastic rubber temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: 0...+70 °C. Dimensions Ø 5 x 20 mm. Cable ending with free wires.



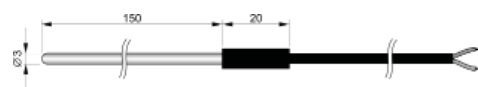
**TP35.4...:** stainless steel temperature sensor. 4-wire 1/3 DIN Pt100 sensor. Operating temperature: 50...+105 °C. Dimensions: Ø 6 x 50 mm. Cable ending with free wires.



**TP35.5...:** stainless steel penetration temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -40...+300 °C. Dimensions: Ø 4 x 100 mm. Cable ending with free wires.



**TP35K6.5:** stainless steel temperature sensor. K-type thermocouple sensor with isolated junction. Operating temperature: 50...+750 °C. Cable length 5 m. Cable ending with free wires.



**Ordering codes sensors**

TP35.1. - <sup>1.</sup> . <sup>2.</sup>

1. Cable length	
0	cable 2 m
1	cable 5 m
2	cable 10 m

TP35.2. - <sup>1.</sup> /C

1. Cable length	
0	cable 3 m
1	cable 5 m

TP35.4. - <sup>1.</sup> /C

1. Cable length	
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.5. - <sup>1.</sup> /C

1. Cable length	
0	cable 3 m
1	cable 5 m

**Ordering codes**

HD35ED - <sup>1.</sup> H. <sup>2.</sup>

1. LCD	
0	without LCD
L	with graphic LCD
2. Radio frequency	
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless alarm module HD35ED-ALM



## Characteristics

Wireless module with two relay outputs for signalling alarm events. Acoustic alarm with internal buzzer. It allows to activate more signalling devices (sirens, blinking lights, etc.) or actuators. Bistable relays with potential free contact

Configuration via HD35AP S software. Powered by the internal battery. Wall mount removable (by using the included support) or fixed (with optional flanges) installation.

## Technical data

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 1 year in typical operating conditions. The effective life depends on how often the alarm condition is generated
Relays	: 2 bistable relays with potential free contact. Contact: max 1A @ 30Vdc resistive load
Buzzer	: Sounds cyclically when an alarm condition occurs: 1 single beep indicates that relay 1 is active; 2 beeps in rapid succession indicate that relay 2 is active; 3 beeps in rapid succession indicate that both relays are active.
Operating conditions	: -10...+70 °C / 0...85 %RH non condensing
Dimensions	: 135 x 110 x 33 mm
Weight	: 200 g approx.
Housing	: LURAN® S 777K

## Ordering codes

HD35ED-ALM - <sup>1.</sup>

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDLW1NBI...TCV



**GHM** deltaBus

- **Temperature, humidity, CO2 und illuminance or PAR wireless data logger, IP 67 waterproof housing**

## Characteristics

Temperature, humidity, carbon dioxide and illuminance or photons flow in the chlorofyll range (PAR) wireless data logger. IP 67 waterproof housing. Custom LCD display. It stores the measures in its internal memory (26,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Fixed CO2 sensor with removable protection filter. LP 35 PHOT illuminance sensor or LP 35 PAR quantum radiometric sensor for the measurement of the photons flow in the chlorofyll range (PAR – Photosintetically Active Radiation), with 5 m cable and M12 connector. For the LP 35 PHOT and LP 35 PAR sensor, the LP BL base with level (to be assembled to the sensor upon ordering) or the LP BL3 adjustable wall support are available on request.

Calculated quantities: dew point, absolute humidity.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. 7...30 Vdc external power supply. Installation: wall mounting with HD35.37 pair of flanges (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations / rain HD32MT4.6 (optional) for outdoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy	: ± 1.5 %RH (0..90 %RH)
(@ 23 °C)	: ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C
	: ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Carbon dioxide (CO2)

Sensor	: Non-dispersive infrared rays (NDIR)
Measuring range	: 0...5000 ppm
Resolution	: 1 ppm
Accuracy	: ±(50 ppm+3% of measurement) @ 20 °C and 1013 hPa
Operating temperature	: -20...+60 °C
Response time	: T90 < 120 s (air speed= 2 m/s)
Stability	: 5% of measurement/5 years
Temperature drift	: 1 ppm / °C

### Illuminance/PAR

Measuring range	: I: 0...20,000 lux / I2: 0...200,000 lux I3: 0...5000 µmol m-2 s-1 (PAR)
Resolution	: I: 1 lux from 0 to 2.000 lux, 10 lux outside I2: 10 lux from 0 to 20.000 lux, 100 lux outside I3: 0,2 from 0 to 500 µmol m-2 s-1, 2 outside

### LP 35 PHOT sensor

Spectral range V(λ)	: According to standard photopic curve
α (temperature coefficient) f6(T)	: <0.05% K
Calibration uncertainty	: <4%
f*1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
f4 (instrument reading error)	: <0,5%
f5 (fatigue)	: <0.5%
Class	: B
One year drift	: <1%
Operating temperature	: 0...50 °C

**LP 35 PAR sensor**

Spectral range : 400 nm...700 nm  
Calibration uncertainty : <5%  
f2 (response as cosine law) : <6%  
f3 (linearity) : <1%  
f4 (instrument reading error) : ±1digit  
f5 (fatigue) : <0.5%  
One year drift : <1%  
Operating temperature : 0...50 °C

**Instrument**

Transmission frequency : Factory configurable at choice among:  
868 MHz, 902-928 MHz, 915-928 MHz,  
921-928 MHz or 915,9-929,7 MHz  
depending on the frequency in use in  
the country of installation  
Transmission range : 300 m (E, J)/ 180 m (U) in open field  
(can be reduced in presence of  
obstacles or adverse atmospheric  
conditions)  
Logging interval : 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
Power supply : 7...30 Vdc  
Current consumption : < 5 mA average, 300 mA approx. peak  
Operating conditions : -20...+60 °C / 0...100 %RH non  
condensing  
Dimensions : Housing: 120 x 80 x 55 mm  
: With sensors: 120 x 155 x 55 mm  
Weight : 200 g approx.  
Housing : Polycarbonate  
Protection degrees : IP 67

**Ordering codes**

HD35EDLW1NBI -  <sup>1.</sup> TCV.  <sup>2.</sup>

<b>1.</b>	<b>Illuminance/PAR</b>
0	0...20,000 Lux
2	0...200,000 Lux
3	0...5000 µmol m <sup>-2</sup> s <sup>-1</sup> (PAR)
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDLW1NBTV



**GHM** deltaBus

- **Temperature, humidity and carbon dioxide (CO<sub>2</sub>) wireless data logger, IP 67 waterproof housing**

## Characteristics

Temperature, humidity and carbon dioxide wireless data logger. IP 67 waterproof housing. Custom LCD display. It stores the measures in its internal memory (30,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Fixed CO<sub>2</sub> sensor with removable protection filter.

Calculated quantities: dew point, absolute humidity.

Acoustic alarm with internal buzzer. Configuration via DHD35AP S software. 7...30 Vdc external power supply. Installation: wall mounting with HD35.37 pair of flanges (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations / rain HD32MT4.6 (optional) for outdoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

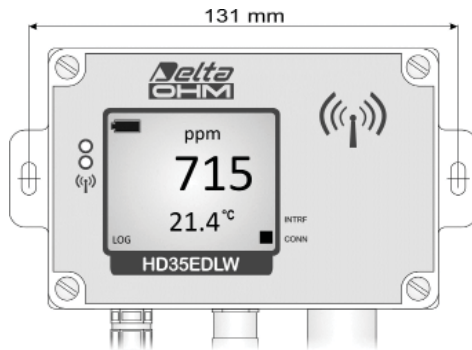
### Carbon dioxide (CO<sub>2</sub>)

Sensor	: Non-dispersive infrared rays (NDIR)
Measuring range	: 0...5000 ppm
Resolution	: 1 ppm
Accuracy	: ±(50 ppm+3% of measurement) @ 20 °C and 1013 hPa
Operating temperature	: -20...+60 °C
Response time	: T <sub>90</sub> < 120 s (air speed= 2 m/s)
Stability	: 5% of measurement/5 years
Temperature drift	: 1 ppm / °C

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: 7...30 Vdc
Current consumption	: < 5 mA average, 300 mA approx. peak
Operating conditions	: -20...+60 °C / 0...100 %RH non condensing
Dimensions	: Housing: 120 x 80 x 55 mm With sensors: 120 x 155 x 55 mm
Weight	: 200 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**FIXING WITH OPTIONAL HD35.37 FLANGES**



**Ordering codes**

HD35EDLW1NBTV -  1.

