

Noah User Manual

Important Safety Information

- Please read, follow and keep these instructions.
- Please heed all warnings.
- Please install in accordance with the manufacturer's instructions.
- Do not install near any apparatus that produces temperatures exceeding 180 °
- Protect the cable and connectors by installing them out of the way of high traffic areas and avoiding locations where the cable may be pinched and severed.
- Only connect Kairos membranes designated for the Noah product being installed.
- Do not place this apparatus on a bed, sofa, rug or similar surface.
- Do not place this apparatus on an unstable surface.
- Operating temperatures for this product should not exceed -4°F to 131°F (-20°C ~55°C)
- Storage temperatures should not exceed -40 °F to 185 °F (-40°C ~85°C)
- Do not submerge the device under water. It is designed to be weatherproof (IPX5) to withstand being sprayed by water.

Introduction

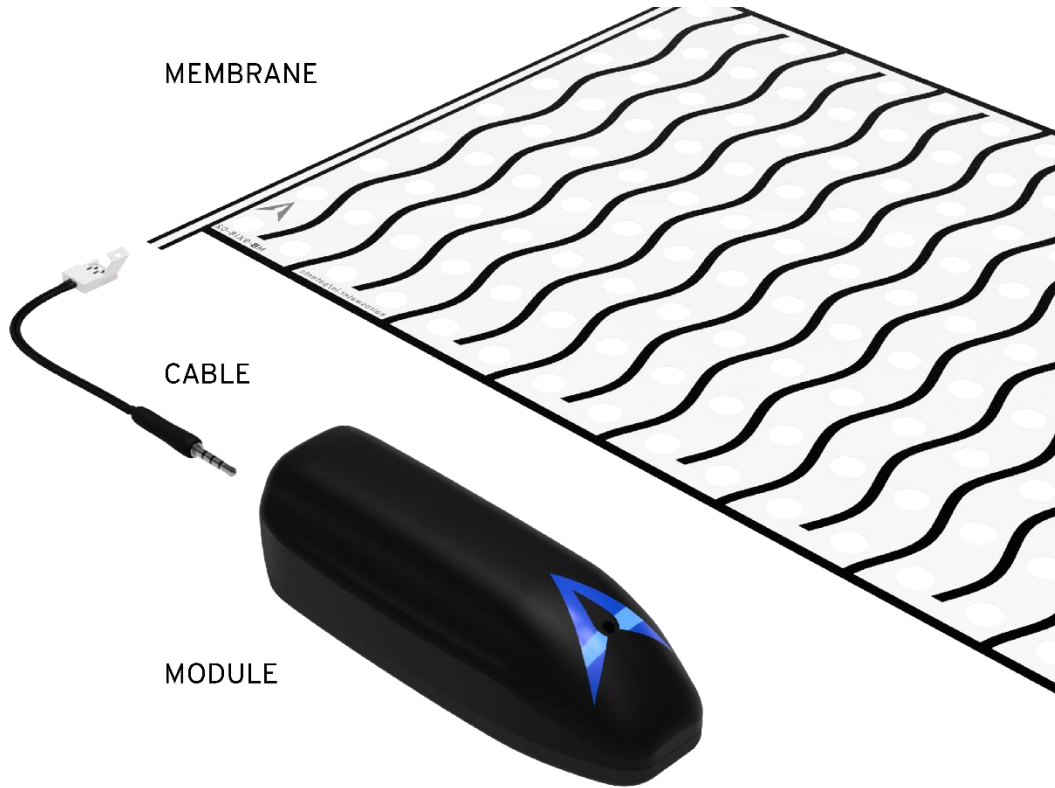
The Noah Multifunction Leak Sensor and Noah Membranes are designed to monitor the presence of leaks, temperature, and tampering for many years over long distances using a long-range, low-power radio technology known as LoRa. These sensors are primarily designed for use in:

- Smart Buildings / Facilities (Commercial Office Space, Warehouses)
- Commercial Real Estate (Apartments, Condominiums)
- Single Family Neighborhoods (HOAs)
- Single Family Homes
- Rental Properties

Features

- Real-time alerts set-up in the Kairos application (kairoswater.io)
 - Configurable text message notifications
 - Configurable mail notifications
- Visible and audible alerts from onboard LED and buzzer
- 10-yr battery life under normal conditions 9
 - Normal conditions =constant 70 deg F, no alerts (tamperers, leaks, high/low temperatures), device remains on the entire time
- Replaceable 3.6V Lithium Thionyl Chloride battery

