DeltaOHM

◯ Member of GHM GROUP

IoT DATA LOGGERS FOR
LoRaWAN® NETWORKS
LR35…SERIES

◯ **LoRaWAN®** connectivity
Easy to connect to public or private networks

◯ **Data** directly in your hands
Pre-programmed to connect and directly receive
measurement data

◯ **Wide range** of available sensors
And even third party measurements are easy to integrate

◯ Your measurement data is **safe**
Logging function so that you always have a back-up of the data

Data loggers for
LoRaWAN® networks

⟳LR35 series

The **Delta OHM LR35 data loggers series** use LoRaWAN® technology. This makes this system the perfect fit for situations where **Long Range transmission** is a need.
This technology works with an **ultra-low power consumption** - works up to 4 years on a battery! - and a transmission range up to several kilometers.

Different from measurement systems that are being built by using a **sensor** with direct LoRa communication, Delta OHM has chosen to use **data loggers** with LoRa communication**.** This means that the measurement data can be always recovered even in case of failing transmission.
This makes the LR35 series the best choice for a wide range of demanding applications.

Technical Specifications	
Frequency	Available frequencies EU868, US915, AU915. For other frequencies, please ask us for support.
Antenna	Internal antenna for indoor models. Outdoor models always supplied with external antenna.
RF Power	+14 dBm (EU), +20 dBm (US)
LoRaWAN Class	A
Activation method	OTAA (Over-The-Air-Activation) and ABP (Activation-by-Personalization)
Data encryption	AES128
Measuring intervals	1, 2, 5, 10, 15, 30 s / 1, 2, 5, 10, 15, 30, 60 min
Transmitting intervals	Starting from a minimum of 2 minutes - 2, 5, 10, 15, 30, 60 min
Alarm	Acoustic by means of the internal buzzer
Power supply	Lithium thionyl chloride (Li-SOCl2) not rechargeable battery 7…30 Vdc external power supply for LR35W-MB
Battery autonomy	4 years typ. for LR35WH (10 s meas. intv., 2 min transm. intv.) 1.5 years typ. for LR351NB (2 min meas. and transm. intv.) 2 years typical for the other models (5 s meas. intv., 10 s for LR35H, 2 min transm. intv.)
Operating conditions	-20…+70 °C / 0…85 %RH not condensing for indoor models (except LR351NB) -10…+70 °C / 0…85 %RH not condensing for LR351NB -20…+70 °C / 0…100 %RH for outdoor models
Protection degree	IP 67 for outdoor models

Applications

There are numerous applications where the LR35 loggers provide a great solution. Perfect for measurements where it is important to be independent from external power and where high speed transmission is not necessary.