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

## Wireless data logger HD35EDLW1NI...TCV



**GHM** deltaBus

- **Temperature, humidity and illuminance wireless data logger, IP 67 waterproof housing**

### Characteristics

Temperature, humidity and illuminance wireless data logger. IP 67 waterproof housing. Custom LCD display. It stores the measures in its internal memory (30,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical probe with NTC10KΩ temperature sensor and high accuracy R.H. sensor. LP 35 PHOT 03BL illuminance probe (optional) with 5 m cable, M12 connector and base with level.

Calculated quantities: dew point, absolute humidity.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.37 pair of flanges (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations / rain HD32MT4.6 (optional) for outdoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Illuminance

Sensor	: Photodiode
Measuring range	: 0...200,000 lux
Resolution	: 10 lux (0...20,000 lux), 100 lux (>20,000 lux)
Spectral range	: According to standard photopic curve V(λ)

Calibration uncertainty	: <4%
f1 (according to photopic response V(λ))	: <6%
f2 (response as cosine law)	: <3%
f3 (linearity)	: <1%
Probe operating temperature	: -20...+60 °C
Reference standard	: CIE n°69 – UNI 11142

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: 300 m (E, J)/ 180 m (U) in open field (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCI2) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Housing dimensions	: 120 x 80 x 55 mm
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67



**LP 35 PHOT 03BL:** photometric probe for the measurement of illuminance, for outdoor use, CIE photopic filter, spectral response in accordance with standard photopic vision, diffuser for cosine correction. Measurement range: 0...200,000 lux. Cable length 5 m.

**Ordering codes**

HD35EDLW1NI2TCV -  1.

1.	Radio frequency
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

## Wireless data logger HD35EDW7P/...TC HD35EDLW7P/...TC



- **Waterproof 1, 2 or 3-input temperature wireless data logger for Pt100/Pt1000 sensor temperature probes with cable**

### Characteristics

Temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (from 42,000 to 68,000 samples depending on the number of inputs) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Depending on the model, one, two or three inputs with M12 connector for temperature probes with Pt100/Pt1000 sensor:

- **HD35EDW7P/1 – HD35EDLW7P/1: one input (68,000 samples)**
- **HD35EDW7P/2 – HD35EDLW7P/2: two inputs (52,000 samples)**
- **HD35EDW7P/3 – HD35EDLW7P/3: three inputs (42,000 samples)**

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

<b>Temperature</b>	
Sensor	: Pt100 / Pt1000 1/3 DIN thin film
Measuring range	: -100...+350 °C (the measuring range can be limited by the operating temperature of the used sensor)
Resolution	: 0.1 °C
Accuracy	: 1/3 DIN
Long-term stability	: 0.1 °C / year
<b>Instrument</b>	
Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probes and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

**TP35.1...**: stainless steel temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -50...+105 °C. Dimensions: Ø 6 x 50 mm. 4-pole M12 connector.



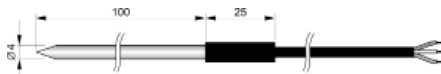
**TP35.2...**: thermoplastic rubber temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: 0...+70 °C. Dimensions Ø 5 x 20 mm. 4-pole M12 connector.



**TP35.4...**: stainless steel temperature sensor. 4-wire 1/3 DIN Pt100 sensor. Operating temperature: 50...+105 °C. Dimensions: Ø 6 x 50 mm. 4-pole M12 connector.



**TP35.5...** stainless steel penetration temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -40...+300 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

HD35ED -  <sup>1.</sup>  W7P/  <sup>2.</sup>  TC.  <sup>3.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Number of inputs</b>
0	1
1	2
2	3
<b>3.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

TP35.1. -  <sup>1.</sup>  /C

<b>1.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

TP35.2. -  <sup>1.</sup>  /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m

TP35.4. -  <sup>1.</sup>  /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.5. -  <sup>1.</sup>  /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m

# Wireless data logger HD35EDWN/...TC HD35EDLWN/...TC



- **Waterproof 1, 2 or 3-input temperature wireless data logger for NTC sensor temperature sensors with cable**

## Characteristics

Temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (from 42,000 to 68,000 samples depending on the number of inputs) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Depending on the model, one, two or three inputs with M12 connector for temperature sensors with NTC10KΩ sensor:

- **HD35EDWN/1 – HD35EDLWN/1: one input (68,000 samples)**
- **HD35EDWN/2 – HD35EDLWN/2: two inputs (52,000 samples)**
- **HD35EDWN/3 – HD35EDLWN/3: three inputs (42,000 samples)**

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

<b>Temperature</b>	
Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C (the measuring range can be limited by the operating temperature of the used sensor)
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year
<b>Instrument</b>	
Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensors and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

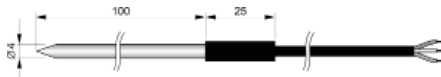
**TP35N1...**: stainless steel temperature sensor.  
 NTC10KΩ @ 25 °C sensor. Operating temperature: -20...+85 °C.  
 Dimensions: Ø 5 x 40 mm. 4-pole M12 connector.



**TP35N2...**: stainless steel temperature sensor.  
 NTC10KΩ @ 25 °C sensor. Operating temperature: 0...+70 °C.  
 Dimensions Ø 6 x 50 mm. Double insulation.  
 4-pole M12 connector.



**TP35N5...** stainless steel penetration temperature sensor.  
 NTC10KΩ @ 25 °C sensor. Operating temperature: 20...+105 °C.  
 Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **WN/**  <sup>2.</sup> **TC.**  <sup>3.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Number of inputs</b>
0	1
1	2
2	3
<b>3.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**TP35N1.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

**TP35N2.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N5.** -  <sup>1.</sup> /C

<b>1.</b>	<b>Cable length</b>
0	cable 3 m
1	cable 5 m

# Wireless data logger

## HD35EDWNTV

## HD35EDLWNTV



- **Waterproof temperature wireless data logger with fixed vertical sensor**

### Characteristics

Temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature fixed vertical sensor with NTC10KΩ temperature sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

<b>Temperature</b>	
Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year
<b>Instrument</b>	
Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCI <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 170 x 80 x 55 mm (excluding external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

### Ordering codes

HD35ED -  1.  2. WNTV.

