Protect Your Property & Tenants

Detect leaks and monitor temperature & air quality:

KAIROS

> **Save money on your utilities bills**

> **Prevent water damage**

> **Minimise tenant inconvenience & complaints**

Reduce unforeseen repair costs

Keep insurance premiums low

Increase tenant satisfaction

Did You Know? Claims for escape of water costs UK Insurers £2.5 million per day

Detect   Protect   Maintain

Smarter operations = reduced wastage, better experience for tenants & a more sustainable future

Foresolutions & The Housing Sector

Welcome to Foresolutions, your trusted technology partner for housing organisations.

With many different operational challenges faced on a daily basis, if you operate multiple occupancy housing then technology is your friend! At Foresolutions we have been working on our IoT & tracking platform in recent years to offer a wealth of different sensor technology to help quickly identify potential problems by gathering live data across your site(s) and providing full real-time access to data through our Foretrack Connect platform.

The Impact of Undetected Water Leaks In Properties

Water damage to your property from a leaking appliance or hot water tank can be extremely costly for you and disruptive for your tenants. Many incidents of water damage are a result of a slow build up from small leaks that go undetected for too long. An early warning of a leak can help prevent extensive damage to plaster and paintwork and reduce both the time and cost of repair. Claims for escape of water costs UK Insurers £2.5 million per day, so this is an all too common issue.

Getting On The Front Foot With Early Detection

Working with leading sensor manufacturer Kairos, Foresolutions is the sole UK supplier of the innovative Noah Water Leak Sensor. Placed under appliances like washing machines and dishwashers, Noah quickly detects water spillage and sounds an alarm at the premises. Its wireless connection to the Kairos Gateway then sends a message to your smartphone, telling you which appliance in which premises has the leak, allowing you to quickly call in your repair company to resolve the issue.

Air Quality Plus Temperature & Humidity Monitoring

Sensors that monitor temperature and humidity plus devices that detect the presence of CO_2 and carbon monoxide can also be part of your IoT solution managed through Foretrack Connect.

The Noah Multifunction Leak Sensors, along with the suite of Kairos monitoring devices, operate on a LoRaWAN network and require LoRa gateways to ensure coverage. The good news is that the LoRa protocol works over long ranges and with greater penetration than Wi-Fi; so, only a few gateways are required to blanket your community.

Using Kairos to detect water leaks and monitor the environment prevents extensive damage and the associated costs, whilst putting tenant consideration at the forefront of your operations.

1 Devices Install In Minutes

2 Works Over Long Distances

3 10 Year Battery Life

Water Leak Detection - Noah Sensor

For moments when seconds matter

The Noah Multifunction Leak Sensor constantly monitors for the presence of water where you don't want it! Several wide-area leak detection membrane formats are available for your specific use case: water heaters, HVAC, washing machines, and refrigerators, to name a few. Each sensor communicates through several floors as well as across a multifamily property due to the use of the high-penetration, long-range, low-power properties of the LoRa radio protocol. Coupled with the Moses Advanced Water Meter, you'll be able to see where water is, and isn't, on your property. Early detection can save thousands in damages.

MEMBRANE FORMATS AND EXAMPLE INSTALLATION LOCATIONS

Wireless Module
- Small leaks detected in seconds
- High signal penetration[1]
- Long-range[2]
- Battery powered for up to 10 years
- Temperature and tamper data collected as well as leak data
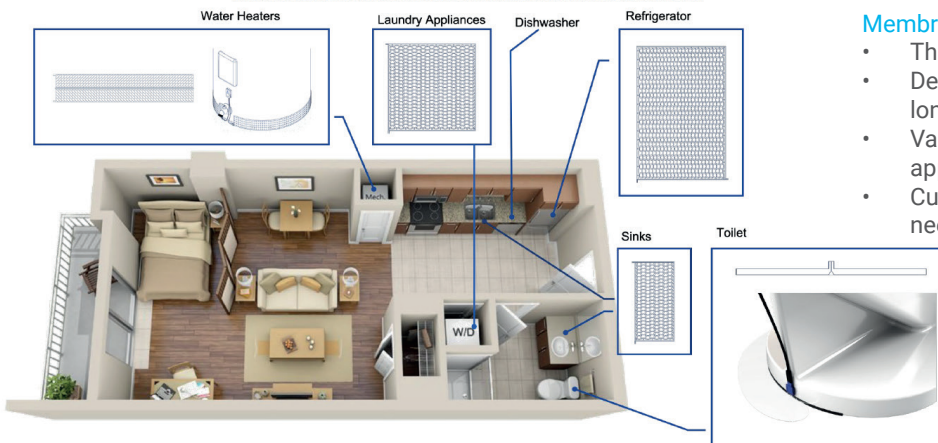
Membranes
- Thin, flexible, wide-area membrane
- Designed for reuse, durability, and longevity
- Various formats available based on application
- Customisation available to meet install needs