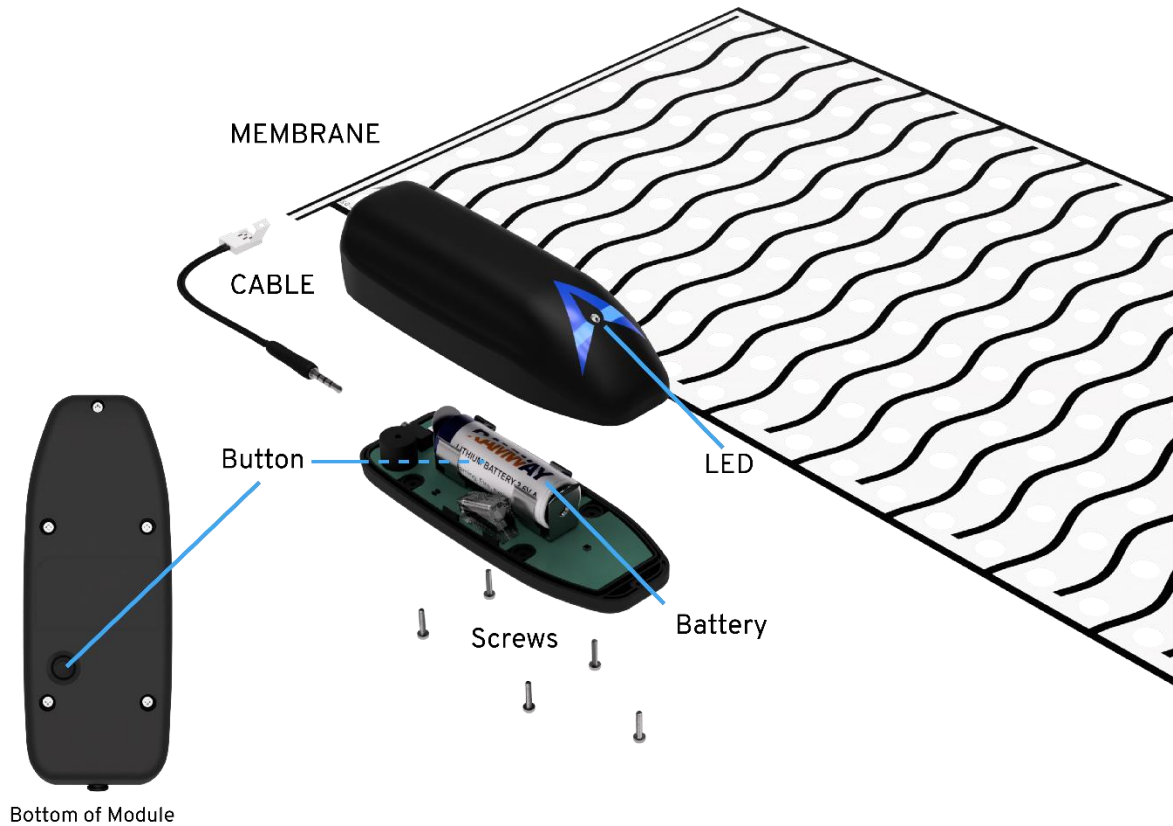
Package Contents



- One (1) Noah Multifunction Leak Sensor Module
- One (1) Connecting Cable (Available in 10", 24" and 72" lengths)
- One (1) Noah membrane (available in a variety of formats)
- Two (2) cable retaining clips
- Two (2) squares of mounting tape
- One (1) small piece of gaffer's tape

Product Key

1. Enclosure (1 top, 1 bottom)
2. Stainless steel screws (5)
3. Button
4. LED
5. 3.6V A-size battery (4100 mAh)
6. Connector cable
7. Noah Membrane (available in a variety of formats)



Installation

Be sure you have a [Kairos account set-up](#) and a [LoRa gateway](#) attached to your account.

Set-up your KAIROS Account

Either set-up a new account at app.kairowater.io -or- follow the link you received in your email from info@kairowater.io

1. If you are setting up a new account, you will add the devices manually following [these instructions](#).
2. If KAIROS has already onboarded your devices, then you should see the devices in your account once you log into app.kairowater.io from the link in your email.

Set-up the K1 Gateway

If the Gateway does not show on your app.kairowater.io account, please follow [these instructions](#) to add it.

Identify a location where you have access to standard 110v (using the supplied adapter) or USB with 2A service. This location should also have access to Ethernet or password-protected WiFi. Otherwise, please send an email to info@kairowater.io or chat with KAIROS at kairowater.io regarding a cellular modem for the gateway.

Connect the Gateway to the internet by one of these methods:

- Ethernet – simply plug the gateway into an active ethernet port using the supplied cable. Please check with your IT to ensure no firewalls are blocking traffic through port 1700. If they require the MAC address for whitelisting, it is printed on the bottom of the gateway.
- WiFi – if WiFi is the best way to connect the gateway to the internet, please refer to [this guide](#) to set-up WiFi for your gateway. Or, you may contact KAIROS to send you a gateway provisioned for your WiFi network.
- Cellular – plug the ethernet cable into the gateway and the cellular modem. Make sure the cellular modem is powered on before going to the next step.

Plug the gateway to a power source. The power LED should illuminate. Over the next few minutes, the WiFi, Internet, and LoRa LEDs will illuminate as well. If the power LED turns red, but the rest of the LEDs remain green, there is no error and the gateway will perform as expected. This gateway in your app.kairowater.io account will show as online now.