<b>1.</b>	<b>LCD</b>
	0 without LCD
	L with custom LCD
<b>2.</b>	<b>Radio frequency</b>
	J 915.9-929.7 MHz (Japan)
	E 868 MHz (Europe)
	U 902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDWNTV61

## HD35EDLWNTV61



- **Waterproof temperature wireless data logger with fixed vertical probe**

### Characteristics

Temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature fixed vertical sensor with NTC10KΩ temperature sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP-S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

- Temperature**  
 Sensor : NTC 10 kΩ @ 25 °C  
 Measuring range : -40...+105 °C  
 Resolution : 0.1 °C  
 Accuracy : ± 0.3 °C in the range 0...+70 °C  
 ± 0.4 °C outside  
 Long-term stability : 0.1 °C / year
- Instrument**  
 Transmission frequency : Factory configurable at choice among:  
 868 MHz, 902-928 MHz, 915-928 MHz,  
 921-928 MHz or 915,9-929,7 MHz  
 depending on the frequency in use in  
 the country of installation
- Transmission range : In open field:  
 300 m (E, J)/ 180 m (U)  
 with internal antenna.  
 > 500 m (E, J, U) with external antenna.  
 (can be reduced in presence of  
 obstacles or adverse atmospheric  
 conditions)
- Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil  
 chloride (Li-SOCl<sub>2</sub>) internal battery,  
 3.6 V, AA format, 2-pole Molex 5264  
 connector
- Battery life : 2 years typical (without repeaters,  
 measurement interval 5 s and log  
 interval 30 s)
- Operating conditions : -20...+70 °C / 0...100 %RH  
 non condensing
- Dimensions : 170 x 80 x 55 mm  
 (excluding external antenna)
- Weight : 250 g approx.  
 Housing : Polycarbonate  
 Protection degree : IP 67

### Ordering codes

HD35ED -  1.  2. WNTV61.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDWK/4TC HD35EDLWK/4TC



- Waterproof 4-input temperature wireless data logger for thermocouple temperature sensors

## Characteristics

Temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (from 36.000 to 68.000 samples depending on the number of inputs used) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Four inputs with connector for K-J-T-N-E thermocouple temperature sensors.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

**Temperature**

Sensor	: K-J-T-N-E thermocouple	
	The inputs are isolated from each other (insulation 60 V)	
Measuring range	: K: -200...+1370 °C	J: -100...+750 °C
	E: -200...+750 °C	T: -200...+400 °C
	N: -200...+1300 °C	
Resolution	: 0.1 °C	
Accuracy	: K: ±0.1°C (< 600°C) E: ±0.1°C (< 300°C)	
(excluding probe error)	±0.2°C (> 600°C) ±0.2°C (> 300°C)	
	N: ±0.1°C (< 600°C)	J: ±0.1°C
	±0.2°C (> 600°C) T: ±0.1°C	

## Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, C format, 2-pole Molex 5264 connector
Battery life	: 4 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 120 x 80 x 55 mm (excluding probes and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

## Ordering codes

HD35ED -  1.  2. WK/4TC.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger

## HD35EDW1TV

## HD35EDLW1TV



- **Waterproof humidity wireless data logger with fixed vertical sensor**

### Characteristics

Humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request. Relative humidity fixed vertical sensor with high accuracy R.H. sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation.

External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor : Capacitive  
 Measuring range : 0...100% RH  
 Resolution : 0.1% RH  
 Accuracy (@ 23 °C) : ± 1.5 %RH (0..90 %RH)  
 ± 2 %RH (remaining range)  
 Sensor operating temperature : -20...+80 °C  
 Temperature drift : ±2% over the whole operating temperature range  
 Long-term stability : 1% / year

#### Instrument

Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation  
 Transmission range : In open field:  
 300 m (E, J)/ 180 m (U) with internal antenna.  
 > 500 m (E, J, U) with external antenna.  
 (can be reduced in presence of obstacles or adverse atmospheric conditions)  
 Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil chloride (Li-SOCl<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
 Battery life : 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...100 %RH non condensing  
 Dimensions : 170 x 80 x 55 mm (excluding external antenna)  
 Weight : 250 g approx.  
 Housing : Polycarbonate  
 Protection degree : IP 67

### Ordering codes

HD35ED -  1. W1TV.  2.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDW1TVI

## HD35EDLW1TVI



- **Waterproof humidity wireless data logger with fixed vertical sensor**

### Characteristics

Humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (68,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request. Relative humidity fixed vertical sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

**Humidity**  
 Sensor : Capacitive  
 Measuring range : 0...100% RH  
 Resolution : 0.1% RH  
 Accuracy : ± 1.8 %RH (0..80 % RH)  
 (@ 23 °C) : ± [1.8 + 0.11 \* (RH -80)] % RH (remaining range)  
 Sensor operating temperature : -40...+105 °C (R.H. max=[100-2\*(T-80)] @ T=80...105 °C)  
 Temperature drift : ±2% over the whole operating temperature range  
 Long-term stability : 0.5% / year

### Instrument

Transmission frequency : Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation  
 Transmission range : In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)  
 Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min  
 Power supply : Non rechargeable lithium thionil chloride (Li-SOCl<sub>2</sub>) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector  
 Battery life : 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)  
 Operating conditions : -20...+70 °C / 0...100 %RH non condensing  
 Dimensions : 170 x 80 x 55 mm (excluding external antenna)  
 Weight : 250 g approx.  
 Housing : Polycarbonate  
 Protection degree : IP 67

### Ordering codes

HD35ED -  1. W1TVI.  2.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDW1NTC

## HD35EDLW1NTC



- **Waterproof temperature and humidity wireless data logger for T/RH combined sensor with cable**

### Characteristics

Temperature and humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3517TC... temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: 20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensor and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

**HP3517TC...**: temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. 4-pole M12 connector.



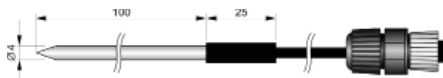
**TP35N1...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: -20...+85 °C. Dimensions: Ø 5 x 40 mm. 4-pole M12 connector.



**TP35N2...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 0...+70 °C. Dimensions: Ø 6 x 50 mm. Double insulation. 4-pole M12 connector.



**TP35N5...**: stainless steel penetration temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 20...+105 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **W1NTC.**  <sup>2.</sup>

<b>1. LCD</b>	
0	without LCD
L	with custom LCD
<b>2. Radio frequency</b>	
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517** -  <sup>1.</sup> -  <sup>2.</sup>

<b>1. Cable length</b>	
0	cable 135 mm
1	cable 150 mm
2	cable 335 mm
<b>2. Cable length</b>	
0	cable 2 m
1	cable 5 m
2	cable 10 m

**TP35N1.** -  <sup>1.</sup> /C

<b>1. Cable length</b>	
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N2.** -  <sup>1.</sup> /C

<b>1. Cable length</b>	
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N5.** -  <sup>1.</sup> /C

<b>1. Cable length</b>	
0	cable 3 m
1	cable 5 m

# Wireless data logger HD35EDW17PTC HD35EDLW17PTC



- **Waterproof temperature and humidity wireless data logger for T/RH combined sensor with cable**

## Characteristics

Temperature and humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3517ETC... temperature and relative humidity combined sensor with Pt100 temperature sensor and high accuracy R.H. sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -40...+150 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: Thin film 1/3 DIN Pt100
Measuring range	: -40...+150 °C
Resolution	: 0.1 °C
Accuracy	: 1/3 DIN
Long-term stability	: 0.1 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probe and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

## Sensors

**HP3517TC...:** temperature and relative humidity combined sensor with high accuracy R.H. sensor and Pt100 temperature sensor. 4 pole M12 connector.



**Ordering codes**

HD35ED -  1.  2. W17PTC.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

HP3517 -  1.  2.

<b>1.</b>	<b>Cable lenght</b>
0	cable 135 mm
1	cable 150 mm
2	cable 335 mm
<b>2.</b>	<b>Cable lenght</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

# Wireless data logger

## HD35EDW1NTV

## HD35EDLW1NTV



- **Waterproof temperature and humidity wireless data logger with T/RH fixed vertical sensor**

### Characteristics

Temperature and humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 170 x 80 x 55 mm (excluding external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Product Information**

**Ordering codes**

HD35ED -  1.  W1NTV.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger HD35EDW1NTVI HD35EDLW1NTVI



- **Waterproof temperature and humidity wireless data logger with T/RH fixed vertical sensor**

## Characteristics

Temperature and humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Temperature and relative humidity fixed vertical sensor with temperature sensor integrated in the R.H. module.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.8 %RH (0..80 % RH) ± [1.8 + 0.11 * (RH -80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

### Temperature

Sensor	: Sensor integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCI <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 170 x 80 x 55 mm (excluding external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Ordering codes**

HD35ED -  1.  W1NTVI.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDW1N/2TC HD35EDLW1N/2TC



**GHM** deltaBus

- **Waterproof temperature and humidity wireless data logger for T/RH combined sensor and temperature sensor with cable**

## Characteristics

Temperature and humidity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Two inputs with M12 connector for the HP3517TC... temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor, and for the temperature only sensor with NTC10KΩ sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH)
	: ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C
	: ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensors and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

**HP3517TC...**: temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. 4-pole M12 connector.



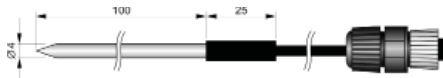
**TP35N1...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: -20...+85 °C. Dimensions: Ø 5 x 40 mm. 4-pole M12 connector.



