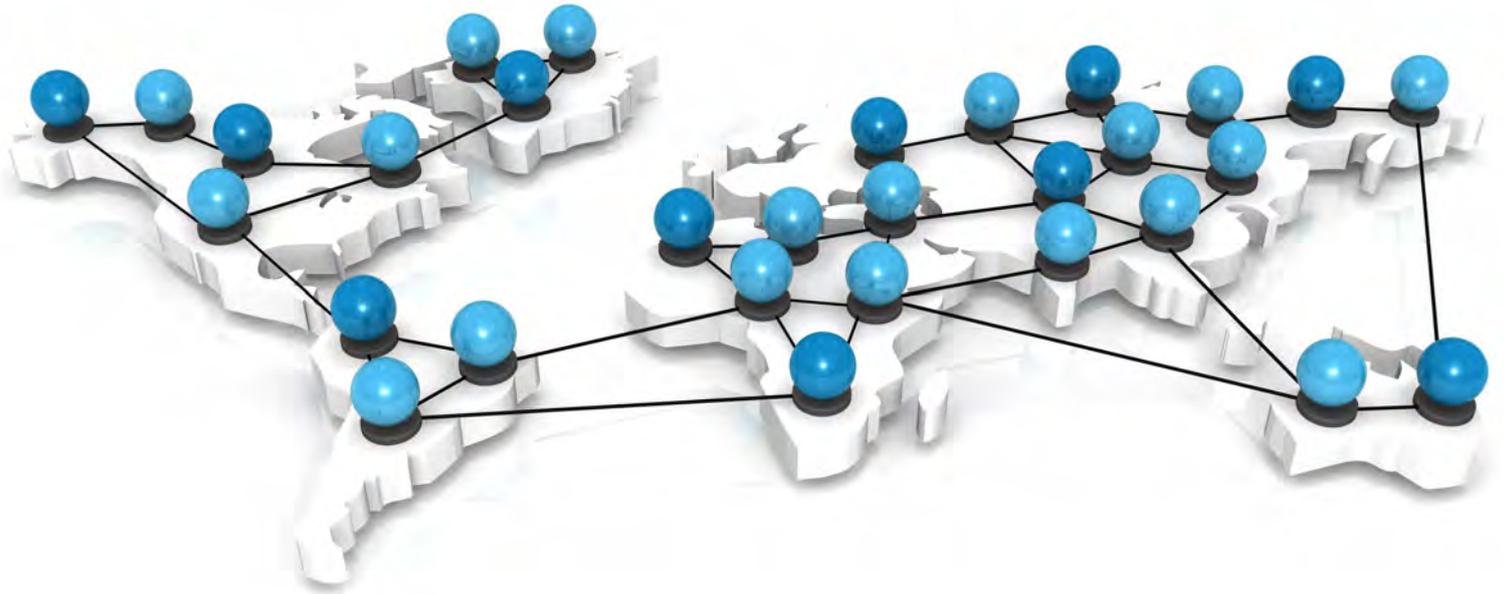


LoRa

Connectivity for the
Internet of Things



We have Connectivity...

We have connectivity all around our countries but power supply is often a limiting factor. To overcome this RF Proximity offers LoRa - an energy efficient wireless network for the Internet of Things. This underlines our goal to provide location-aware solutions for a connected world.

LoRa by RF Proximity

Connectivity for the Internet of Things

What is LoRa?

LoRa stands for Low Power Wide Area Networks: a new energy-efficient network technology. LoRa makes it possible to connect millions of devices that use little data with the internet over long distances with very low energy consumption. The use of RF Proximity network sites provides LoRa with very good national coverage, right into the living room.

Energy Efficient

3G and 4G technology has been developed to transport large volumes of data to and from the Internet. RF Proximity has now developed LoRa to transport small volumes of data. Devices that are connected to LoRa transmit or receive messages at pre-established times to/from the Internet via this network and then go back to 'sleep'. The device consumes power during transmission. Once the data have been transmitted, the device 'listens' for a short period of time to see whether there are any new commands. The device then reverts to its energy-efficient standby mode. A great benefit is that the battery of a device connected to RF Proximity's LoRa can transmit and receive data for 10 years using just 2 penlight batteries!

Insight into the Chain

Business processes are being optimised thanks to RF Proximity's LoRa. The logistics chain comes to mind here. When you know exactly where a certain product is located, when and in which condition, this provides you with valuable information. When a product is underway, this makes it possible to make preparations for its receipt at its destination, for example. By reading this information and acting accordingly, processes are optimised. And that means optimisation not only within your own processes, but also within the entire value chain.

