



Meet the Smart Vent System™

What it does	6
Who it is for	7
How it works	7
Benefits	8

Features

Mobile App	9
Smart Vent™ Hardware	10
Smart Bridge™ Hardware	10

Technical Specs

Sizes	11
Weight	11
Dimensions	11
Faceplates	11
Placement	11
Connectivity	11
Compatibility	11
Battery	11
Control	11

Pricing and Availability	12
--------------------------------	----

About Keen Home	13
-----------------------	----

Preparation

Measuring vent sizes	15
What you need	15
How many you need	15
Where to put your Smart Vents™	15
Where to put your Smart Bridge™	16
How many Smart Bridges™ you need	16
Set up your Smart Bridge™	17
Set up your Smart Bridge™ as a signal repeater	18
Set up Smart Vents™	
Connect Smart Vents™ in your app	19
Install your Smart Vents™	20

Smart Vent™ LED Key	22
---------------------------	----

Resetting

Unjoining from a bridge or hub	23
--------------------------------------	----

Hard reset (in app)	23
---------------------------	----

Soft reset (to resolve an obstruction)	23
--	----

Red Light

There is an obstruction that needs to be cleared	23
--	----

There is no obstruction	23
-------------------------------	----

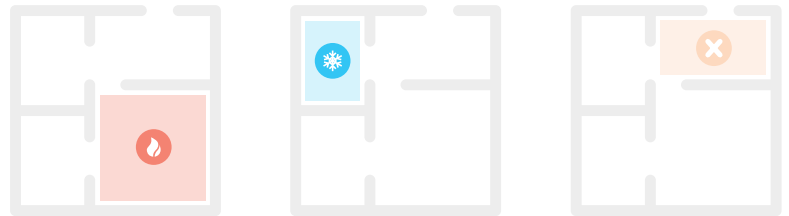
Meet the Smart Vent System™

Room-by-room temperature control and air purification



What it does

Many homes have 2-4 rooms that are either too hot or too cold, or that go unused for large portions of the day.

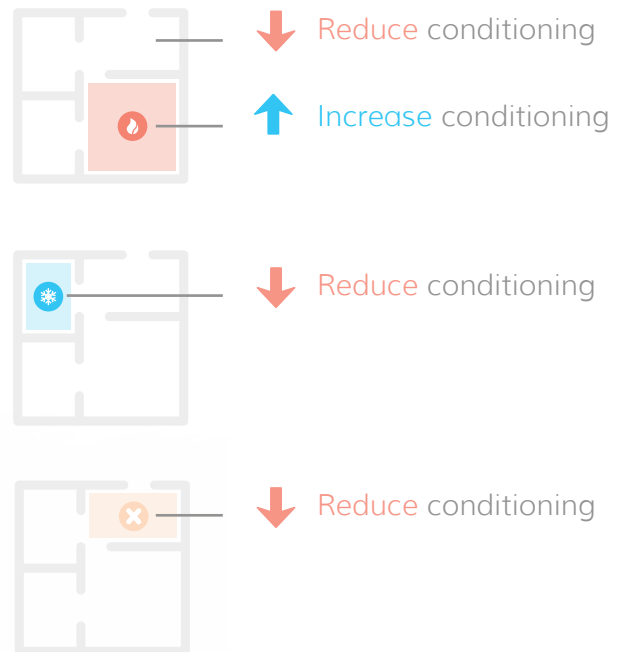


Too hot

Too cold

Unused

Smart Vents™ control a home's airflow, allowing homeowners to change the temperature of rooms they use, while reducing conditioning to those they don't.



Who it is for



Imbalanced homes

The Smart Vent™ was built to help people living with temperature disparities in their home. An upstairs that is hotter than the downstairs, or a kid's room that is colder than the master bedroom are great locations for Smart Vents™.