**TP35N2...**: stainless steel temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 0...+70 °C. Dimensions Ø 6 x 50 mm. Double insulation. 4-pole M12 connector.



**TP35N5...**: stainless steel penetration temperature sensor. NTC10KΩ @ 25 °C sensor. Operating temperature: 20...+105 °C. Dimensions: Ø 4 x 100 mm. 4-pole M12 connector.



**Odering codes**

**HD35ED** -  <sup>1.</sup>  <sup>2.</sup> **W1N/2TC.**

<b>1. LCD</b>	
0	without LCD
L	with custom LCD
<b>2. Radio frequency</b>	
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517** -  <sup>1.</sup>  <sup>2.</sup>

<b>1. Cable lenght</b>	
0	cable 135 mm
1	cable 150 mm
2	cable 335 mm
<b>2. Cable lenght</b>	
0	cable 2 m
1	cable 5 m
2	cable 10 m

**TP35N1.** -  <sup>1.</sup> /C

<b>1. Cable lenght</b>	
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N2.** -  <sup>1.</sup> /C

<b>1. Cable lenght</b>	
0	cable 3 m
1	cable 5 m
2	cable 10 m

**TP35N5.** -  <sup>1.</sup> /C

<b>1. Cable lenght</b>	
0	cable 3 m
1	cable 5 m

# Wireless data logger HD35EDW14bNTC HD35EDLW14bNTC



**GHM** deltaBus

- **Waterproof temperature, humidity and atmospheric pressure wireless data logger, for T/RH combined sensor with cable**

## Characteristics

Temperature, humidity and atmospheric pressure wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3517TC... temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temp. range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C (0...+70 °C) / ± 0.4 °C (outside)
Long-term stability	: 0.1 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval:	2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probe and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

**HP3517TC...:** temperature and relative humidity combined probe with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. 4-pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **W14bNTC.**  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
1	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
0	915.9-929.7 MHz (Japan)
1	868 MHz (Europe)
2	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517E** -  <sup>1.</sup> .  <sup>2.</sup>

<b>1.</b>	<b>Cable lenght</b>
0	cable 135 mm
1	cable 150 mm
2	cable 335 mm
<b>2.</b>	<b>Cable lenght</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

# Wireless data logger HD35EDW14b7PTC HD35EDLW14b7PTC



**GHM** deltaBus

- **Waterproof temperature, humidity and atmospheric pressure wireless data logger, for T/RH combined sensor with cable**

## Characteristics

Temperature, humidity and atmospheric pressure wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3517ETC... temperature and relative humidity combined sensor with Pt100 temperature sensor and high accuracy R.H. sensor. Integrated pressure sensor.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0.90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -40...+150 °C
Temperature drift	: ±2% over the whole operating temp. range
Long-term stability	: 1% / year

### Temperature

Sensor	: Thin film 1/3 DIN Pt100
Measuring range	: -40...+150 °C
Resolution	: 0.1 °C
Accuracy	: 1/3 DIN
Long-term stability	: 0.1 °C / year

### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensor and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

**HP3517ETC...:** temperature and relative humidity combined sensor with high accuracy R.H. sensor and Pt100 temperature sensor. 4 pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **W14b7PTC.**  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

**HP3517** -  <sup>1.</sup> .  <sup>2.</sup>

<b>1.</b>	<b>Cable lenght</b>
0	cable 135 mm
1	cable 150 mm
2	cable 335 mm
<b>2.</b>	<b>Cable lenght</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m



# Wireless data logger

## HD35EDW1NV

## HD35EDLW1NV



- **Waterproof temperature, humidity and acceleration wireless data logger**

### Characteristics

Temperature, humidity and acceleration wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory and transmits the logged data to the base unit automatically at regular intervals or upon request.

The sensors are all internal. Temperature sensor integrated in the relative humidity module. Gore-Tex® air intake.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.8 %RH (0..80 % RH) ± [1.8 + 0.11 * (RH -80)] % RH (remaining range)
Sensor operating temperature	: -40...+105 °C (R.H. max=[100-2*(T-80)] @ T=80...105 °C)
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 0.5% / year

#### Temperature

Sensor	: Sensor integrated in humidity module
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.2 °C in the range 0...+60 °C ± (0.2 - 0.05 * T) °C in the range T=-40...0 °C ± [0.2 + 0.032 * (T-60)] °C in the range T=+60...+105 °C
Long-term stability	: 0.05 °C / year

#### Acceleration

Sensor	: Triaxial Accelerometer
Measuring range	: 0...16 g
Resolution	: < 0.05 g (function of measured value)
Accuracy	: < 0.1 g (function of measured value)

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -10...+60 °C / 0...100 %RH non condensing
Dimensions	: 120 x 80 x 55 mm (excluding external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Ordering codes**

HD35ED -  1.  W1NV.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDWRTC HD35EDLWRTC



**G H M** deltaBus

## ● Waterproof solar radiation wireless data logger

### Characteristics

Solar radiation wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (42,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the pyranometer. Calculated quantities: daily solar radiation in Wh/m<sup>2</sup> (Wh = watt hour).

The pyranometer mV signal is also displayed. Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

<b>Solar radiation</b>	
Sensor	: Thermopile
Measuring range	: 0...2000 W/m <sup>2</sup>
Resolution	: 1 W/m <sup>2</sup>
Sensitivity	: Configurable in mV/(kW m-2)

Note: for the other characteristics, please refer to the data sheet of the chosen pyranometer.

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: n open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obst acles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probes and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

### Pyranometers

#### LP PYRA 02

First Class pyranometer according to ISO 9060. Output in µV/ (Wm-2). Supplied with: shade disk, cartridge with silica-gel crystals, 2 spare sachets, levelling device, connector and Calibration Report. On request 5 or 10m cables with connector.

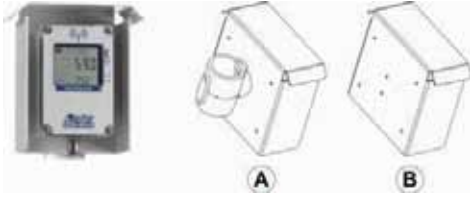
#### LP PYRA 03

Second Class pyranometer according to ISO 9060. Output in µV/ (Wm-2). Supplied with levelling device, connector and Calibration Report. On request 5 or 10m cables with connector and shade disk.

#### LP SILICON-PYRA 04

Pyranometer with silicon photodiode for measuring the global solar irradiance, diffuser for cosine correction. Spectral range 350...1100 nm. Typical sensitivity: 10 µV/W m-2. Measuring range: 0... 2000 W/m<sup>2</sup>. Fixed cable 5m long, terminated with open wires.

**HD9217TF1 solar radiations shield options**



**A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Ordering codes**

HD35ED -  1.  2. WRTC.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDW1NRTC

## HD35EDLW1NRTC



**GHM** deltaBus

- **Waterproof temperature, humidity and solar radiation wireless data logger**

### Characteristics

Temperature, humidity and solar radiation wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (24,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Two inputs with M12 connector: one for the HP3517TC2 (AISI 304) temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor, and one for the pyranometer LP PYRA 03.

