

# Tech Data and the IQRF Alliance



Tech Data is a member of the IQRF Alliance, dealing with solutions for the Internet of Things. Alliance partners bring products, services, and solutions that together create a comprehensive solution for smart cities, smart buildings and Industry 4.0. The solutions and products created by the IQRF Alliance are based on IQRF technology.

## **IQRF Technology**

IQRF® is wireless transmission of small data in the non-license band, usually 868 MHz. A network topology is a mesh. Network routing is controlled by the IQMESH protocol and it is a directed synchronized flooding mechanism.

<b>LOW POWER</b> 4.55 nAh/B @ TX 50 nA @ sleep Years on AA battery	<b>UP/DOWN</b> <b>Fast link</b> 20 kb/s Centralized maintenance	<b>SECURE</b> AES-128 Encryption Based on standards	<b>RANGE</b> 500+ m 8 mW Reasonable coverage	<b>ROUTING</b> IQMESH® up to 240 hops Robustness + reliability
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This ensures high reliability of data delivery even in the most remote locations. The range is 500 m in free space, with up to 240 such devices, allowing you to cover many square miles. The transceiver power consumption is low, it allows the device to operate for many years on battery power. Data transfer and connection to the network are encrypted by the AES-128 standard.

## **Projects already working on IQRF**

### **Lighting in buildings and streets**

Lights are an ideal use case for the IQRF. Information about current consumption, the number of faults in the lights and other parameters are collected, and it can be determined directly which light has a problem. Lights can be switched on/off remotely, light intensity and color can be controlled. Various lighting scenarios can be used, such as in cinemas, churches and sports halls.

### **Effective heating of production halls**

Production halls often suffer from poor temperature distributions due to their heating system and the size of buildings. In the production halls, the situation is first analyzed by means of wireless sensors deployed in various parts of the hall without the need to install many kilometers of cabling.

This is followed by several weeks of data collection into a central application where these are evaluated and an optimal solution for saving heating costs is proposed. It consists of both a qualified study and the solution itself that includes remote-controlled infra-heaters connected to a central application. This way you can monitor and control the heating in the hall.

## Monitoring and control of air quality in buildings

Air quality affects the health, comfort, and performance of the building residents. For this reason, an optimal environment should be set. Tens and hundreds of sensors can be installed in buildings, from temperature detectors, relative humidity, through carbon dioxide to dangerous carbon monoxide or radon sensors.

Individual IQRF devices connected to a mesh network can transport messages containing measured values across the entire building to the farthest corners. Data are collected in a central application that stores and processes them. The outputs are, for example, graphs of monitored quantities, forecasts, or, in the better cases, modification of the environment with an air-conditioning.

If there is also an outdoor atmosphere measuring, it is possible to decide whether the outdoor conditions are good enough to have a ventilation effect.

## Parking and traffic analysis

It is possible to find out how parking spaces are used, whether drivers pay for them and whether the prescribed speed and weight of cars are respected. The navigation applications use this information and lead the driver to free space.

## Tracking the state of the railway embankments

Problems with sliding railway embankments have been solved with the IQRF. There are placed thousands of G-sensors, connected to the IQRF network, used for collecting bulk information from all devices. In the central application, controllers see what the situation is in the whole area without having to personally control it.

## Other projects

There are many smaller projects where IQRF is chosen just for its reliability. Heavy industrial plants requiring meeting the harshest conditions are an example of where you can use wireless IQRF technology.

It is possible to monitor and control blade tilt in cooling turbines in power plants or to sensing the temperature of frozen coal wagons going to thermal power plants. Systems for people and equipment localization in industrial halls is another example.

Whenever there is a need to acquire data in bulk across many devices, or in an environment where a common wireless signal has problems or where cables are not allowed, IQRF is a perfect choice.