Set-up the Noah Multifunction Leak Sensor

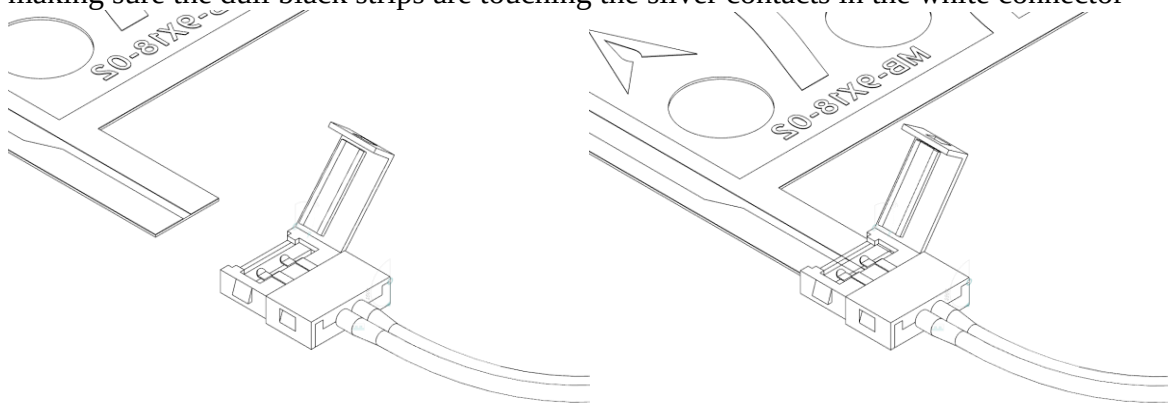
1. If the wireless module does not show on your app.kairowater.io account, please follow [these instructions](#) to add it.
2. Turn on the Noah following the instructions in [Operation section of this manual](#).
3. Check app.kairowater.io to see if the module is showing as online now.

Preparing the Installation Area

For the best sensitivity, the membranes should be installed over a flat surface, free of debris, deep gaps, or dirt/sand/dust. It is a good practice to sweep or vacuum the space onto which the membrane will be applied. In addition, for the “Tee” sensors and some water heater installations, it will be important to ensure the surfaces on which adhesive will be applied are cleaned before adhering the membrane to the surface.

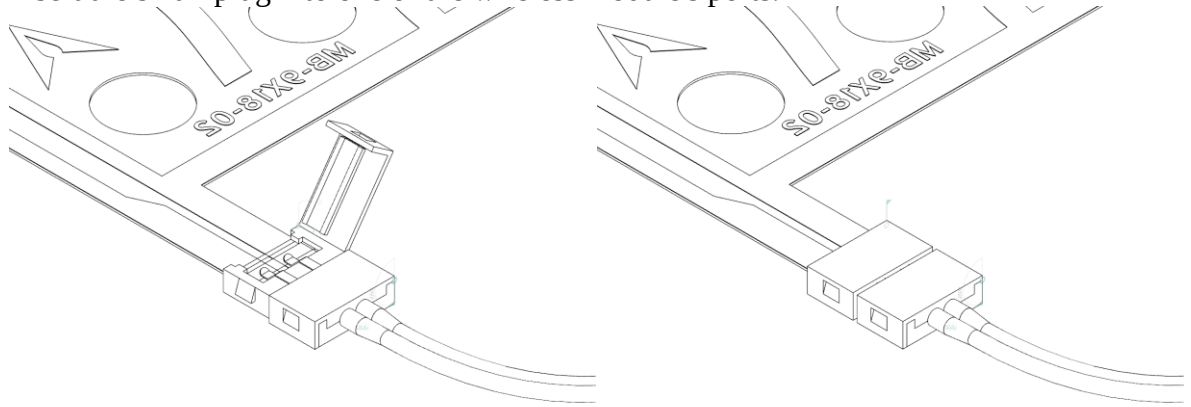
Installing Membranes

1. Ensure that the membrane you are preparing to install is appropriately sized for the area it will be monitoring. There are a variety of membrane formats available for installation. Choosing the correct one for the area you want to monitor is important. More on membrane selection in the Installing Membranes section.
2. Membranes should cover the maximum area under the monitored space without bending or buckling. Ideally, the membrane should not stick out in highly trafficked areas where they would be stepped on or kicked out of position.
3. Some membranes come with extra tabs, if the cable is attached to one tab, and the other becomes unnecessary or interferes with the installation, you may cut it off so that the edge is flush with the bulk of the membrane.
4. There is a protective film covering the black conductive traces. **THIS PLASTIC FILM MUST BE REMOVED BEFORE INSTALLATION**. Simply peel it away from the heavier plastic and traces.
5. Connect the membranes to the wireless modules using the supplied cable.
6. If the cable is not already attached to the membrane,
 1. Slide one of the tabs sticking out from the membrane into the slot of the ribbon connector making sure the dull black strips are touching the silver contacts in the white connector



2. Clamp the cover over the tab so that the dull black contacts on the membrane touch the contacts inside the ribbon connector.

