



Smart buildings, connected facilities management

IoT Product Guide

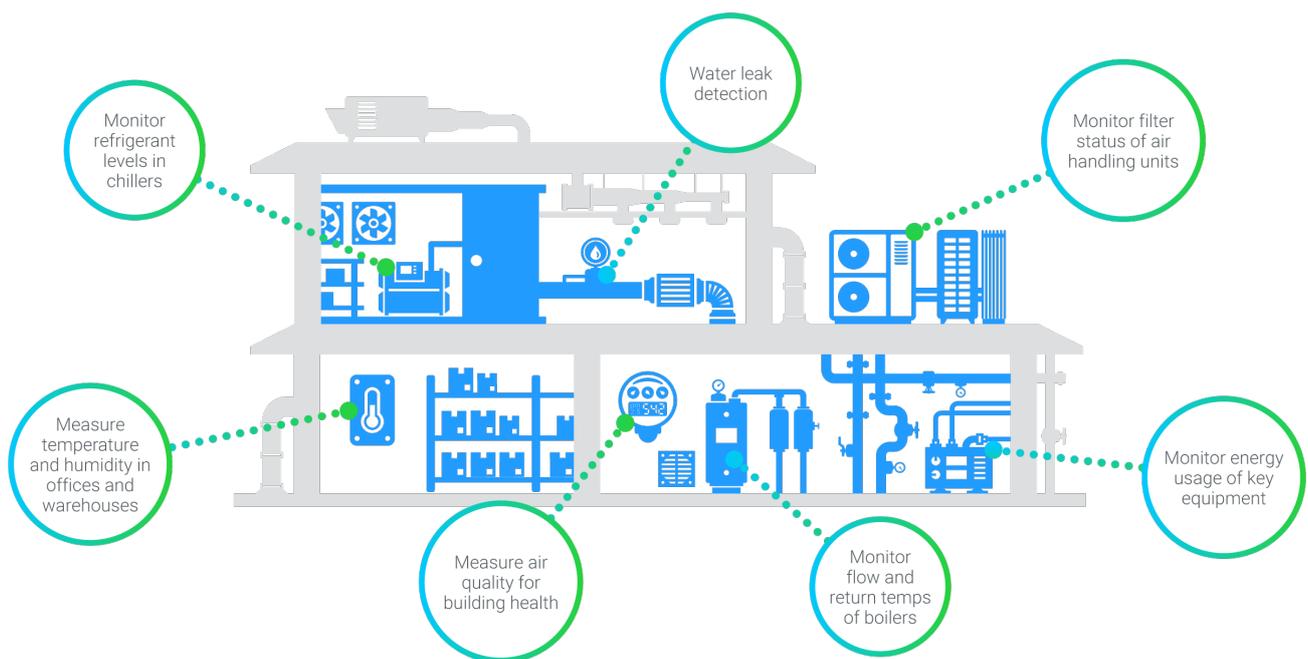
Powered by **simPRO** IoT



Through a comprehensive IoT offering, facilities management companies have the ability to make buildings more sustainable, more cost efficient and improve overall building wellness.

Easily installed sensors supply near real-time data about building asset performance, enabling informed decisions to be made based directly on the condition of the asset.

Smart buildings are created when things such as water, power and cooling systems are connected through a network of sensors powered by simPRO IoT. These sensors transmit data via a gateway to an IoT dashboard where alerts can be generated to allow for appropriate corrective action.



Explore the solutions available for your smart building needs and experience the benefits of implementing connected facilities management today.

Temperature and Humidity Monitoring



With the simPRO IoT Temperature and Humidity Node, measure ambient temperature and relative humidity levels within specified building environments to avoid conditions that could potentially cause discomfort, or dampness leading to mould.

Battery powered

Used to monitor

- Ambient temperature
- Humidity and dampness

Common installation points

- **Food Storage:** Install inside food storage or display areas to ensure that temperatures remain constant for food safety measures.
- **Chiller / Cold Room:** Install within a chiller to ensure temperatures remain constant for stored items.
- **Server Room:** Install within a server room to ensure temperatures are kept cool enough for optimum server performance.
- **Office Wall:** Install on an office wall to maintain room temperature and ensure the comfort of staff.
- **Residential Wall:** Install on walls within a home to detect levels of humidity that could potentially cause mould.
- **Switchboard / Electrical Box:** Install within a switchboard to measure temperature and ensure safe levels are maintained.
- **Warehouse storage:** Install in warehouses to protect items that could spoil or go rancid as a result of temperatures rising above or dropping below specific parameters.