Optimal Support for the Internet of Things

The remote LoRa connection is an important factor in accelerating the development of the Internet of Things. The LoRa protocol for mobile networks was specifically developed to meet the strict security requirements of the Internet of Things (IoT). Devices which use a lot of data can easily be connected via 2G/3G and 4G. Devices which use much less data, because they only transmit and receive data occasionally, only require low data capacity. LoRa is ideal for such usage. Due to the technology of LoRa and the existing M2M connectivity, RF Proximity can offer optimal support for IoT. This is because many devices only need to transmit and receive once in a while and only require low data capacity. This makes it easy to manufacture sensors that are entirely wireless, without any power or internet cables. This saves on installation and maintenance costs, and increases operating reliability.

Two-way Traffic

LoRa enables two-way traffic: communication to and from devices that are equipped with a sensor that is connected to the LoRa network. These sensors can send information via this network and can also receive commands. For example, think of a lock or a gate that has to be opened or closed, or lighting that has to be switched on or off. Remotely transmitting commands to on-site devices is an essential element in the effective operation of and living in the world of the Internet of Things.

M2M & LoRa:

The Differences

	M2M	LoRa
Transmitter Price	> £15	< £15
Battery Life (AA)	1 Month	5 - 15 Years
Data Capacity	12 MB/Sec (4G+)	12 MB/Year
Range	5 - 8 km	3 - 15 km
Roaming	Worldwide	Starting in Northern Ireland in 2016
Localization in Network	No	Yes
National Coverage	Yes	2016

RF Proximity has been successfully supplying M2M connectivity over mobile 2G, 3G and 4G networks for years. Mobile payment devices on a terrace or connections in a car are examples of this. Devices which need a lot of data capacity. However, there are also many applications that only require a very short connection every once in a while and that involve very little data. This includes

applications such as intelligent street lighting or dustbins that emit a signal when they are full. A so-called low-frequency connection to transmit a signal or receive a command - for example an on/off command - every once in a while is sufficient. The additional functionality provided by LoRa enables companies to choose the solutions that suit their business and products precisely.

LoRa Example 1: Exterior Lighting

A small-scale example. Suppose that you want to install garden lighting that you can operate via your smartphone. This means that the garden lighting requires a LoRa connection. This connection must be programmed such that a switch can turn the lights on and off.

RF Proximity provides support for projects of this nature with the help of the LoRa developers kit. After all, you do not want to order thousands of lights or develop an app before you are assured that it works. By developing a prototype and RF Proximity's technical support you know exactly what to expect.



LoRa Example 2: Car Park

In large car parks, the car park's managers often want to know exactly how many spaces are still available and preferably they also want to know where these are located. This results in faster circulation and higher utilisation. This can easily be accomplished by installing a magnetic or infrared sensor below each parking space. This sensor is read by a car park management system via the LoRa network. Because of LoRa, no wiring is required. After all, the battery lasts 10 years. If a 3G network were to be used for this specific application, you would need a relatively large battery, which is more expensive. LoRa's energy-efficiency yields savings in terms of the connection and hardware. Furthermore, the applications are wireless which limits maintenance.

LoRa Alliance

The LoRa Alliance is a global partnership in which telecom operators, product manufacturers and hardware developers join forces. The joint objective is to develop a global standard for Low Power Wide Area Networks: LoRa.

The LoRa Alliance offers the possibility of exchanging information at a global level. This enables us to help companies establish contacts with foreign parties that are actively involved in LoRa. Indeed, all involved parties have a great deal of information about the availability of existing products and sensors. The probability that a product has already been developed somewhere else in the world is high. Thanks to the LoRa Alliance we know exactly what is available and what is not. And that makes a difference to organisations in terms of product development. This way RF Proximity helps companies to quickly bring their products to the market.





Waste Containers

Air Pollution

Public Event

Water

Smoke Detectors

Traffic Control

Electricity

Street Lighting

Gas

Parking

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The benefits of RF Proximity's LoRa:

Energy and Cost-efficient:

The long-life battery and wireless connections save costs and energy.

Internet of Things:

The LoRa protocol for mobile networks has been specifically developed to meet the strict requirements of the Internet of Things.

Insight into the Chain:

Ample opportunities to improve service provision and business processes, and to develop new revenue models.

Two-way Traffic:

Devices are capable of transmitting information as well as receiving commands.

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