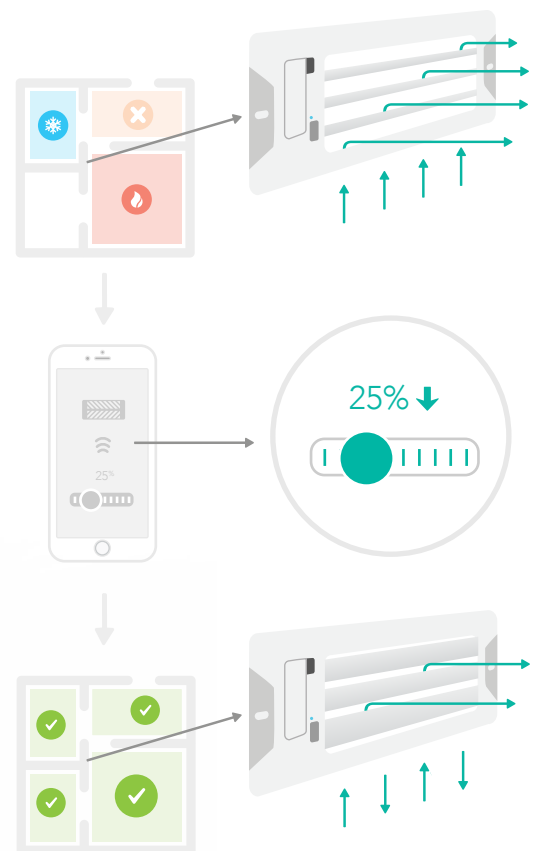
Budget conscious homes

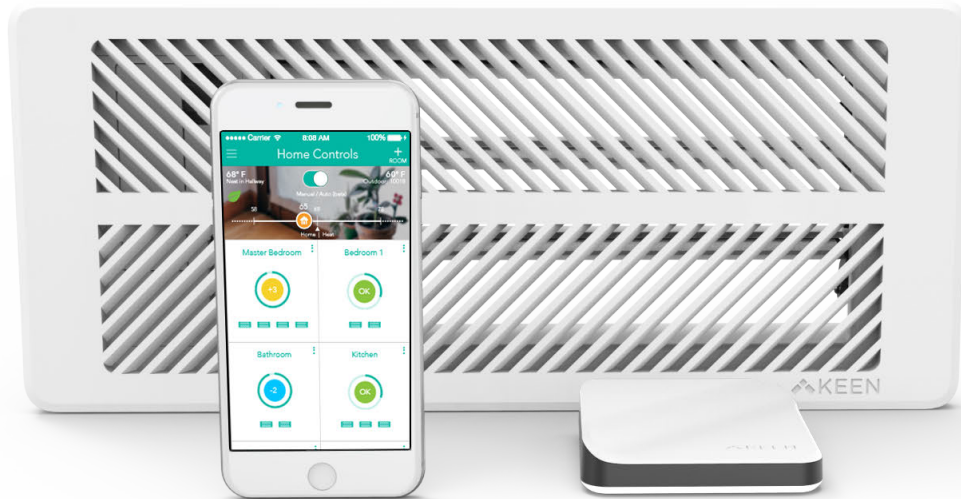
With Smart Vents™ installed homeowners never have to pay to condition unoccupied rooms, and their entire HVAC system will be used more efficiently.

How it works

Smart Vents™ adjust airflow to over-conditioned rooms and redirect this airflow to rooms that need it most.

A homeowner controls their Smart Vents™ wirelessly from their smartphone and can integrate directly with smart thermostats, such as Nest through the Keen Home app.





Benefits



Increase comfort

Set every room to the right temperature.



Room scheduling

Don't pay to heat your kitchen while you are sleeping.



Decrease energy

Room zoning can decrease energy costs by up to 30%.



Easy control

Control hard to reach vents from the Keen Home app.