√ Smart cities, smart building, air quality

√ Agriculture, solar, soil

√ Envrionmental conditions

√ Food or medicine storage, production, transport

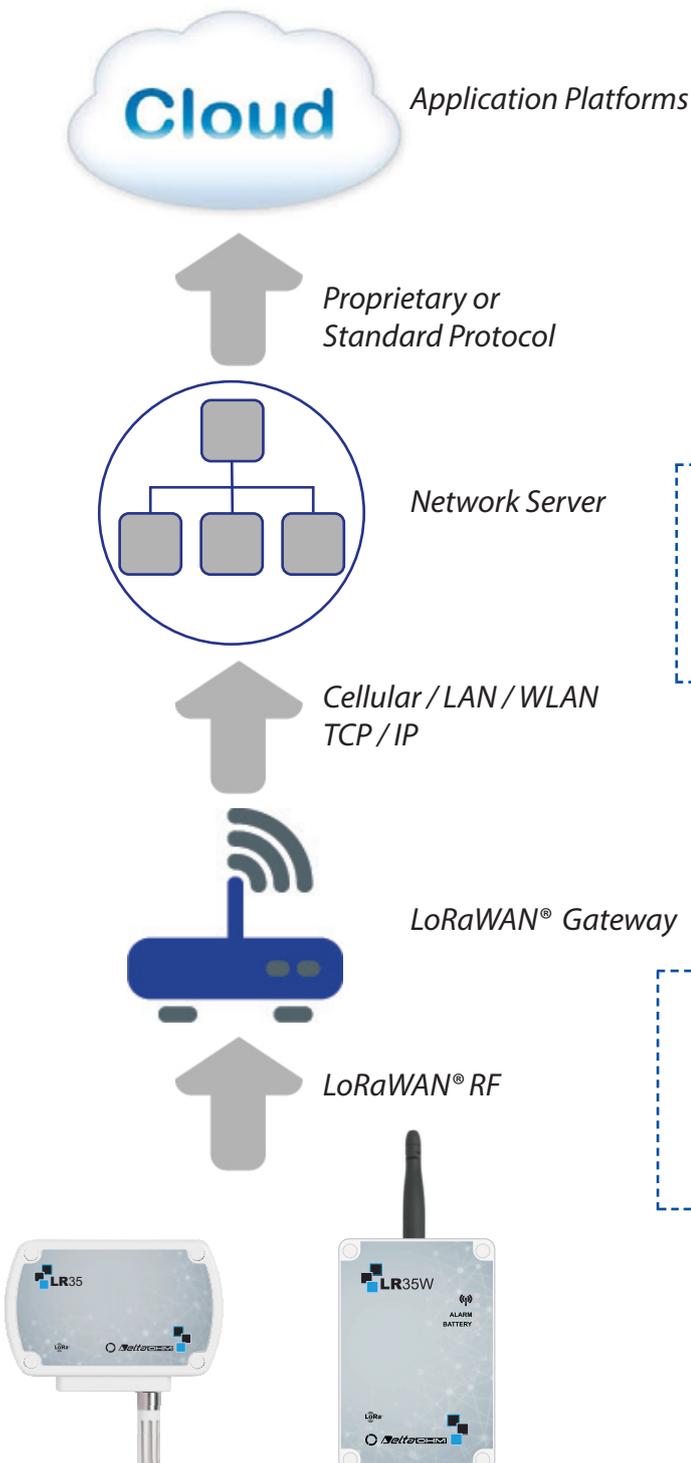√ Solar farms, solar power, sunshine conditions

Architecture of the system

Delta OHM provides a **wide range of loggers** with sensors for all general measurement conditions like temperature, humidity, differential pressure, CO$_2$, PM.
For outside conditions we have specific IP67 loggers with connections to pyranometers, rain gauges and soil moisture.
But also we connect **any other third party measurement** with LoRa as long as it has a standard output: 4-20mA, 0-10V, Modbus-RTU.

HOW
does the system work?

Cloud — *Application Platforms*

Proprietary or Standard Protocol

Network Server

Cellular / LAN / WLAN TCP / IP

LoRaWAN® Gateway

LoRaWAN® RF

In those areas where **LoRa coverage** is available, the loggers can be connected to a (free) public gateway.

Or you can use your own commercial available gateway to connect through WiFi, Ethernet, 3G or 4G.

When the use of a private gateway is preferred, Delta OHM can advise several types and brands to work with.

Loggers of the LR35 series are preconfigured to send data to the free-to-use network server **"The Things Network"**

The data sent by the sensors are visible through a third-party **Cloud application** or the Delta OHM Cloud service **www.deltaohm.cloud**.