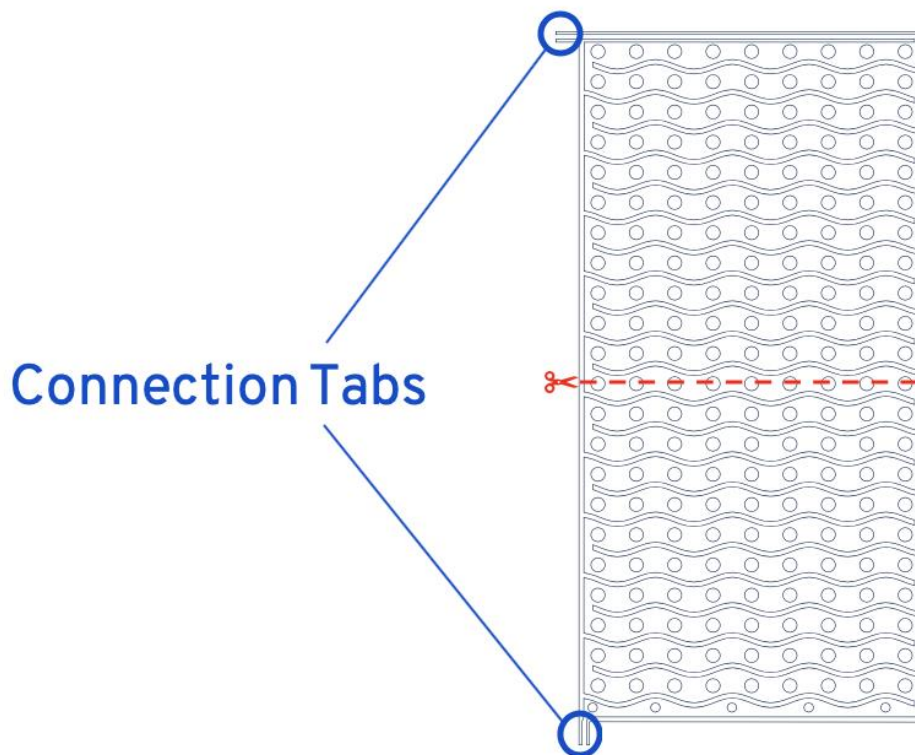
3. Insert the small plug into one of the wireless module's ports.



6. In the spaces where the membranes will be slid under the thin gap for an appliance (dishwasher, refrigerator, washing machine, etc), the wireless module can be tucked under the cabinet overhang using the 3M adhesive on its bottom. Cords can be tucked underneath and retained using the provided wire clips, or in a space under or next to the appliance. Additionally, the small strip of gaffer's tape can be used to hold the membrane connector to the floor.

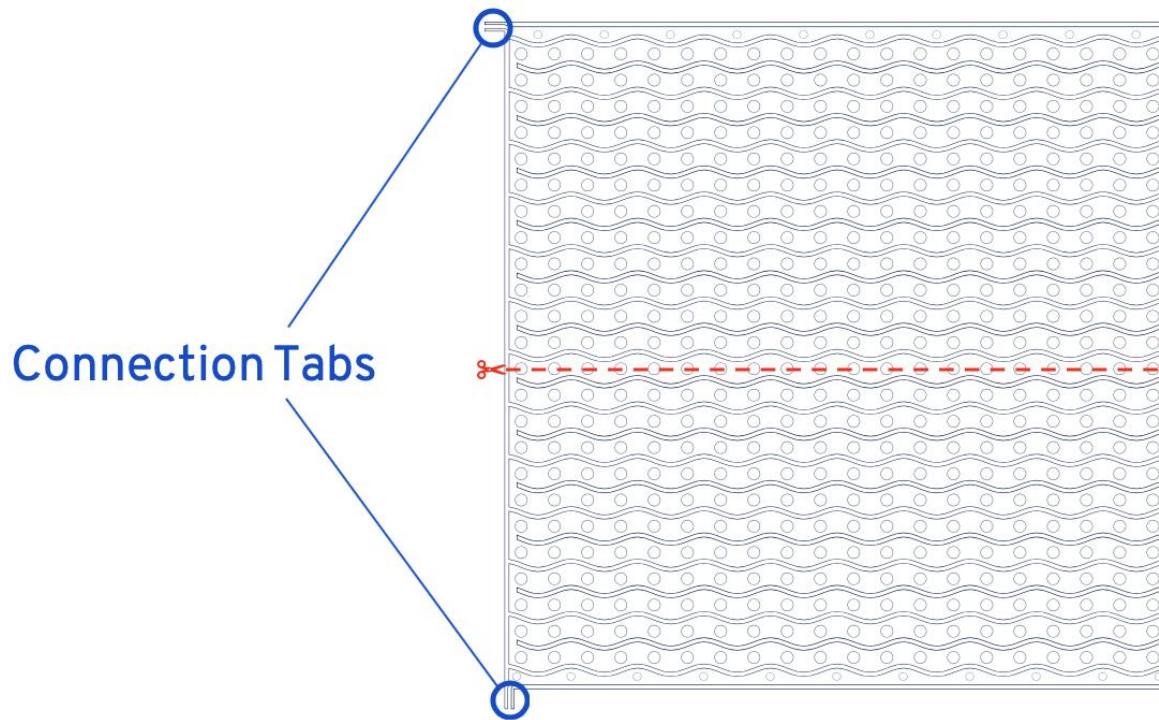
9"x18" Format

This format is recommended for Ice Machines and smaller coverage areas where the larger format will not fit. This format can be shortened by cutting it along the horizontal – as depicted below. The remaining halves can be connected to separate wireless modules or two ports on one wireless module.