Automate your home

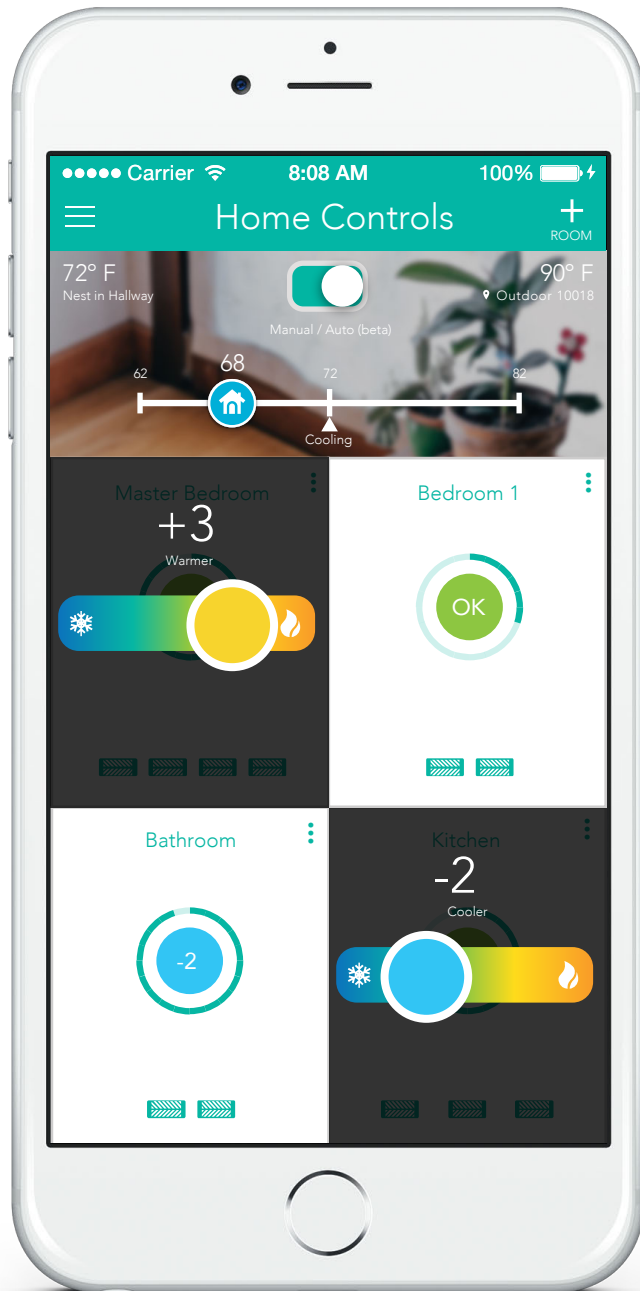
Integrate with your other smart devices, such as Nest and those on the Iris and SmartThings platforms.



Faceplates

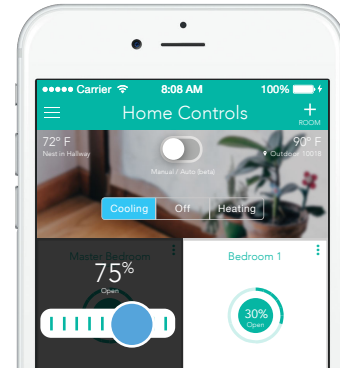
Increased aesthetic value of having Smart Vents™ instead of regular metal grill vents.

Auto Mode



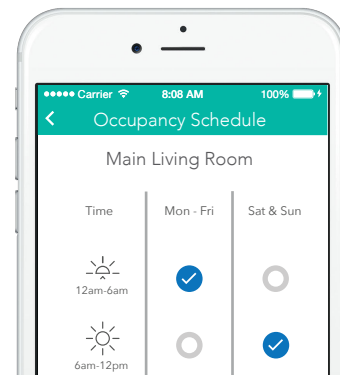
Set rooms to be warmer or cooler and the Smart Vents™ installed in your home will work together to drive air to or from your rooms.

Manual Mode



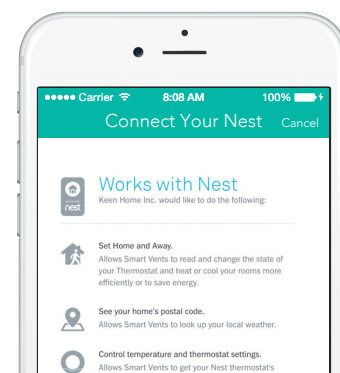
Adjust the vent level to control how much airflow reaches a room.

Scheduling



Create an open/closed schedule based on when rooms are occupied.

Connect a Smart Thermostat



Add a smart thermostat to the app for end-to-end control of your home's HVAC system. Currently Works with Nest with Ecobee support coming soon.

Smart Vent™ Hardware

Safe

Keen Home Smart Vents™ are completely safe to install and use with existing HVAC systems. They prevent against overclosure by never forming a complete seal, ensuring safe and efficient operation. Best of all, Smart Vents™ are always improving through wireless firmware and software updates. Embedded temperature and pressure sensors collect data about in-duct conditions to add to product safety.

Easy to clean

The Herringbone faceplate is dishwasher safe. If it gets dirty, simply remove the faceplate from the Smart Vent™ and add it to the next load of dishes. Top rack, no heat dry is preferable. Of course, you can hand-wash as well.

The rest of the Smart Vent™ can be cleaned with glass cleaner, diluted alcohol, or screen wipes. Take care not to submerge the smart vent in water. Exposure to basic moisture (such as placing the Smart Vent™ in a bathroom) is not harmful.