Certification
IPX5 - weatherproof (wireless module)
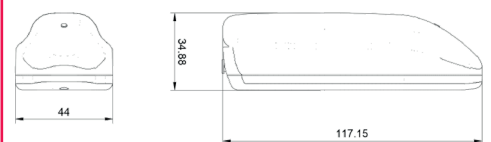RoHS 2011/65/EU
FCC/IC Certified
LoRaWAN 1.0.2

Kairos Customer Statement from Cassi Harbuck, Regional Director, Palomar Properties

After having our Kairos equipment installed, we have seen the benefit far outweigh the upfront cost. We have seen it prevent numerous major HVAC leaks from an upstairs to a downstairs unit allowing us to get in and make the necessary repairs before flooding to the downstairs unit, which on average would cost us $3000 depending on the severity of the leak. The team has been highly professional and fun to work with. Not only are we getting a great product, but we are getting educated in the process of how it can save our bottom line in the long run. We are excited to continue our partnership in placing the equipment in all of our other communities. Out of our ten communities, we already have two done and have seen the benefit in just a short time.

Dimensions

[1] Five or more floors in a commercial high-rise, typically
[2] Thousands of feet, typically

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Water Leak Detection - Moses Meter

For moments when seconds matter

An advanced water meter designed to bring you peace of mind from sudden flooding and long-term water intrusion. Not only does submetering and leak detection have the potential to increase income, it also conserves our most precious resource.

Each element of Moses has been thoughtfully considered. The lower housing is manufactured as one piece to create a more robust, more serviceable, and more efficient meter. An array of high-quality sensors continuously measures your buildings plumbing vitals accessible at app.kairoswater.io. You can even define real-time alerts for potential leaks based on flow or pressure, low temperature, and even tampering alerts to know when the meter is being serviced.
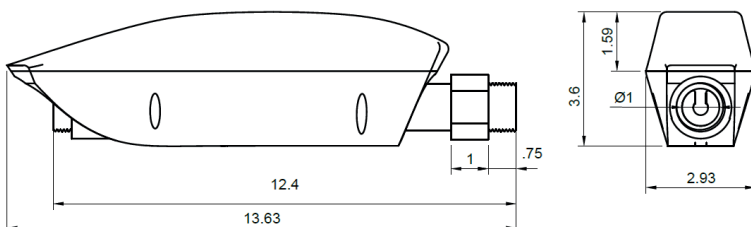
Certification
- IP67 / MIL-STD-810H
- NSF/ANSI 61 & 372 – Drinking Water System standards for Health Effects & Lead Content
- RoHS 2011/65/EU
- FCC-Part 15 compliance
- ANSI/AWWA Standard C715-18
- LoRaWAN 1.0.3

Features

- Completely cordless and wireless
- 10-years of battery life
- High signal penetration[1]
- Long range[2]
- Automatic, configurable remote shut-off valve
- Real-time plumbing vitals including flow rate, temperature, and pressure reported to app.kairoswater.io
- RESTful API for integration with billing and monitoring systems

[1] Five or more floors in a commercial high-rise, typically
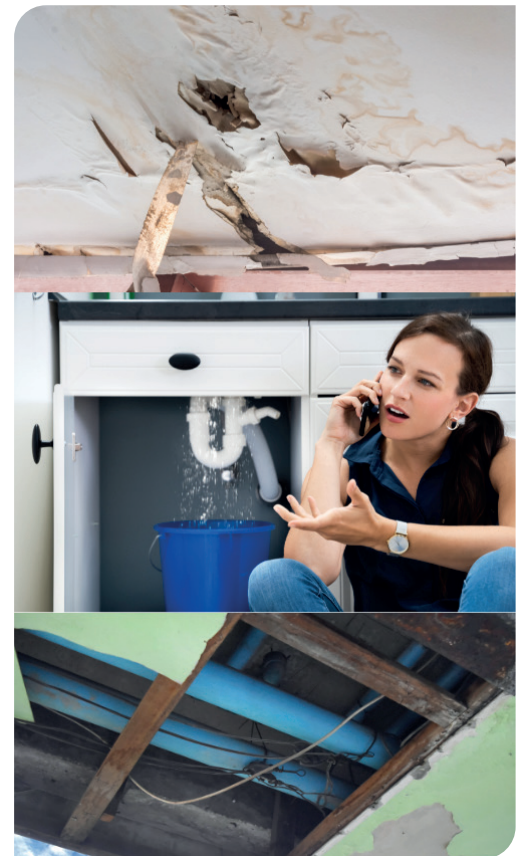[2] Thousands of feet, typically