Calculated quantities: dew point, wet bulb temperature, absolute humidity, daily solar radiation in Wh/m<sup>2</sup> (Wh = watt hour). The pyranometer mV signal is also displayed.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

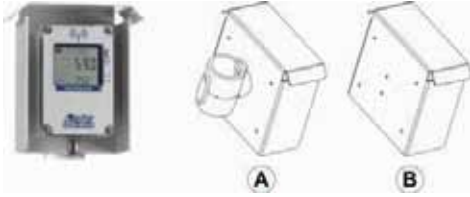
#### Solar radiation

Sensor	: Thermopile
Measuring range	: 0...2000 W/m <sup>2</sup>
Resolution	: 1 W/m <sup>2</sup>
Sensitivity	: Configurable in mV/(kW m-2)

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensors and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**HD9217TF1 solar radiations shield options**



**A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Sensors**

**HP3517TC2:** temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. In AISI 304. Stem length 145 mm. 4-pole M12 connector.



**Ordering codes**

HD35ED -  1. W1NRTC.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

HP3517TC2. -  1.

<b>1.</b>	<b>Cable lenght</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

# Wireless data logger

## HD35EDW7PRTC

## HD35EDLW7PRTC



- **Waterproof solar radiation and solar panel temperature wireless data logger**

### Characteristics

Solar radiation and solar panel temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (36,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Three inputs with M12 connector: one for the TP35878ISS... Pt100 temperature probe for solar panel and one for the pyranometer. Calculated quantities: daily solar radiation in Wh/m<sup>2</sup> (Wh = watt hour).

The pyranometer mV signal is also displayed. Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Solar radiation

Sensor	: Thermopile
Measuring range	: 0...2000 W/m <sup>2</sup>
Resolution	: 1 W/m <sup>2</sup>
Sensitivity	: Configurable in mV/(kW m <sup>-2</sup> )

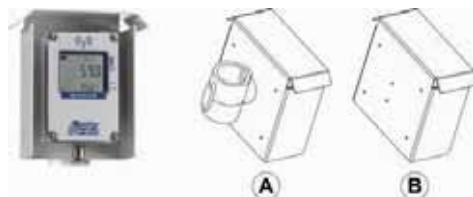
#### Solar panel temperature

Sensor	: Pt100 1/3 DIN
Measuring range	: -40...+85 °C
Resolution	: 0.1 °C
Accuracy	: 1/3 DIN
Long-term stability	: 0.1 °C / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probes and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

#### HD9217TF1 solar radiations shield options



- A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Sensors**

**LP PYRA 03:** second Class pyranometer according to ISO 9060. Output in  $\mu V/(Wm^{-2})$ . Supplied with levelling device, connector and Calibration Report. On request 5 or 10m cables with connector and shade disk.

**TP35878ISS.5:** Contact temperature sensor for solar panel. 1/3 DIN Pt100 sensor. Temperature working range -40...+85 °C. 5 m cable. 4 pole M12 connector.

**TP35878ISS.10:** Contact temperature sensor for solar panel. 1/3 DIN Pt100 sensor. Temperature working range -40...+85 °C. 10 m cable. 4 pole M12 connector.



**Ordering codes**

**HD35ED** -  <sup>1.</sup> **W7PRTC.**  <sup>2.</sup>

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger HD35EDW1N7PRTC HD35EDLW1N7PRTC



**GHM** deltaBus

- **Waterproof temperature, humidity, solar radiation and solar panel temperature wireless data logger**

## Characteristics

Environmental temperature, humidity, solar radiation and solar panel temperature wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Three inputs with M12 connector: one for the HP3517TC2 (AISI 304) temperature and relative humidity combined sensor with NTC10KΩ temperature sensor and high accuracy R.H. sensor, one for the pyranometer and one for the TP35878ISS... Pt100 temperature sensor for solar panel.

Calculated quantities: dew point, absolute humidity, daily solar radiation in Wh/m<sup>2</sup> (Wh = watt hour). The pyranometer mV signal is also displayed.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH)
	: ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C
	: ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

### Solar radiation

Sensor	: Thermopile
Measuring range	: 0...2000 W/m <sup>2</sup>
Resolution	: 1 W/m <sup>2</sup>
Sensitivity	: Configurable in mV/(kW m-2)

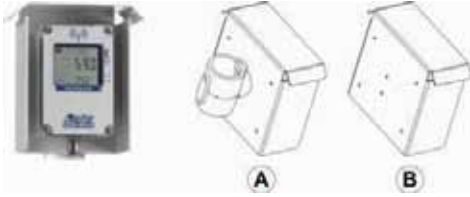
### Solar panel temperature

Sensor	: Pt100 1/3 DIN
Measuring range	: -40...+85 °C
Resolution	: 0.1 °C
Accuracy	: 1/3 DIN
Long-term stability	: 0.1 °C / year

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probes and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**HD9217TF1 solar radiations shield options**



**A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Sensors**

**HP3517TC2:** temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. In AISI 304. Stem length 145 mm. 4-pole M12 connector.



**LP PYRA 03:** second Class pyranometer according to ISO 9060. Output in  $\mu V/(Wm^{-2})$ . Supplied with levelling device, connector and Calibration Report. On request 5 or 10m cables with connector and shade disk.

**TP35878ISS...:** Contact temperature sensor for solar panel. 1/3 DIN Pt100 sensor. Temperature working range -40...+85 °C. 5 m or 10 m cable. 4 pole M12 connector.

**Ordering codes**

HD35ED -  1. W1N7PRTC.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

HP3517TC2. -  1.

<b>1.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

# Wireless data logger

## HD35EDWRPTC

## HD35EDLWRPTC



**GHM** deltaBus

- **Waterproof solar radiation and rainfall quantity wireless data logger**

### Characteristics

Solar radiation and rainfall quantity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory and transmits the logged data to the base unit automatically at regular intervals or upon request.

Two inputs with M12 connector for the pyranometer and the rain gauge.

Calculated quantities: daily solar radiation in Wh/m<sup>2</sup> (Wh = watt hour), rainfall rate in mm/h, daily rainfall in mm. The pyranometer mV signal is also displayed.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation.

External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Solar radiation

Sensor	: Thermopile
Measuring range	: 0...2000 W/m <sup>2</sup>
Resolution	: 1 W/m <sup>2</sup>
Sensitivity	: Configurable in mV/(kW m <sup>-2</sup> )

Note: for the other characteristics, please refer to the data sheet of the chosen pyranometer.

#### Rainfall quantity

Sensor	: Tipping bucket with NC or NO configurable contact
Resolution	: Configurable 0.1 – 0.2 – 0.5 mm/tipping

Note: for the other characteristics, please refer to the data sheet of the chosen rain gauge.

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensors and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Pyranometers**

**LP PYRA 02**

First Class pyranometer according to ISO 9060. Output in  $\mu\text{V}/(\text{Wm}^{-2})$ . Supplied with: shade disk, cartridge with silica-gel crystals, 2 spare sachets, levelling device, connector and Calibration Report. On request 5 or 10m cables with connector.

**LP PYRA 03**

Second Class pyranometer according to ISO 9060. Output in  $\mu\text{V}/(\text{Wm}^{-2})$ . Supplied with levelling device, connector and Calibration Report. On request 5 or 10m cables with connector and shade disk.

**LP SILICON-PYRA 04**

Pyranometer with silicon photodiode for measuring the global solar irradiance, diffuser for cosine correction. Spectral range 350...1100 nm. Typical sensitivity:  $10 \mu\text{V}/\text{W m}^{-2}$ . Measuring range: 0... 2000  $\text{W}/\text{m}^2$ . Fixed cable 5m long, terminated with open wires.

**Rain gauges**

**HD2013**

Tipping bucket rain gauge, 400cm<sup>2</sup> area, for temperature ranging from 4 °C to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact.

**HD2013R**

Tipping bucket rain gauge, 400cm<sup>2</sup> area, with heater for temperature ranging from -20 to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact. Power supply: 12 Vdc or 24 Vdc  $\pm$  10% / absorbed power 165 W.