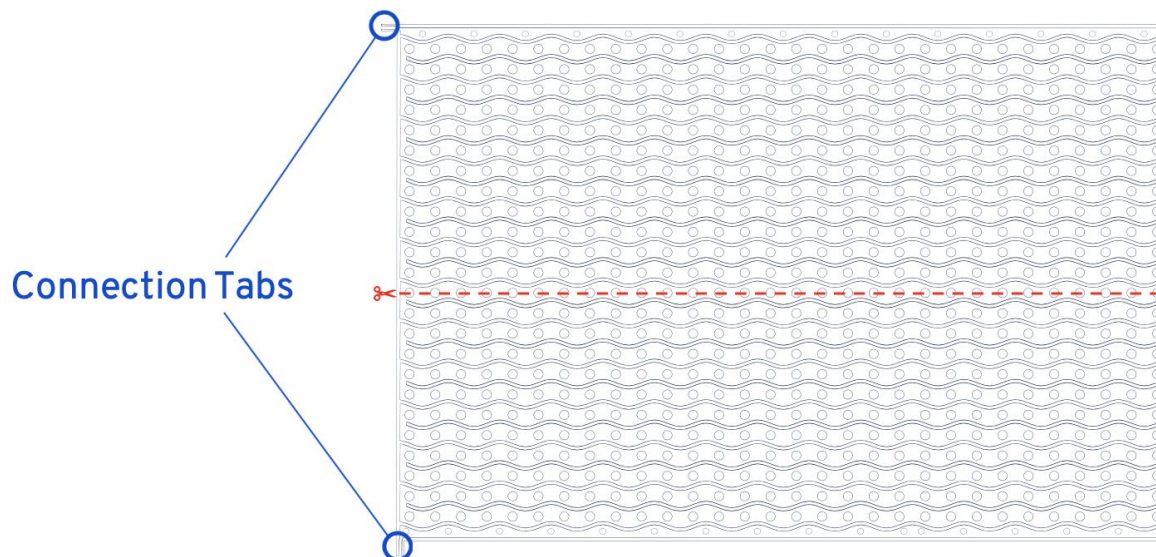
20"x20" Format

This format is recommended for Clothes and Dish Washing Machines. As with the 9"x18" membrane, this format can be shortened by cutting it along the horizontal – as depicted below. The remaining halves can be connected to separate wireless modules or two ports on one wireless module.



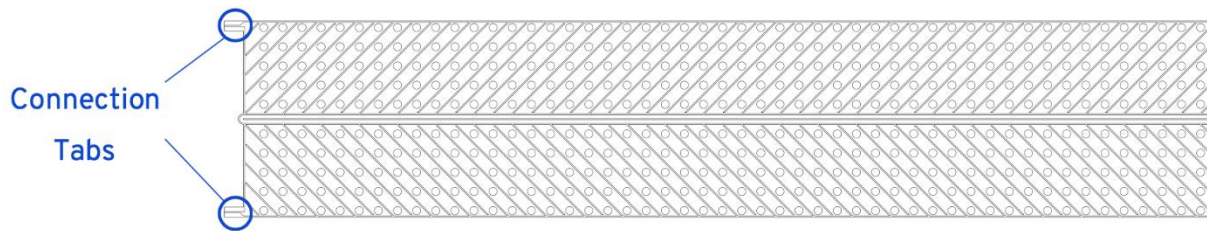
20"x30" Format

This format is recommended for refrigerators and the largest areas. Once again, this format can be shortened by cutting it along the horizontal – as depicted below. The remaining halves can be connected to separate wireless modules or two ports on one wireless module.