Common installation locations

- Hotels and leisure spaces
- Hospitals and higher care facilities
- Commercial offices
- Social housing
- Schools

Indoor Environmental Monitoring



Measure indoor environments for noise levels, temperature, humidity, atmospheric pressure, light, CO, CO₂ and VOCs and track whether conditions move outside set parameters, thus ensuring environments stay in their optimum conditions.

Requires mains power | Powered over ethernet optional

Used to monitor

- Sound pressure
- Temperature
- Humidity
- Light and illumination
- CO and CO₂
- VOCs (volatile organic compounds)

Common installation points

- **Residential and commercial rooms:** Install on walls within rooms to detect air quality, temperature and humidity levels that could potentially cause mould.
- **Hospital ward:** Install on the wall of a ward to measure air toxicity and maintain air quality.
- **Plant rooms:** Install within a plant room to maintain and ensure air quality does not limit the operations of machinery and air handling units.

Common installation locations

- Hotels and leisure spaces
- Hospitals and higher care
- Commercial offices
- Social housing
- Schools

Point Temperature Monitoring



Measure point temperature variations in critical equipment to reduce the risk of downtime and monitor performance. This monitor can measure temperature at up to three external locations. By attaching temperature probes (length options: short (1m), long (2m) length options), temperatures can be measured from -55°C to 125°C.

Battery powered

Used to monitor

- Point temperature at up to three external points

Common installation points

- **Machinery:** Install temperature probes to measure machine temperature and ensure equipment is running in optimal conditions. Reduce equipment downtime to protect your manufacturing line from critical failure.
- **Chiller room:** Install temperature probes in multiple locations of a chiller room to ensure a consistent temperature is maintained, allowing contents to be kept in the best condition and preventing the loss of perishable items.
- **Boilers and hot water systems:** Install the temperature probes on the outside or inside of a hot water tank to avoid hazardous temperatures and avoid damaged property. Maintain hot water temperatures to identify any risk of infection within hospitals.
- **Office spaces:** Install within office environments to ensure air conditioning is maintaining consistent temperatures across large areas.
- **Pipes:** Install nodes within pipes to maintain liquid temperature.
- **Heating flow and return system:** Install in a heating flow and return system to ensure consistent temperatures are maintained.
- **Water storage:** Install within a water storage vessel to maintain temperatures.

Common installation locations

- Hotels and leisure spaces
- Hospitals and higher care facilities
- Commercial offices
- Social housing
- Schools

Water Leak Detection Monitoring



Measure the presence of water leaks and excessive moisture. Once a leak is detected, the device immediately alerts the system about the risk of flooding. The node is designed to be small and water resistant so it can be installed in any location in either a vertical or horizontal mounting.

Battery powered

Used to monitor

- Water presence
- Moisture levels

Common installation points

- **Toilet washroom blocks:** Install on toilet waste drains to monitor potential leaks.
- **Key plantroom assets:** Place in plant rooms on pipes carrying water to monitor leaks.
- **Unoccupied locations:** Prevent leaking within spaces that have limited or low access by monitoring for potential water leaks in real time. This is ideal for spaces that have limited or low levels of access.
- **Vacant sites:** Install within a vacant site to prevent flooding when it can't be occupied.
- **Hot water system / boilers:** Install on a boiler to be alerted of any water leaks.
- **Chillers / cold rooms:** Install within a chiller to be alerted of any water leaks or spillage of perishable liquids.

Common installation locations

- Industrial warehouses and manufacturing spaces
- Hospitals and higher care homes
- Commercial kitchens and hospitality establishments
- Residential houses and apartments blocks
- Hotels and accommodation
- Schools
- Retail stores
- Commercial buildings

Airflow and Air Pressure Monitoring



Measure air pressure within ventilation systems, and make decisions on air conditioning filter replacements before visual inspections are required.

Battery powered

Used to monitor

- Airflow (advanced options available)
- Air pressure

Common installation points

- **HVAC system filters:** Install within air conditioning systems to identify differences in pressure for ventilation. Filters can then be replaced before they cause uncomfortable temperature fluctuations.
- **HVAC system fans:** Install near a fan within an air conditioning system to identify faulty airflow and ensure fans maintain optimal performance.
- **Gas boilers/hot water systems:** Install within a gas boiler or hot water system to capture any change in pressure and avoid hazardous conditions.
- **Fuel cells:** Install within a fuel cell to measure fluctuations in air pressure and ensure optimal performance.
- **Heat recovery systems:** Install on a heat recovery system to measure and maintain consistent ventilation and airflow.