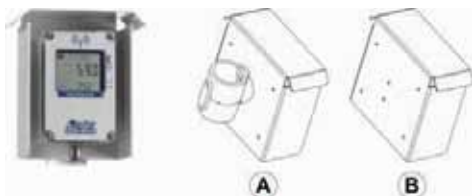
**HD2015**

Tipping bucket rain gauge, 200cm<sup>2</sup> area, for temperature ranging from 4 °C to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact.

**HD2015R**

Tipping bucket rain gauge, 200cm<sup>2</sup> area, with heater for temperature ranging from -20 to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact. Power supply: 12 Vdc or 24 Vdc  $\pm$  10% / absorbed power 50 W.

**HD9217TF1 solar radiations shield options**



**A** = for fixing to a  $\varnothing$  40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Ordering codes**

HD35ED -  1.  2. WRPTC.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDWPTC

## HD35EDLWPTC



**GHM** deltaBus

● **Waterproof rainfall quantity wireless data logger**

### Characteristics

Rainfall quantity wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (36,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the rain gauge. Calculated quantities: rainfall rate in mm/h, daily rainfall in mm. Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

<b>Rainfall quantity</b>	
Sensor	: Tipping bucket with NC or NO configurable contact
Resolution	: Configurable 0.1 – 0.2 – 0.5 mm/tipping

Note: for the other characteristics, please refer to the data sheet of the chosen rain gauge.

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding sensors and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

### Rain gauges

#### HD2013

Tipping bucket rain gauge, 400cm<sup>2</sup> area, for temperature ranging from 4 °C to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact.

#### HD2013R

Tipping bucket rain gauge, 400cm<sup>2</sup> area, with heater for temperature ranging from -20 to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact. Power supply: 12 Vdc or 24 Vdc ± 10% / absorbed power 165 W.

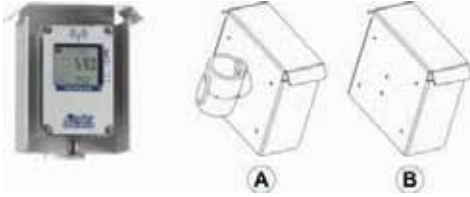
#### HD2015

Tipping bucket rain gauge, 200cm<sup>2</sup> area, for temperature ranging from 4 °C to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact.

#### HD2015R

Tipping bucket rain gauge, 200cm<sup>2</sup> area, with heater for temperature ranging from -20 to +60 °C. Standard resolution 0.2 mm. 0.1 or 0.5 mm on request with order. Normally closed output contact. Power supply: 12 Vdc or 24 Vdc ± 10% / absorbed power 50 W.

**HD9217TF1 solar radiations shield options**



**A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Ordering codes**

HD35ED -  1. WPTC.  2.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDW1NLTC

## HD35EDLW1NLTC



**GHM** deltaBus

- **Waterproof temperature, humidity and leaf wetness wireless data logger**

### Characteristics

Temperature and humidity and leaf wetness wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (22,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Two inputs with M12 connector: one for the HP3517TC2 (AISI 304) temperature and relative humidity combined probe with NTC10KΩ temperature sensor and high accuracy R.H. sensor, and one for the leaf wetness sensor HP3501...

Calculated quantities: dew point, wet bulb temperature, absolute humidity, mixing ratio, partial vapour pressure.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temperature range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C in the range 0...+70 °C ± 0.4 °C outside
Long-term stability	: 0.1 °C / year

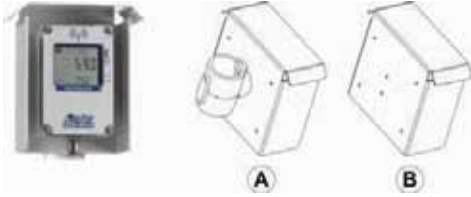
#### Leaf wetness

Sensor	: Capacitive
Measuring range	: 0...100% of leaf area wetness
Resolution	: 0.1%
Accuracy (@ 23 °C)	: ± 5 %
Sensor operating temperature	: -30...+60 °C

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J) / 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probes and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**HD9217TF1 solar radiations shield options**



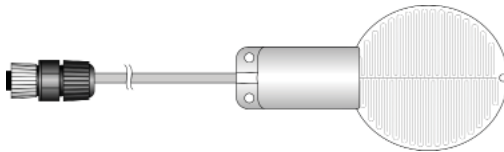
**A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Sensors**

**HP3517TC2:** temperature and relative humidity combined sensor with high accuracy R.H. sensor and NTC10KΩ @ 25 °C temperature sensor. In AISI 304. Stem length 150 mm. 4-pole M12 connector.



**HP3501:** Leaf wetness sensor with double sensitive surface. 4 pole M12 connector.



**Ordering codes**

HD35ED -  1. W1NLTC.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

**Ordering codes sensors**

HP3517TC2. -  1.

<b>1.</b>	<b>Cable length</b>
0	cable 2 m
1	cable 5 m
2	cable 10 m

HP3501. -  1.

<b>1.</b>	<b>Cable length</b>
0	cable 5 m
1	cable 10 m



# Wireless data logger

## HD35EDWSTC

## HD35EDLWSTC



**GHM** deltaBus

- **Waterproof soil temperature and moisture wireless data logger**

### Characteristics

Soil temperature and moisture wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (52,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

One input with M12 connector for the HP3510.1 or HP3510.2 soil temperature and moisture combined probe.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Soil Moisture

Measuring principle	: Capacitive
Measuring range	: 0...100% VWC (Volumetric Water Content)
Resolution	: 0.1%
Accuracy (@ 23 °C)	: ± 3 % between 0 and 0.57 m <sup>3</sup> /m <sup>3</sup> (standard mineral soil up to 5 mS/cm)
Sensor operating temperature	: -40...+60 °C

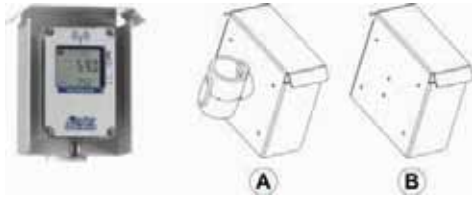
#### Soil Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+60 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.5 °C
Long-term stability	: 0.1 °C / year

#### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (can be reduced in presence of obstacles or adverse atmospheric conditions)
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCl <sub>2</sub> ) internal battery, 3.6 V, AA format, 2-pole Molex 5264 connector
Battery life	: 2 years typical (without repeaters, measurement interval 5 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 129 x 80 x 55 mm (excluding probe and external antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**HD9217TF1 solar radiations shield options**



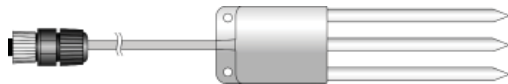
**A** = for fixing to a Ø 40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**Sensors**

**HP3510.1:** 2-electrode sensor for measuring the soil moisture. With integrated NTC 10 kΩ temperature sensor. 4 pole M12 connector. 5 m cable.



**HP3510.2:** 3-electrode sensor for measuring the soil moisture in restricted volumes. With integrated NTC 10 kΩ temperature sensor. 4 pole M12 connector. 5 m cable.