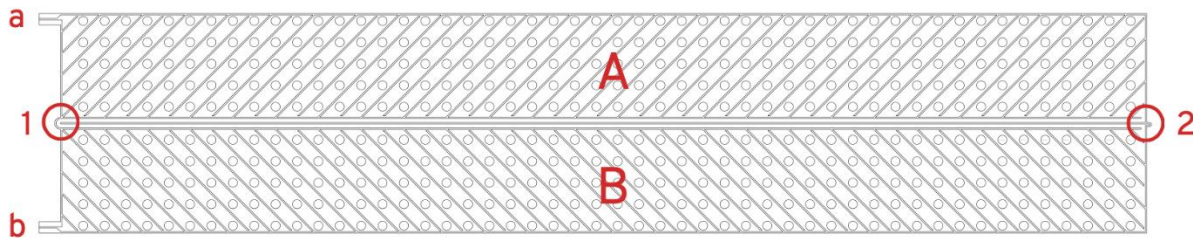


6"x30" Format

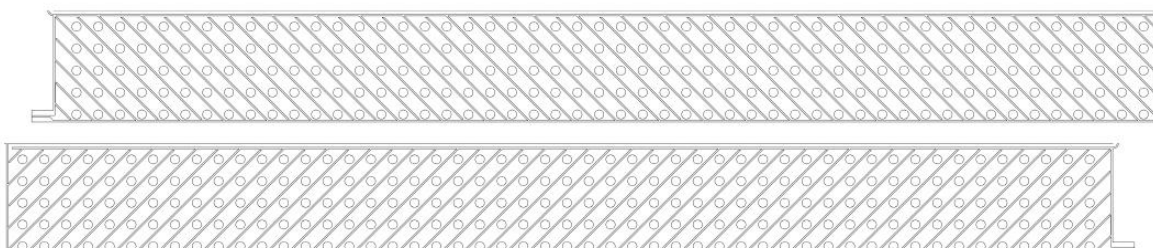
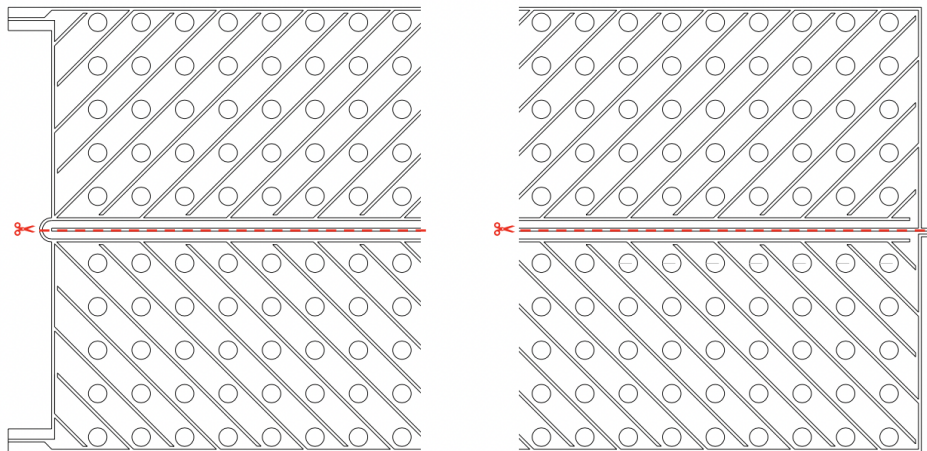
This format is designed to fit under most PTAC units and wrap around water heaters when cut in half.

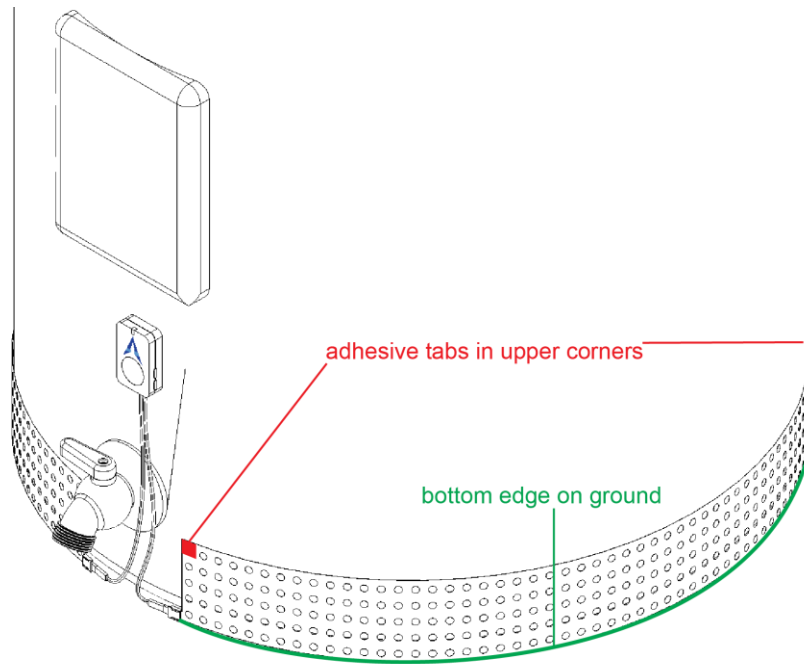


After cutting "bridges" 1 and 2, regions "A" and "B" can be monitored separately by connecting the leads from "a" and "b" connection bridges into separate wireless modules. In this way, the amount of fluid covering the membrane can be determined by the number of regions that are alarming.



The design can be cut in half to create two 3"x30" membranes to wrap around opposing sides of a water heater . Each half should be connected to a wireless module.