Customizable

Each Smart Vent™ Herringbone faceplate can be spray painted with acrylic paint to match any color aesthetic of a particular room.

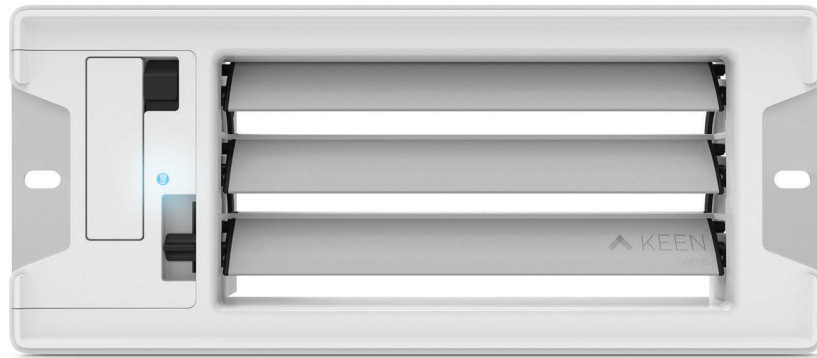
Smart Bridge™ Hardware

Small footprint

The lightest, most compact smart home bridge around. Its small size makes it easy to tuck into a cabinet or add to an already full shelf of wireless gear.

Wireless signal repeating

Any Smart Bridge™ can act as a ZigBee wireless repeater, helping extend the range of Smart Vents™ and supported ZigBee devices in a home. Signal repeater functionality works with the Keen Home Smart Bridge™ and SmartThings hub.



Sizes (approximate duct opening)	4" x 10"	4" x 12"	6" x 10"	6" x 12"
Weight	1.75 lbs	2.0 lbs	2.25 lbs	2.60 lbs
Dimensions	W: 11.7 in H: 5.1 in D: 3 in	13.7 in 5.1 in 3 in	11.7 in 7.5 in 3 in	13.7 in 7.5 in 3 in
Faceplates	Herringbone		Arbor	
Placement	Floor	Wall	Ceiling	
Sensors	Temperature		Pressure	
Connectivity	802.15.4 Radio		ZigBee	
Compatibility	Nest	Samsung SmartThings	Lowe's Iris	Securifi
Battery	4 x AA batteries		Battery life: 2+ years	
Control	Smartphone controlled	iOS 8 or later	Android 4 or later	