**Ordering codes**

HD35ED -  1. WSTC.  2.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDWWBGT HD35EDLWWBGT



- **Waterproof wireless data logger for the analysis of the WBGT index**

## Characteristics

Wireless data logger for the analysis of the WBGT (Wet Bulb Globe Temperature) index. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (30,000 samples) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Three inputs with M12 connector for the wet bulb temperature sensor, the globe-thermometer temperature sensor and the dry bulb temperature sensor.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation on VTRAP30 tripod (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

## Technical data

### Wet bulb temperature

Sensor : Pt100  
Measuring range : +4...+80 °C  
Resolution : 0.1 °C  
Accuracy : Class A  
Long-term stability : 0.1 °C / year

### Globe-thermometer temperature

Sensor : Pt100  
Measuring range : -10...+100 °C  
Resolution : 0.1 °C  
Accuracy : 1/3 DIN  
Long-term stability : 0.1 °C / year

### Dry bulb temperature

Sensor : Thin film Pt100  
Measuring range : -40...+100 °C  
Resolution : 0.1 °C  
Accuracy : 1/3 DIN  
Long-term stability : 0.1 °C / year

### Instrument

Transmission frequency : Factory configurable at choice among:  
868 MHz, 902-928 MHz, 915-928 MHz,  
921-928 MHz or 915,9-929,7 MHz  
depending on the frequency in use in  
the country of installation

Transmission range : In open field:  
300 m (E, J) / 180 m (U) with internal antenna.  
> 500 m (E, J, U) with external antenna.  
(can be reduced in presence of  
obstacles or adverse atmospheric  
conditions)

Logging interval : 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min

Power supply : Non rechargeable lithium thionil  
chloride (Li-SOCl<sub>2</sub>) internal battery,  
3.6 V, AA format, 2-pole Molex 5264  
connector

Battery life : 2 years typ. (without repeaters,  
measurement interval 10 s and log  
interval 30 s)

Operating conditions : -20...+70 °C / 0...100 %RH  
non condensing

Dimensions : 129 x 80 x 55 mm  
(excluding sensors and external  
antenna)

Weight : 250 g approx.  
Housing : Polycarbonate  
Protection degree : IP 67

**Sensors**

**TP3501TC2:** natural ventilation wet bulb probe. Pt100 sensor. Probe stem probe: Ø 14 mm, length 110 mm. Complete with two spare cotton wicks and 50 cc distilled water container.

**TP3575TC2:** Pt100 sensor globe thermometer temperature probe, globe Ø 150 mm. Stem: Ø 14 mm, length 110 mm.

**TP3576TC2:** Pt100 sensor globe thermometer temperature probe, globe Ø 50 mm. Stem: Ø 8 mm, length 170 mm.

**TP3507TC2:** temperature probe. Pt100 1/3 DIN sensor. Probe stem: Ø 14 mm, length 140 mm.

**HD32.2.7:** holder for 4 probes, to be fixed on the tripod.

**VTRAP30:** tripod, maximum height 280 mm.

**HD35.24W:** flange for fixing the data logger.

**Ordering codes**

HD35ED -  1.  2. WBGT.

<b>1.</b>	<b>LCD</b>	
	0	without LCD
	L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>	
	J	915.9-929.7 MHz (Japan)
	E	868 MHz (Europe)
	U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger

## HD35EDWH

## HD35EDLWH



- **Waterproof wireless data logger with four terminal header inputs for standard sensors**

### Characteristics

Wireless data logger with four terminal header inputs for the connection of transmitters with 4÷20 mA, 0÷1/0÷10 V or 0÷50 mV output, Pt100/Pt1000 sensors, K, J, T, N, E thermocouples, sensors with voltage free contact output (max. one sensor) and potentiometric sensors.

IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (from 28,000 to 58,000 samples depending on the number and type of connected sensors) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery or external 7...28 Vdc power supply (option E). Installation: wall mounting with HD35.24W flange (optional) or fixing to a Ø 40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations.

HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

<b>Pt100/Pt1000</b>	
Measuring range	: -200...+650 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.1 °C (excluding sensor error)
Sensor coefficient	: $\alpha = 0.00385 \text{ °C}^{-1}$
Connection	: 2, 3 or 4 wires
<b>Thermocouple</b>	
Thermocouple type	: K, J, T, N, E (inputs not isolated, use thermocouples with isolated hot junction)
Measuring range	: K: -200...+1370 °C    J: -100...+750 °C E: -200...+750 °C    T: -200...+400 °C N: -200...+1300 °C
Resolution	: 0.1 °C
Accuracy (excluding sensor error)	: K: ±0.1°C (< 600°C)    E: ±0.1°C (< 300°C) ±0.2°C (> 600°C)    ±0.2°C (> 300°C) N: ±0.1°C (< 600°C)    J: ±0.1°C ±0.2°C (> 600°C)    T: ±0.1°C
<b>Input 0/4...20mA</b>	
Shunt resistance	: Internal (50 Ω)
Resolution	: 16 bit
Accuracy	: ± 2 µA
<b>Voltage Input</b>	
Input resistance	: 100 MΩ
Resolution	: 16 bit
Accuracy	: ± 0.01% f.s.
<b>Voltage-free contact</b>	
Switching frequency	: 50 Hz max.
Hold Time	: 10 ms min.
<b>Potentiometer</b>	
Value	: Typical 10 kΩ
Resolution	: 16 bit
Accuracy	: ± 0.01% f.s.
<b>Instrument</b>	
Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range:	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. (reduced if any obstacles or adverse atmospheric conditions)
Logging interval	: 5,10,15,30 s / 1,2,5,10,15,30,60 min
Power supply	: Non rechargeable lithium thionil chloride (Li-SOCI <sub>2</sub> ) internal battery, 3.6 V, C format, 2-pole Molex 5264 connector 7...28 Vdc version (without battery) available
Battery life	: 4years typ. (without repeaters, measurement interval 10 s and log interval 30 s)
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 140 x 80 x 55 mm (excluding ext. antenna)
Weight	: 250 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

**Sensors**

**TP35.1...:** stainless steel temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -50...+105 °C. Dimensions: Ø 6 x 50 mm. Cable ending with free wires.



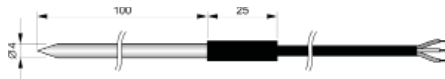
**TP35.2...:** thermoplastic rubber temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: 0...+70 °C. Dimensions Ø 5 x 20 mm. Cable ending with free wires.



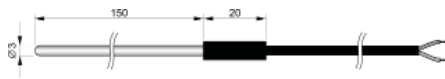
**TP35.4...:** stainless steel temperature sensor. 4-wire 1/3 DIN Pt100 sensor. Operating temperature: 50...+105 °C. Dimensions: Ø 6 x 50 mm. Cable ending with free wires.



**TP35.5...:** stainless steel penetration temperature sensor. 3-wire 1/3 DIN Pt1000 sensor. Operating temperature: -40...+300 °C. Dimensions: Ø 4 x 100 mm. Cable ending with free wires.



**TP35K6.5:** stainless steel temperature sensor. K-type thermocouple sensor with isolated junction. Operating temperature: 50...+750 °C. Cable length 5 m. Cable ending with free wires.



**Ordering codes sensors**

TP35.1. -  <sup>1.</sup> -  <sup>2.</sup>

1. Cable length	
0	cable 2 m
1	cable 5 m
2	cable 10 m

TP35.2. -  <sup>1.</sup> /C

1. Cable length	
0	cable 3 m
1	cable 5 m

TP35.4. -  <sup>1.</sup> /C

1. Cable length	
0	cable 3 m
1	cable 5 m
2	cable 10 m

TP35.5. -  <sup>1.</sup> /C

1. Cable length	
0	cable 3 m
1	cable 5 m

**Ordering codes**

HD35ED -  <sup>1.</sup> WH  <sup>2.</sup>

1. LCD	
0	without LCD
L	with custom LCD
2. Radio frequency	
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)

# Wireless data logger HD35EDW-MB



- **Wireless data logger for sensors with RS485 Modbus-RTU output**

## Characteristics

Wireless data logger with RS485 Modbus-RTU input. It allows adding one or more sensors with RS485 Modbus-RTU output (for example an anemometer of the HD52.3D... series) in the wireless network.

IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (from 14,000 to 52,000 samples depending on the number of acquired quantities) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Acoustic alarm with internal buzzer. Configuration via HD35AP-S software. External 24 Vdc power supply. Installation: wall mounting with HD35.24W flange (optional) or fixing to a  $\varnothing$  40 mm mast with HD2003.77/40 clamping (optional). Protection shield against solar radiations HD9217TF1 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

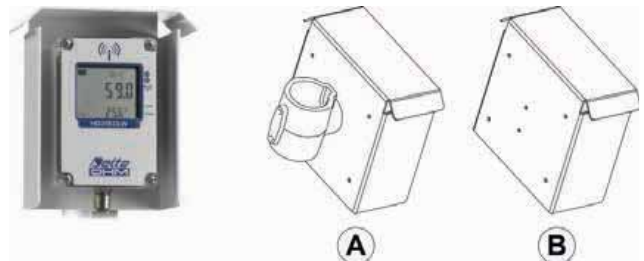
It has switched power supply output to power the sensors only when the measurement has to be carried out. The output, when enabled, has the same value as the power input.

## Technical data

### Instrument

Transmission frequency	: Factory configurable at choice among: 868 MHz, 902-928 MHz, 915-928 MHz, 921-928 MHz or 915,9-929,7 MHz depending on the frequency in use in the country of installation
Transmission range	: In open field: 300 m (E, J)/ 180 m (U) with internal antenna. > 500 m (E, J, U) with external antenna. <b>(can be reduced in presence of obstacles or adverse atmospheric conditions)</b>
Logging interval	: 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min (the minimum interval may be greater than 1 s if several devices are acquired)
Power supply	: 7...30 Vdc
Current consumption	: < 10 mA
Input	: RS485 Modbus-RTU
Operating conditions	: -20...+70 °C / 0...100 %RH non condensing
Dimensions	: 120 x 80 x 55 mm (excluding external antenna)
Weight	: 200 g approx.
Housing	: Polycarbonate
Protection degree	: IP 67

### HD9217TF1 SOLAR RADIATIONS SHIELD OPTIONS



- A** = for fixing to a  $\varnothing$  40 mm mast (with HD2003.77/40 clamping)  
**B** = wall mount (without clamping)

**EXAMPLE**

**HD52.3D**



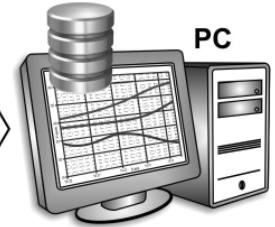
**HD35EDW-MB**



RF



**HD35AP**



**Power Supply HD52.3D  
 +  
 RS485 Modbus-RTU**

7...30 Vdc

**Ordering codes**

HD35ED    1.     W-MB.    2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



# Wireless data logger

## HD35EDM...TC

## HD35EDLM...TC



- **Waterproof wireless data logger for weather station**

### Characteristics

Temperature, humidity, atmospheric pressure, solar radiation, rainfall quantity, wind speed and direction wireless data logger. IP 67 waterproof housing. Custom LCD display (only with option L). It stores the measures in its internal memory (from 28,000 to 58,000 samples depending on the number of inputs used) and transmits the logged data to the base unit automatically at regular intervals or upon request.

Five inputs with M12 connector: for the HP3517TC... temperature and relative humidity combined sensor, for the pyranometer, for the rain gauge, for the HP54.3 cup anemometer and for the HP54.D wind vane. Versions with only some of the inputs can be ordered.

Calculated quantities: dew point, daily solar radiation in Wh/m<sup>2</sup> (Wh = watt hour), rainfall rate in mm/h, Wind Chill, Wind Gust, dominant wind direction.

Acoustic alarm with internal buzzer. Configuration via HD35AP S software. Powered by the internal battery. Installation: wall mount or fixing to a 40 mm diameter mast through the clamping HD2003.77/40 (optional). Protection shield against solar radiations HD32MT4.6 (optional) for outdoor installation. External antenna for outdoor installation with protection shield against solar radiations. Internal antenna for indoor installation.

### Technical data

#### Humidity

Sensor	: Capacitive
Measuring range	: 0...100% RH
Resolution	: 0.1% RH
Accuracy (@ 23 °C)	: ± 1.5 %RH (0..90 %RH) ± 2 %RH (remaining range)
Sensor operating temperature	: -20...+80 °C
Temperature drift	: ±2% over the whole operating temp. range
Long-term stability	: 1% / year

#### Temperature

Sensor	: NTC 10 kΩ @ 25 °C
Measuring range	: -40...+105 °C
Resolution	: 0.1 °C
Accuracy	: ± 0.3 °C (0...+70 °C) / ± 0.4 °C (outside)
Long-term stability	: 0.1 °C / year

#### Atm. pressure

Sensor	: Piezo-resistive
Measuring range	: 300...1100 hPa
Resolution	: 0.1 hPa
Accuracy	: ± 0.5 hPa (800...1100 hPa) @ T=25°C ± 1 hPa (300...1100 hPa) @ T=0...50°C
Long-term stability	: 1 hPa / year

#### Solar radiation

Sensor	: Thermopile
Measuring range	: 0...2000 W/m <sup>2</sup>
Resolution	: 1 W/m <sup>2</sup>
Sensitivity	: Configurable in mV/(kW m-2)

#### Rainfall quantity

Sensor	: Tipping bucket with NC or NO configurable contact
Resolution	: Configurable 0.1 – 0.2 – 0.5 mm/tipping

#### Wind speed (HD54.3)

Sensor	: 3-cup anemometer
Measuring range	: 1...65 m/s
Resolution	: 0.1 m/s
Accuracy	: ± 0.14 m/s @ 10 m/s installed on a flat terrain site
Offset	: 0.35 m/s
Gain	: 0.765 m s-1/Hz
Distance constant (63% recovery)	: 2.55 m @ 5 m/s / 2.56 m @ 10 m/s (ASTM D 5096-02)

#### Wind direction (HD54.D)

Sensor	: continuous rotation potentiometric vane
Measuring range	: 0...359.9°
Resolution	: 0.1°
Accuracy	: < 1%
Dead band	: 4° typical, 8° max.
Threshold	: 1 m/s

**Product Information**

**Wireless Data Logger**

**Instrument**

Transmission frequency : Factory configurable at choice among:  
 868 MHz, 902-928 MHz, 915-928 MHz,  
 921-928 MHz or 915,9-929,7 MHz  
 depending on the frequency in use in  
 the country of installation

Transmission range : In open field:  
 300 m (E, J)/ 180 m (U) with internal antenna.  
 > 500 m (E, J, U) with external antenna.  
 (can be reduced in presence of  
 obstacles or adverse atmospheric conditions)

Logging interval : 1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min

Power supply : Non rechargeable lithium thionil  
 chloride (Li-SOCl<sub>2</sub>) internal battery,  
 3.6 V, C format, capacity 8400 mAh

Battery life : 4 years typical (without repeaters,  
 measurement interval 5 s and log  
 interval 30 s)

Operating conditions : -20...+70 °C / 0...100 %RH  
 non condensing

Dimensions : 122 x 120 x 56 mm  
 (excluding sensors and external  
 antenna)

Weight : 600 g approx. (including fixing clamp)

Housing : Polycarbonate

Protection degree : IP 67

**Ordering codes**

HD35ED -  1. MTC.  2.

<b>1.</b>	<b>LCD</b>
0	without LCD
L	with custom LCD
<b>2.</b>	<b>Radio frequency</b>
J	915.9-929.7 MHz (Japan)
E	868 MHz (Europe)
U	902-928 MHz (U.S.A. and Canada) reducible to 915-928 MHz (Australia) or 921-928 MHz (New Zealand)



**Product Information**

**Product overview**

**Sensors and instrumentation**

- Temperature
- Flow
- Fill level / Limit value / Level
- Analysis
- Humidity
- Pressure
- Weighing instruments



**Process instrumentation „Hygienic Design“**

- GHMadapt
- Temperature
- Flow
- Fill Level / Limit value
- Analysis



**Laboratory instrumentation**



**Industrial electronics**

- Multifunctional controller / Displays / Controller
- Transmitter / Signalkodierung
- Isolating converter
- Safety and monitoring devices
- Power electronic
- Calibration and testing



**Measurement data acquisition**

- Data logger / Measurement data acquisition
- Measurement data acquisition
- Renewable energy

