DIEHL
Metering

smart in solutions

Diehl Metering/France

Characteristics HRLc-G3 - LoRaWAN

Part number	Designation
3088016	HRLC-G3

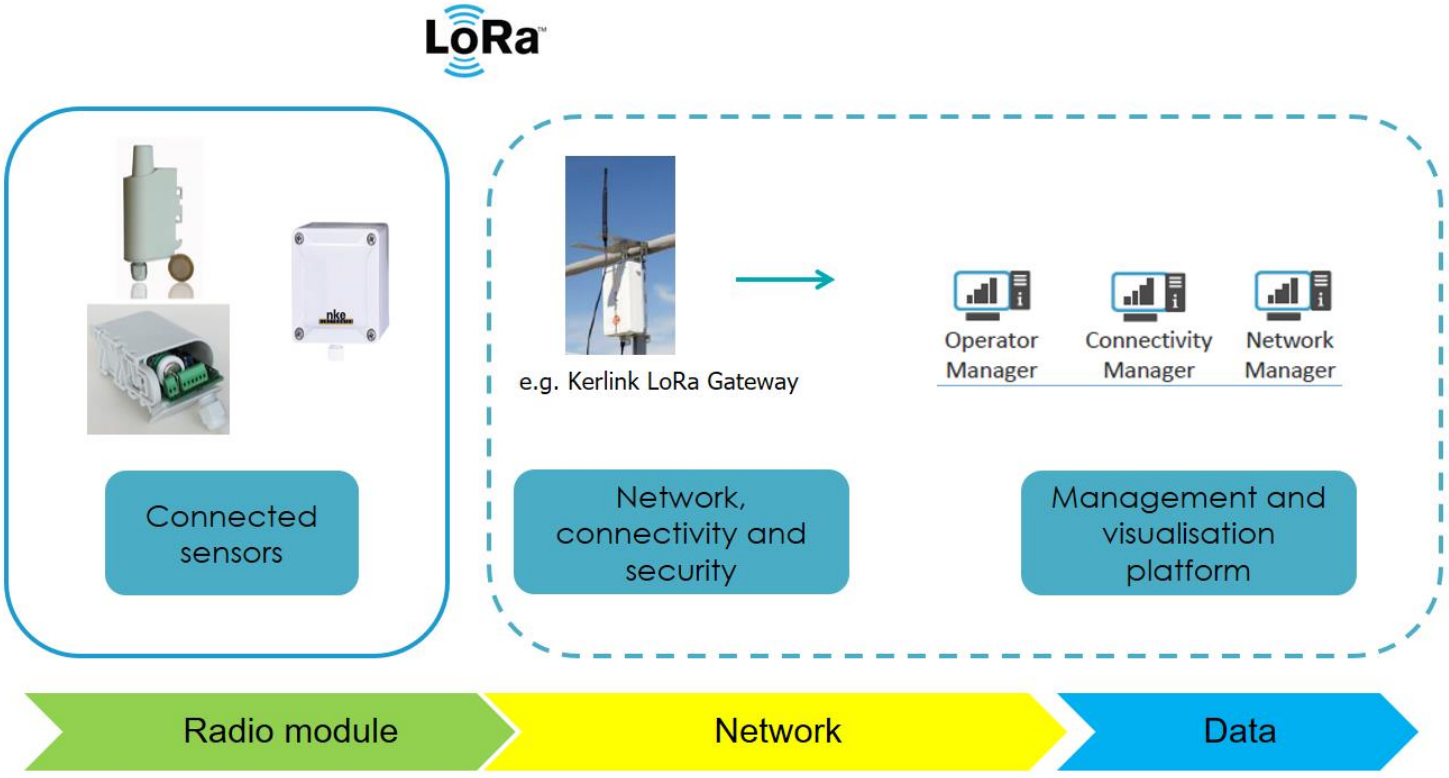
LoRaWAN™

LoRaWAN protocol :

LoRaWAN protocol was defined inside the **LoRa™ Alliance** in order to standardize communication of low power devices in a **Lo**ng **Ra**nge fixed network. LoRa® is a registered trademark by Semtech Corporation.

Frames of 51 bytes length allow to offer an intermediate level of service.

The use of LoRaWAN protocol requires a LoRaWAN public or private network deployment (installation of Base Stations).



2 types of network possible: operated and private (general public / multi-devices)

Once started and programmed in LoRaWAN mode, the radio module will send some « Join Request » frames every 12 hours in order to try to be connected tot he the network. The 1st emission is randomly sent during the first period of 12 hours.

The module must be commissioned in the portal of the network operator (public or private) to be seen in the system.

Parameters	Characteristics
Protocol	Implementation compatibility : A class (2-way spec V1.0.1)
Radio address format	Unique identification number of 4 bytes, delivered by the network when activated on the network
Payload max.	51 bytes (independent of the SF)
Encryption	Yes, AES-128/CTR, encryption key in the module loaded in production
2-way capability	Yes (for the system administration) 1. Open a listening window after the frame emission in order to receive protocol commands. 2. Open predefined listening windows for protocol "tags"
Bitrate	Variable : 0.25 to 50Kbits/s
Frequency of emission channel	868.1 - 868.5 MHz
Duty cycle	1% according protocol, managed by radio driver
Installation parameters	Join Network method (OTAA) -> OTAA : AppEUI
Port number	-> "Port 3" for periodical frames -> "Port 4" for alarm frames

Frame content (DS51):

With the LoRaWAN protocole, HRL-c-G3 module will send frames twice a day.
The entire data set is delivered in a cycle of 14 emissions (7 days).
When a alarm frame is sent, several emissions can be send in order to inform quickly the issue.

Hereafter the information transmitted in LoRa procole

Data \ Transmission Rate	2x per day	4x per week	2x per week	1x per week	2x per month	On Event
Macro Alarms	✓					
Micro Alarms	✓					✓
Timestamp of Emission	✓					✓
Type of Meter	✓					✓
Midnight Index	✓					
Cumulated Positive Pulse during the last 24hours	✓					
Cumulated Negative Pulse during the last 24hours	✓					
24 last hourly consumption values in %	✓					
Summer / Winter Time management status			✓		✓	
Minimum flowrate value during last expired week (Non Zero Value)			✓			
Minimun flowrate value since midnight (Non Zero Value)						✓
Maximum flowrate value during last expired week			✓			
Maximum flowrate value since midnight						✓
Maximum flowrate during last expired month			✓		✓	
Duration of current persistent flow >0 in days			✓			
Duration of current persistent flow =0 in days	✓*					
Number of alternation between forward and backflow during last expired week		✓				
Number of alternation between forward and backflow since midnight						✓
Cumulated backflow volume during last expired week		✓				
Cumulated backflow volume since midnight						✓
Number of seconds between Monday 00h00 and time of frame emission				✓		
Energy consumption in %				✓		
LoRaWAN Statistics				✓		
AMR Serial Number					✓	✓

** Only if E17Z compatibility activated.*