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Temperature & Humidity Detection

For optimal energy efficiency

The Temperature & Humidity sensor is a Long Range LoRaWAN Sensor. It includes built-in temperature & humidity detection and has an external sensor connector to connect to external sensors such as Temperature Sensor etc. This allows users to send data and reach extremely long ranges.

It provides ultra-long range spread spectrum communication and high interference immunity whilst minimising current consumption. It targets professional wireless sensor network applications such as irrigation systems, smart metering, smart cities, building automation, and so on.

- Built-in 2400mAh non-chargeable battery which can be used for more than 10 years.

- Fully compatible with LoRaWAN v1.0.2 protocol, that can work with standard LoRaWAN gateways.

Features

- Wall mountable
- LoRaWAN Class A protocol
- AT Commands to change parameters Remote configure via LoRaWAN Downlink Firmware upgradable via program port
- Built-in 2400mAh battery for over 10 year use Built-in Temperature & Humidity sensor
- Optional External Sensors
- Tri-colour LED to indicate status
- 3200 set sensor record with time stamp
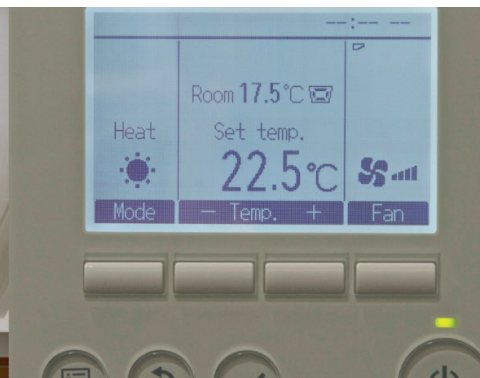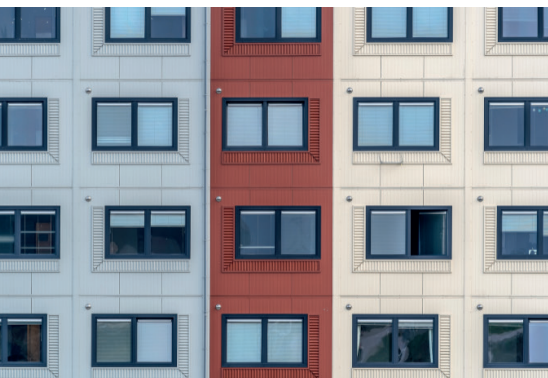
Sensor Spec:

Built-in Temperature Sensor
- Range: -40 ~ +80 °C
- Accuracy: ± 0.8°C
- Resolution: 0.01°C

Built-in Humidity Sensor
- Range: 0 ~ 99.9% RH
- Accuracy: ± 10%RH (10 ~ 90%RH)
- Resolution: 0.04% RH
- Response Time: < 5s

External Temperature Sensor
- Resolution: 0.0625 °C
- MAX ±0.5°C accuracy from -10 to 85°C
- Max ±2°C accuracy from -55 to +125°C
  Operating Range: -55 °C ~ 125 °C

LoRaWAN Air Quality Sensor

For healthier living conditions

The Kairos KIAQ is a LoRaWAN Air Quality Sensor for use within an IoT solution. It is designed to measure the surrounding environment parameters including:

TVOC(Total Volatile Organic Compound), eCO2(equivalent CO2), Temperature and Relative Air Humidity, and then data is uploaded to an IoT server via LoRaWAN wireless protocol.

IAQ (Indoor Air Quality) is a very important factor for indoor activity and human life.

VOC (Volatile Organic Compound) are emitted as gases from certain solids or liquids and they are the main source for poor indoor air quality.