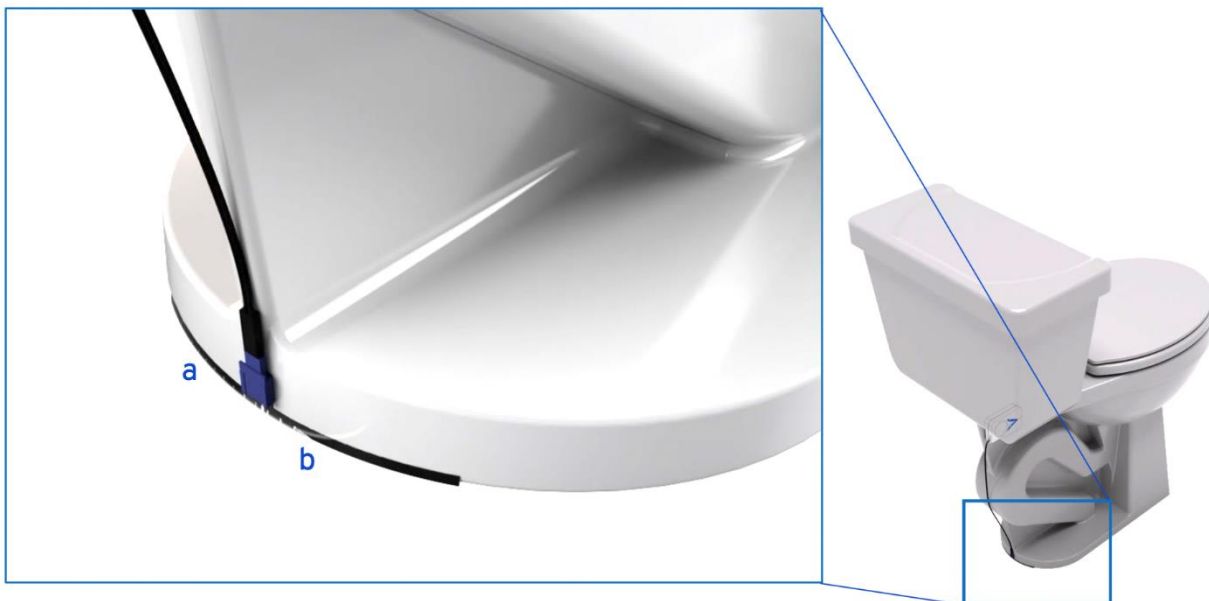


1"x12" (Tee) Format

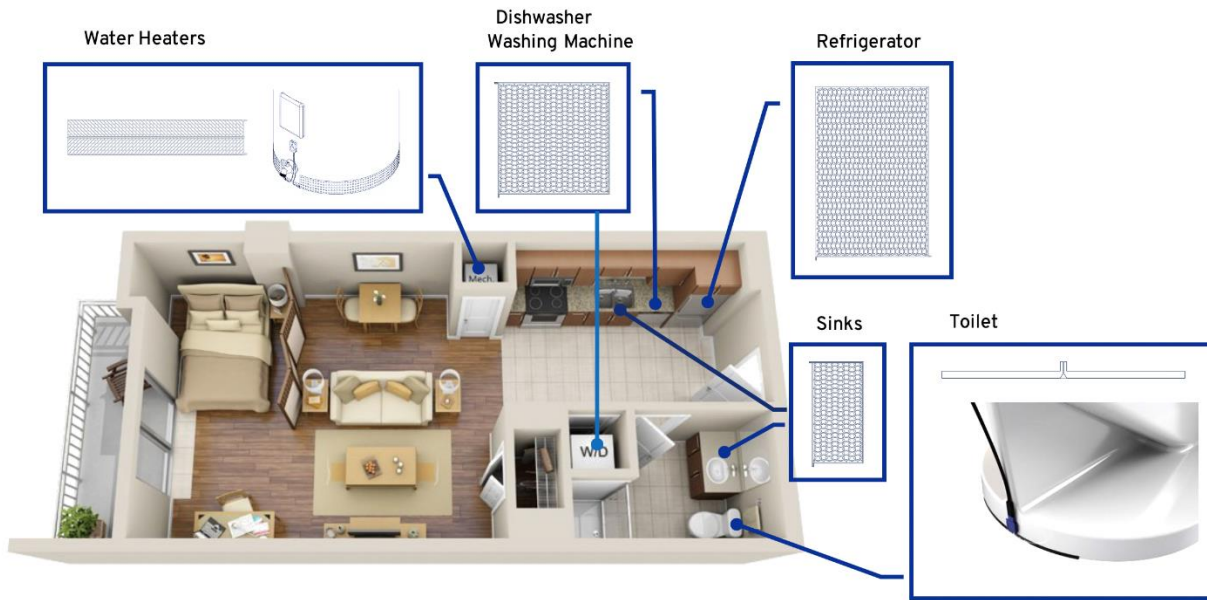
This format is recommended for tight spaces and around the base of toilets or inside overflow/condensation pans.



As an example, below is a tee membrane installed on the back of a toilet base where anode (a) and cathode (b) must be bridged by a leak on the floor that surrounds the toilet.



Common Installation Areas



Tips

Installing the membrane upside-down - with the conductive side facing up - desensitizes the sensor to leaks. If the leak sensor is triggered by accidental exposure to small amounts of liquid (ice cubes falling on the floor and melting under the membrane), this orientation ensures that there must be a significant amount of water to trigger while avoiding the false alarms.