Smart Vent™ pricing



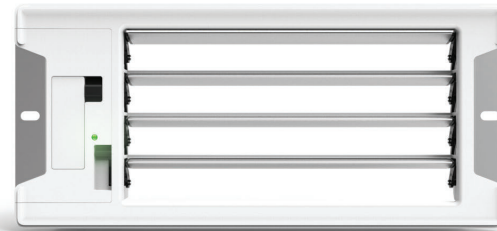
4" x 10"
\$84.99



4" x 12"
\$84.99



6" x 10"
\$89.99



6" x 12"
\$89.99

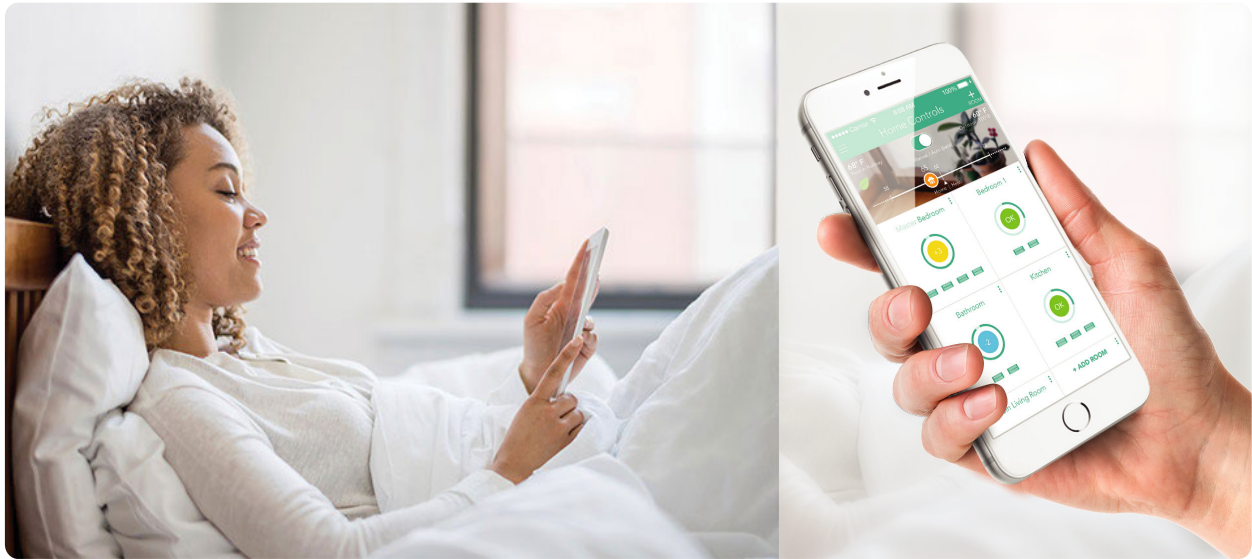
Smart Bridge™ pricing



Smart Bridge™
\$39.99

Where to buy

- All four Smart Vent™ sizes can be found at select Lowe's Hardware stores throughout the US, as well as on Amazon, Build.com, NewEgg, and Keen Home's website.
- Smart Bridges™ are available on Amazon, Build.com, NewEgg, and Keen Home's website.



Keen Home develops proactive hardware and software products to protect and enhance a home's core systems. Our products provide increased comfort, improved efficiency, a healthier living environment, and a better maintained home. The company's first product is the Keen Home Smart Vent™.



The Smart Vent™ was conceptualized in 2013 when Co-Founders Ryan Fant and Nayeem Hussain (then grad students) pitched their idea for New York University's \$200K Entrepreneurs Challenge and on the Techcrunch Disrupt Startup Battlefield in the same week.

Over the following year, the company evolved from a single product concept to a brand that represents innovation for home infrastructure. After participation in a Techstars accelerator program, Keen Home went on to raise seed financing to turn its vision into a reality.

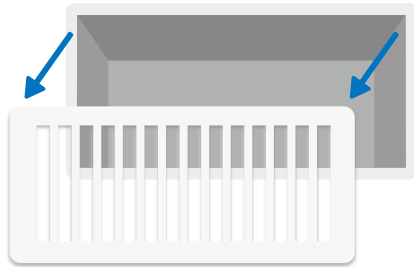
In February 2015, Ryan and Nayeem appeared on ABC's Shark Tank and shook on one of the highest valued deals in the show's history with investor Robert Herjavec.

The Smart Vent™ launched in the winter of 2015 and is available at more than 600 Lowe's retail stores nationwide and through select e-commerce channels.

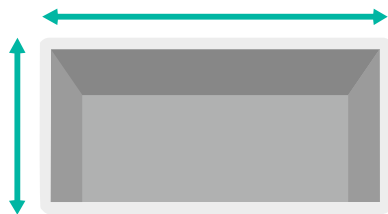


Appendix A: Setting Up

Measuring vent sizes



Remove your existing vent registers.



Measure the width and height of the duct opening. Round your measurements up or down to the nearest inch.

How many you need

Keen Home recommends replacing at least 1/3rd of the vents in a home with Smart Vents™, though they can be installed in every vent in the home.

More vents give greater control of temperature.

What you need

- Smart Vents™
- Smart Bridge™
- Free Keen Home app
- Mounting screws (included)
- Mounting clips (included)
- Screw driver
- Ladder (if installing in the ceiling)

Where to put them

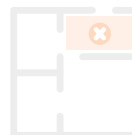
Install a Smart Vent in:



In the room(s) that need be to better conditioned (or: rooms that are too warm in the winter).



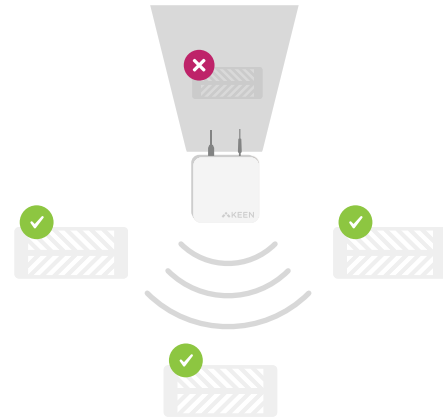
Every over-conditioned problem room in the house (or: rooms that are too cool in the summer).