KIAQ sets the trend for IAQ measurement and, like all other TVOC sensors, it requires calibration for more accuracy measurement on TVOC and eCO2. KIAQ supports a temperature and humidity alarm feature, with the user being able to get an alert for instant notice. It also provides a Datalog feature, where the user can retrieve the sensor data from LoRaWAN commands.

KIAQ is powered by a ER18505 Li-SOCI2 battery. The battery can run 7 ~ 10 months depending on the network environment and working mode. The battery is easily replaceable by opening the enclosure.

Each KIAQ is pre-loaded with a set of unique keys for LoRaWAN registration. Simply register these keys to a local LoRaWAN server and it will auto connect after activation.

Sensor Spec:

Temperature Sensor
- Range: -40 ~ +80 °C
- Accuracy: ± 0.3°C
- Resolution: 0.01°C

Humidity Sensor
- Range: 0 ~ 99.9% RH
- Accuracy: ± 3%RH (10 ~ 90%RH)
- Resolution: 0.04% RH
- Response Time: < 5s

External Temperature Sensor
- Resolution: 0.0625 °C
- MAX ±0.5°C accuracy from -10 to 85°C
- Max ±2°C accuracy from -55 to +125°C Operating Range: -55 °C ~ 125 °C

eTVOC
- Range: 0ppb up to 29206 ppb

eCO2
- Range: 400ppm up to 32768 ppm

Features

- LoRaWAN 1.0.3 compliant
- Monitor TVOC and eCO2
- Alarm for TVOC, CO2 monitoring Monitor Battery, Temperature & Humidity Firmware upgradable
- Wall Mountable
- Configurable via LoRa or UART
- ER18505 Li-SOCI2 Battery
- Auto adjust timing
- Remote data retrieval

CO Sensor

Detection of indoor gas leakages

**Detect CO and other gases released in the non-combustion phase
Detect whether the humidity of the environment has reached the combustion index. Once it has reached the target, the sensor will give early warning.**

In the following non-combustion stage, smoke is released, which may contain CO2, CO and other gases. The sensor will alarm and detect the temperature after combustion.
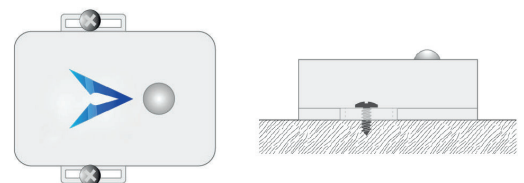
Product Highlights

- CO sensor
- High sensitivity, high resolution, detection range 0~1000ppm
- Low power consumption, working voltage 3V, current <5mA
- Using the environment: - 20 to +50 degrees Celsius; 15% ~ 90% RH
- Output UART or analogue voltage
- Cross-threshold report, plus periodic report every 2 hours (the threshold and the periodic report cycle are both user-configurable)
- OTA (Over The Air) firmware upgrade, including to upgrade loader and application images
- Analogue and digital interface for external sensor connectivity and pulse counting (MPI)
- Low power consumption, 5 – 10 years of battery operational life with 2 x AA Li-SOCI2 Battery
- Optional DC 5V power source
- Integrated internal antenna, or optional external SMA/IPEX antenna
- Up to 5km reach in NLoS (Non-Line-of-Sight) and up to 18km LoS (Line-of-Sight) environments
- IP67 enclosure rating

Sensor Spec:

- Range: 0-1000 PPM
- Resolution: 0.5 PPM
- Response time (T90) : <50S 50S
- Working voltage 5V, Current < 5 ma
- Using the environment: -20 ▯ to 50 ▯;15% ~ 90% RH
- Output: UART or analogue voltage
- Cross-threshold report, plus periodic report every 2 hours (the threshold and the periodic report cycle are both user-configurable)
- Integrated internal antenna or external 1/2 wavelength whip antenna (SMA)
- 60mm x 100mm x 35mm
- IP rating of IP67
- -40C to +85C operating temperature
- 120g in weight
- 3.0 – 3.66 VDC supply voltage
- Replaceable 1 or 2 AA 3.6V Li-SOCI2 Battery; DC 4.5V – 12V optional

Install Guide:

Below diagram shows the general installation guide for KPS-CO , it can be installed on any flat and solid surface, the lid is contacted with the surface and fixed via 2 self-tapping screws:

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