Operating NOAH

Powering on/off & Resetting



Bottom of Module

Turn on: All devices are shipped in the “off” state. Press and hold button underneath the unit for 3 seconds until the RGB indicator flashes once and the unit emits a chirping sound - release the button to turn on device. You will feel a faint “click” when the button has been engaged.

Turn off: Press and hold button for 8 seconds until the green LED indicator flashes quickly; then, release the button. The green indicator will flash 20 times to show that the device is turning off and the device will emit a short chirping sound.

Notes

- When the battery is removed and reinserted, NOAH defaults to the “off” state.
- Powering NOAH off restores the factory defaults.

Joining a Network

NOAH is designed to automatically check for gateways within range. In order to verify the device has found a gateway:

1. Make sure NOAH is turned on.
2. When it has located a gateway the green LED will stay on for five (5) seconds to show it has access to the network: otherwise, the green LED will continue to flash as the device listens for a response from the network.
3. If the NOAH’s search for a network times out, the red LED will turn on for five (5) seconds,
4. NOAH try to join a network again in fifteen (15) minutes.

Button Functions

Pressing the button once will wake the device, which will then send a report to the app.kairoswater.io.

Press and hold button for eight (8) seconds to reset and restore factory settings. The green LED will flash quickly twenty (20) times to indicate the reset was successful. This action also turns the device off; it will need to be turned on again.

Reporting Frequency

While turned on, NOAH sends a message to app.kairoswater.io every fifteen (15) minutes.

The only exception is when the device detects an abnormal reading, it will immediately send a report to app.kairoswater.io. Abnormal readings are when:

- A leak is detected (water is present on the leak detection membrane)
- The device is bumped or moved triggering a tamper alert
- The temperature rises above 110°F

Note: Custom alerts can be created at app.kairoswater.io.

Restore to Factory Setting

NOAH saves certain information; including network security and configuration settings. To restore factory settings:

- Press and hold button for 8 seconds until the green LED flashes; then, you should release the button. The green LED will flash quickly 20 times to indicate NOAH has successfully reset.

NOTE: NOAH will be “off” after a factory reset; and must be turned on again to resume normal operation.

Sleep Mode

NOAH is designed to be power efficient and will enter a sleep mode during operation.

- While the device is in the network, it will sleep for fifteen (15) minutes before checking back in with the network. Abnormal sensor readings will awaken NOAH, in which case it will send a report, chirp and flash the LED.
- If NOAH is not in the network or it cannot receive messages from the network, it will enter sleep mode and wake up every 15 minutes to check if the network is available.

LED Status Indicators

The onboard LED that flashes at the nose of the device flashes different patterns of colors indicating various states of the device and sensors.

LED Color	Status	Description
Green	Blinks 3 times	Device is being tampered with. The alarm will beep three times as well.
	Blinks rapidly 20 times	Device is turning off and factory resetting.
Red	Blinks every 30 seconds	Temperature is above 110 deg F.
Blue	Blinks rapidly	Leak is detected by an attached membrane.
Red - Green - Blue	Each color blinks once	The device has been turned on and is initializing.

Frequently Asked Questions

1. Do I need a subscription with wireless service provider?
2. Not necessarily. The Kairos team will evaluate the site determine if there is a need to connect gateways to the internet over cellular if there is not sufficient locations with access to ethernet or Wi-Fi. If that is the case, Kairos has a business account with a provider for \$10 per month per gateway.

1. I have added the device to app.kairoswater.io, but it does not appear online.
2. Press the button on the bottom once to send an uplink to the app. Refresh your account to see if the device now shows as online. If not, remove the device from your account add it back again. If the problem persists, please reach out to the Kairos team using kairoswater.zendesk.com.

1. The Noah module LED is blinking green.
2. Noah is designed to flash the green LED three times when moved. This function is a normal occurrence.

1. The Noah module LED is blinking red.
2. Noah is designed to flash the red LED when the temperature has risen above 110 deg F. This function is a normal occurrence; however, the alert is indicative of an excessively high temperature, please be careful when checking on the area the Noah is installed, as there could be dangerous levels of heat and/or the source of the heat may be dangerous.

1. The Noah module LED is blinking blue.
2. Noah is designed to flash the blue LED when the attached membrane senses water. This function is a normal occurrence; however, the alert indicates the presence of water and should be checked on to see what the source is and whether a repair is needed to prevent further leaking and subsequent damage.

1. How can I improve wireless signal strength?
2. Moving the device to a location where it is not next to other electronic equipment or large metal items can improve the wireless signal strength. Trying a different orientation can sometimes improve signal strength as well.

1. I don't understand the LED status indicators.
2. Please refer to section above about LED status indicators and what they mean.

1. Do I need to update the software?
2. No, there are no firmware updates for these devices.

Notice

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Kairos Water, Inc reserves the right to change this manual at any time without notice.

Information provided in this document is subject to change without notice.

Terms and Warranty

One year limited warranty.

Support

Please contact us at info@kairowater.io or visit our support page at support.kairowater.io for any technical or warranty repair/replacement questions.