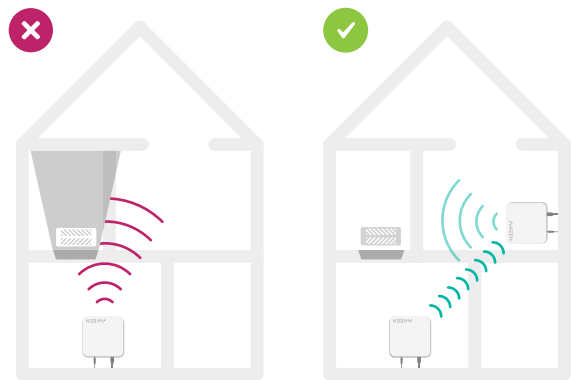
Rooms that go unused for large portions of the day.

Where to put your Smart Bridge™

Place the Smart Bridge™ so that its “blind spot” – where the power and ethernet cords plug in – faces away from any Smart Vents™. Also, avoid putting a Smart Bridge™ in a cabinet or near a bunch of other wireless gear, as that will decrease performance.



In some cases, metal ducts can obstruct wireless signals, such as when a Smart Bridge™ is located below a Smart Vent™ installed in the floor above. To prevent interference, use a second or third Smart Bridge™ as a Zigbee repeater.



How many Smart Bridges™ you need

We recommend one Smart Bridge™ for every 8 Smart Vents™, as well as one for every floor.

	=	 x 8
1 Smart Bridge™		8 Smart Vents™

	=	
1 Smart Bridge™		1 Floor

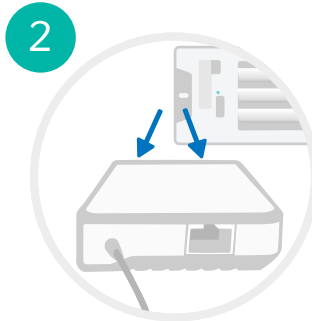
 	=	 x 16
2 Smart Bridges™		16 Smart Vents™

 	=	
2 Smart Bridges™		2 Floors

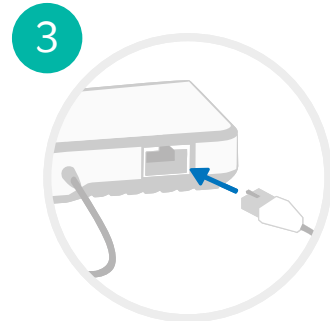
Set up your Smart Bridge™



Download and launch the Keen Home app.



Orient your Smart Bridge™ with the power and ethernet cords facing away from where you will be installing Smart Vents™.

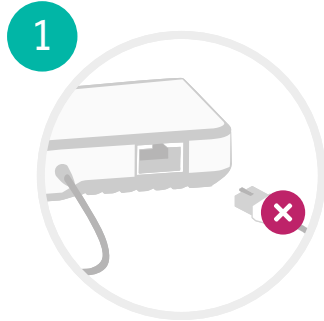


Connect your Smart Bridge™ to an open port on your router with the included ethernet cord. Then connect to power.



Configure the hub according to the in-app instructions.

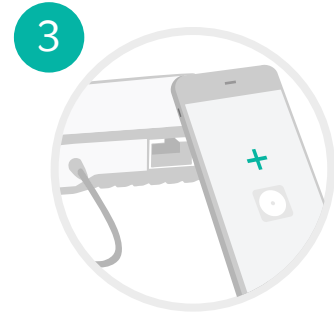
Set up your Smart Bridge™ as a signal repeater



Plug the Smart Bridge™ you will be using as a repeater into power midway between your main Smart Bridge™ and your farthest Smart Vent™. Do not plug your repeater into ethernet.



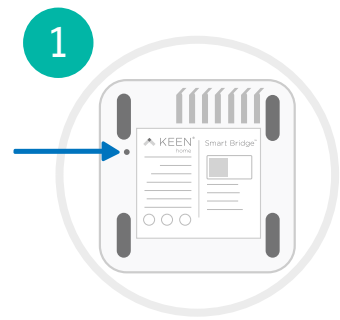
In the Keen Home app, select the nearest room to where the repeater will be located.



Tap "Add Smart Devices" followed by "Find Smart Device".



Your repeater should show up immediately. Add it just as you would a Smart Vent™.



* If your Smart Bridge™ was previously set up, hold the button of a bridge down for 5 seconds to reset it into repeater mode.