Common installation locations

- Residential buildings
- Commercial offices
- Hotels and leisure spaces
- Hospitals
- Social housing
- Schools

Refrigerant Pressure Monitoring



Effectively monitor the pressure of chiller refrigerant. The refrigerant monitoring sensor can be easily connected to existing refrigerant system values via a pressure transducer. It allows for easy measurement of system pressure to ensure the system is not leaking refrigerant and that refrigerant has not dropped below critical levels. This prevents potential refrigerant leak, reducing the associated compliance costs and optimising operational performance costs.

Battery powered

Used to monitor

- Air pressure

Common installation points

- **Chillers / cold rooms:** Install within a chiller to measure and maintain air pressure, and provide awareness of potentially malfunctioning equipment.
- **Commercial refrigerators:** Install within a commercial refrigerator to measure and maintain air pressure, and provide awareness of potentially malfunctioning equipment.

Common installation locations

- Plant rooms
- Hospitals
- Hotels and leisure centres

Electrical Output Monitoring



Measures a device's electrical output in two analogue modes, current and voltage. This node can be used to measure the operational status of machinery and equipment.

It can be used to interface with existing systems and sensors, using widely recognised standards such as 4-20mA and 0-10V, to convert local data into meaningful insights of equipment performance and status, which is then pushed to simPRO IoT Dashboards.

Requires mains power to power the node

Used to monitor

- Equipment status
- Equipment performance

Common installation points

- Switchboard
- Cabinets in plant rooms
- Lift

Common installation locations

- Plant rooms

AC Current Monitoring



Measure the AC current flowing through a device that is connected to the electricity grid. This node can be fitted with up to six current clamps, allowing for single phase or three phase assets to be simultaneously measured.

With the AC Monitoring Node, you can quickly identify equipment operational status and diagnose irregularities that result from excessive electricity consumption. This can aid in identifying potential problem assets that are consuming a relatively large amount of energy and may be in need of maintenance or replacement.

Requires mains power to power the node

Used to monitor

- Chillers
- Boilers
- Pumps

Common installation points

- Control panels

Common installation locations

- Plant rooms

Pulse and Open/ Closed Monitoring



Measure the status of a device including, open contact monitoring, closed contact or pulse counting. Identify onsite consumption across water and electricity usage by interfacing with compatible meters.

This node is typically used in two main scenarios:

- **Pulse counting:** For utility consumption such as water and electricity. Pulses are converted into consumption data on simPRO IoT Dashboards based on predefined rules.
- **Local system faults:** State changes are picked up by the node in either Normally Closed or Normally Open configuration and published to our dashboards as system faults.

Requires mains power to power the node

Used to monitor

- Utilities consumption
- Local system alerts for critical kit - UPS, Transformers, Pumps

Common installation points

- Control panels
- Plant equipment

Common installation locations

- Plant rooms

Send data to your IoT Dashboard with the IoT gateway



Gateways connect the data captured from nodes and sensors to an intuitive dashboard, allowing for easy site and asset monitoring in real time. Once plugged into mains, the gateways instantly establish an RF based private network to the nodes and sensors on-site.

Data from the sensors is then pushed to the simPRO IoT platform via a GSM sim card or LAN connection within the gateway where it is transformed into customer facing insights on simPRO IoT Dashboards.

Gateways connected via sim card are not reliant on any local IT networks and do not require to bypass firewalls. As such, the FM provider can quickly develop a private 'FM Network' across the site.

- The gateway transmits node data directly to the simPRO IoT Dashboard. Here, sensor data for multiple sites can be managed from a single layered dashboard with widgets and reporting options to suit a range of requirements.
- Alerts can be set to triggered if an asset is outside a predetermined parameter.
- If a compatible job management software system is in use, alerts can automatically create work orders for further investigation and resolution.

Common installation points

- Gateways are typically positioned in the centre and/or the high floor of a site.
- Although exact requirements are dependent on the specific site layout/building fabric etc, real world installs have shown one or two gateways can typically cover a multi-story building (up to ten storeys).
- Within a 1.5 km radius of your nodes and sensors (depending on obstruction) to ensure data is collected and sent to your dashboard in real time.
- Further gateways can be added for enhanced coverage and redundancy.



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