

What is LoRaWAN?



LoRaWAN sensors and actuators are low-cost, low-maintenance devices that can dramatically improve the control and management of your buildings.

LoRaWAN stands for Long Range Wide Area Network, and it's a type of LPWAN (Low Powered Wide Area Network). The key feature is that it is wireless, while covering large distances and using very low power!

Wireless technologies are nothing new, however, most of them are limited by the distances they could achieve and the need to change batteries every few months.

LoRaWAN manages to solve both these issues by consuming very little power and transmitting great distances. A LoRaWAN temperature sensor transmitting every 15 minutes will make its batteries last up to 10 years and transmit up to 10km (line of sight), and indoors through multiple walls and floors, even in hospitals and other environments with high levels of RFI.

Some LoRaWAN devices are actuators rather than sensors, they allow us to control devices such as radiators or light switches. In the case of 'Vicki' the thermostatic radiator valve, we can create heating zones retrospectively in buildings like schools and hospitals to reduce energy consumption and increase comfort levels.

LoRaWAN sensors are often multi-sensors which provide many readings, especially the air quality sensors, which are important in helping you meet your ESG and CSR commitments.

LoRaWAN energy meters allow us to provide granular metering at a lower cost and with less interruption than ever before. They range from simple clamp-on devices to give us a basic reading of Amps, to full MID approved



LoRaWAN uses unlicensed radio bands (868mhz in the UK and EU) to transmit data. This means you can build a LoRaWAN network of sensors without any ongoing transmission costs, although you may incur data costs for cloud hosting of sensor readings.

It is worth noting that LoRaWAN is not a full stack protocol. The protocol defines the frequency, and basic message structure, addressing, and security, but not the format of the messages themselves. As an analogy, if you phone someone who only speaks French, and you only speak English, you are connected by the same telephone protocols,

electricity meters for use in tenant billing applications - all without the need to pull data cables back to the BMS or EMS.

There are also pulse counting LoRaWAN devices which transmit a count of pulses and LoRaWAN devices which optically read your meter and transmit the live count. All of which will help you meet your SECR requirements and to better understand where and when your energy is being used.

By integrating LoRaWAN sensors into your existing BMS or other HVAC controls we can ensure that your building is controlled by the data, rather than an assumed maximum occupancy and an assumed set of calendars and timers. This will save you money and improve your carbon footprint

but are still unable to share information. This means some translation is required to make sense of the data being transmitted, and that's where our SmartServer technology comes into play!

How will it help me?

The range of sensors at our disposal is growing every week, and we can use these to improve the control of your buildings, either as a low-cost BMS type solution or to augment an existing system with more data.

We currently support the following LoRaWAN Sensors:

- Outdoor temperature and humidity sensor
- 75A 1-phase clamp-on current meter
- 150A clamp-on current meter
- Accelerometer & surface temperature sensor
- Seat occupancy sensor
- Temperature and humidity sensor
- Temperature and humidity sensor probe (Industrial)
- Vibration sensor (rolling ball type)
- Vibration sensor (spring type)
- People counter (break beam)
- CO₂, temperature and humidity sensor
- CO₂, temperature and humidity sensor, light level and PIR
- Room occupancy sensor
- Temperature, humidity, CO₂, VOC, CO, PM2.5, PM10, oxygen, barometric pressure, sound level
- 'Vicki' TRV - provides wireless control of a radiator valve
- Temperature, humidity, PIR, light, TVOC, CO₂, pressure
- Temperature, humidity, PIR, Light, TVOC, Barometric Pressure, CO₂, HCHO, PM2.5, PM10
- Temperature, humidity, PIR, Light, TVOC, Barometric Pressure, CO₂, O₃, PM2.5, PM10