Set up your Smart Vents™

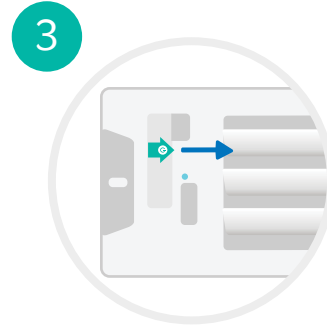
1. Connect Smart Vents™ in your app



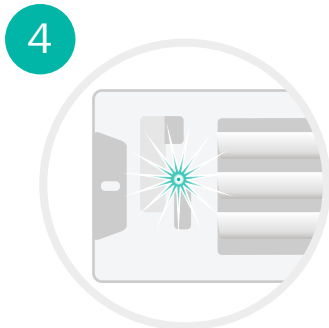
One at a time, tap "Add Smart Devices" in app.



Follow in app instructions tap "Find Smart Device".



Pull the green arrow tab.



The Smart Vent's™ LED will double blink green.

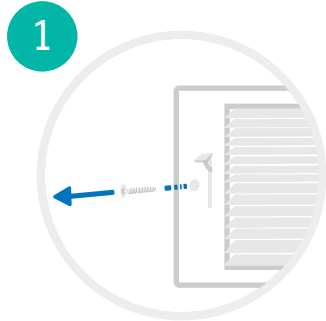


Tap the radio button next to your Smart Vent™ then tap "Add Selected".



Once your Smart Vent™ has been added to your app, continue adding all Smart Vents™.

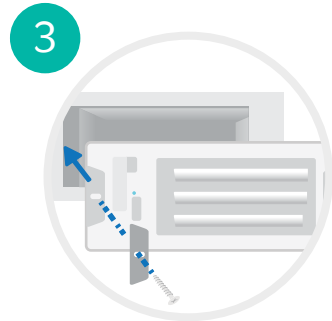
2. Install your Smart Vents™



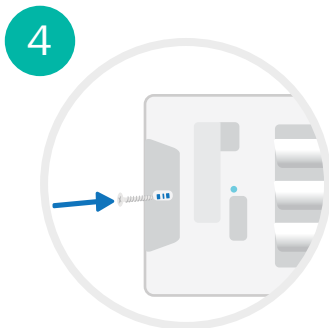
Remove old air vent.



Insert Smart Vent™.



Align metal mounting clips with the screw holes on vent.



Secure Smart Vent™ in place with screws included.



Install all Smart Vents™.

Appendix B: Troubleshooting

Smart Vent™ LED Key



Double blinking green:
Your Smart Bridge™ is searching for
Smart Vents™ and repeaters



Double blinking yellow:
The Smart Vent™ is attempting to
rejoin an already paired network



Double blinking white:
A Smart Vent™ is being identified



Orange: Heating



Blue: Cooling



Three quick green blinks:
The Smart Vent™ has paired with a
Smart Bridge™ or partner hub



Purple:
Fan mode or Smart Vent™ activity



Double blinking red:

- There is an obstruction that needs to be cleared
- There isn't enough power to move the louvers
- The Smart Vent™ didn't calibrate correctly and is jamming

Resetting

Unjoining your Smart Vent™ from a bridge or hub

- Remove the vent from within the Keen Home, Lowe's IRIS, or SmartThings app
- The Smart Vent™ has left the wireless network when the LED lights green for three seconds and then starts double blinking green.
- If the vent does not start blinking, or if using SmartThings, you may have to press the black button on the back inside of the Smart Vent™ battery compartment to force the device to leave its bridge.

Low power state reset (to resolve a vent left in pairing mode too long)

- If the vent doesn't respond to anything (even 5-button-presses) when left double-blinking green for too long, first remove the battery pack.
- Press the black button several (one is enough, three is safe) times, and then re-insert the battery pack.
- The Smart Vent™ should then power back up and start double-blinking green.

Power cycle (to resolve an obstruction)

- Press down the battery release lever and fully remove the battery cartridge.
 - Reinsert the battery cartridge to restart the Smart Vent™. It will calibrate before returning to normal.
-

Red Light

There is an obstruction that needs to be cleared

- Remove obstruction.
- Eject batteries.
- Reinsert cartridge.

There is no obstruction

- Eject batteries.
- Adjust batteries.
 - Pull two batteries with positive ends facing up out enough so copper ends are above battery cartridge.
 - Push negative ends down in battery cartridge.
- Reinsert cartridge.