For developers, the proprietary protocol (payload) which allows for the development of customized applications is available.
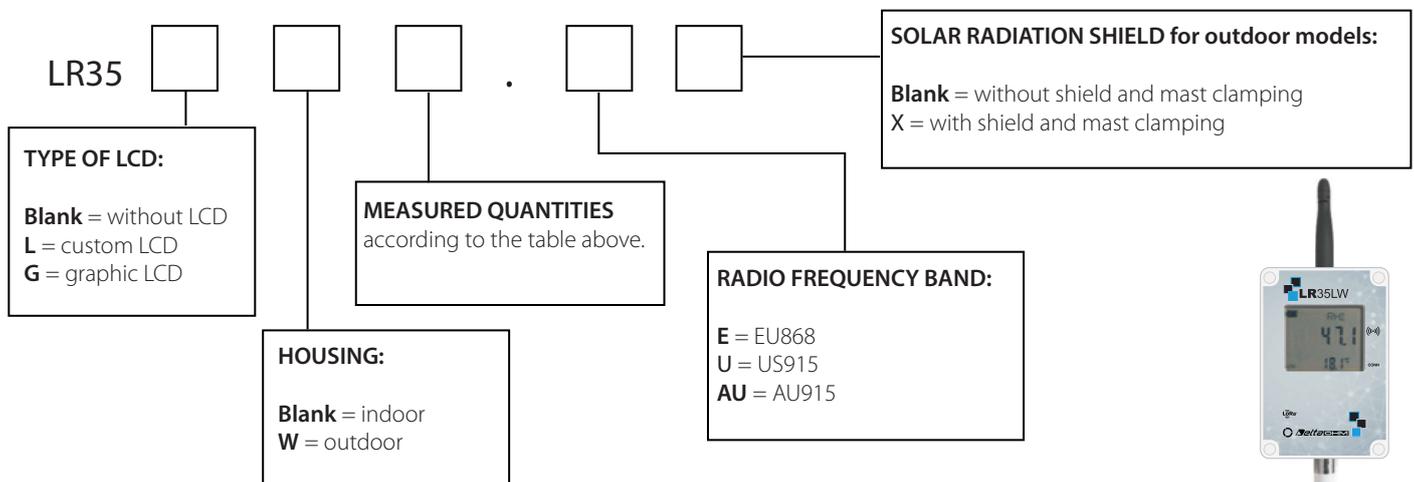
LR35

LR35W
ALARM
BATTERY

Available models

Model	MEASURES						VERSION		LCD (optional)	
	TEMP.	R.H.	ΔP	CO_2 / PM	SOLAR	RAIN	Indoor	Outdoor	Custom	Graphic
LR35[W]1NTC *probe with cable*	NTC	•					•	W	L	
LR35[W]1NTV *integrated probe*	NTC	•					•	W	L	
LR357P/xTC *x = 1 or 3 inputs*	Pt100 Pt1000	•					•			G
LR351N4r1ZTV	NTC	•	•				•		L	
LR354r1Z		•					•		L	
LR351NB				CO_2			•			G
LR35WPM				PM				W	L	
LR35WPTC						•		W	L	
LR35WRTC					•			W	L	
LR35WS/xTC *x = 1 or 3 inputs*	Temperature and soil VWC							W	L	
LR35WDPTC			Level(*)			•		W	L	
LR35[W]H	Analog inputs (3 for LR35H, 4 for LR35WH)						•	W	L Outdoor	G Indoor
LR35W/MB	RS485 Modbus-RTU input Voltage-free contact input							W	L	

(*) Use sensor HP712

- Other models can be available on request.

Ordering codes

LR35 ☐ ☐ ☐ . ☐ ☐

TYPE OF LCD:

Blank = without LCD
L = custom LCD
G = graphic LCD

HOUSING:

Blank = indoor
W = outdoor

MEASURED QUANTITIES
according to the table above.

RADIO FREQUENCY BAND:

E = EU868
U = US915
AU = AU915

SOLAR RADIATION SHIELD for outdoor models:

Blank = without shield and mast clamping
X = with shield and mast clamping

The external probes have to be ordered separately

Example of ordering code for T/RH outdoor model with LCD display and integrated probe - Europe RF - LR35LW1NTV.E

In order to ensure the quality of our instruments, we are constantly re-evaluating our products. Improvements can imply changes in specification; we advise you to always check our website for the newest version of our documentation.

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