



SMART HOME USE CASE



# There's No Place Like a LoRa Smart Home

With Semtech's LoRa Devices, YoSmart  
Delivers DIY Smart Home Solutions  
Featuring Secure and Fail-safe Connectivity





# LoRa<sup>®</sup> Makes Connected Homes and Communities Smarter

“Leveraging Semtech’s LoRa devices for our solutions, we can easily deliver coverage to a house or apartment building, including back yard and garden applications, using a single YoLink Hub. Also, this technology can penetrate dense building materials, such as thick concrete walls, found in many of our customers’ dwellings.”

— JOHN XU, CEO OF YOSMART





The global smart home market is expected to grow by a factor of five to reach more than \$192 billion in 2023, a rapid increase from the \$41 billion in revenues in 2018, according to IHS Markit. Despite these high expectations, smart home sales in the past decade has been less than anticipated due to consumer concerns about devices not working together, complex installation requirements, security and network connectivity.

Cellular networks, such as existing and future 5G networks, are ill-suited for low power Internet of Things (IoT) devices that simply need low cost, low power and low bandwidth connectivity. Traditionally, Wi-Fi, Bluetooth, Zigbee, and Z-Wave® have dominated indoor network connectivity for smart homes. Each has presented different levels of concern in terms of power consumption, security and cost, but one thing they all have in common is a lack of range, meaning network coverage, for many smart home applications.

In the consumer arena, range is an important factor considering the size of most residential spaces. Many IoT applications can extend to the periphery of the home, garage or out into the yard. Until now, these battery operated devices and sensors required the installation of additional equipment, such as signal boosters, to provide long-range connectivity.

Semtech’s LoRa® devices provide an ideal platform to solve these connectivity, power and range challenges. The long range (LoRa) technology has a proven track record driving IoT advancements across numerous industries, such as remote meter reading for water, gas, and electric utilities, precision irrigation, and animal tracking. Other applications include remote monitoring of healthcare patients, and city services such as smart lighting and smart waste – resulting in streamlined operations and savings of time and resources.

**Leveraging the expertise gained from 180 million LoRa-enabled devices currently deployed across the globe, this robust technology is now available in the smart home market offering the same benefits of greater efficiency and cost savings to consumers.**

YoSmart and Semtech have successfully introduced an enhanced portfolio of advanced solutions that overcome previous roadblocks associated with smart home installations.



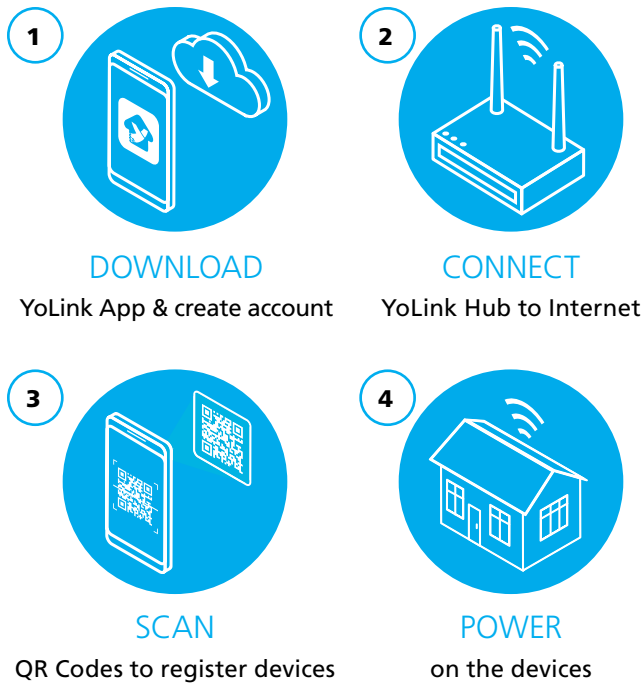
## Combining Technologies for Advanced Home Automation

YoSmart is a high-tech enterprise company focused on smart home and life products. The company’s research and development teams have developed a series of smart home products including water leak sensors, door sensors, garage door controller, lights, locks, thermostats, sprinkler controller, emergency button, smoke and gas detectors, motorized curtain controls, and connected power strips and outlets. All of these devices are LoRa-enabled – ensuring a smart home ecosystem with the highest degree of interoperability.

Smart home products depend on a communication system to interact with each other. LoRaWAN®, a Low Power Wide Area Network (LPWAN), has emerged as the leading IoT protocol for the broadest range of indoor and outdoor connected solutions.

While YoSmart’s line of IoT consumer products, YoLink, incorporates the LoRaWAN specification, some modifications were made to better fit its smart home and smart building applications. Moreover, YoSmart developed a new, proprietary YoLink protocol that combines a robust device-to-device, zero latency connectivity system with LoRaWAN’s long-range capabilities to achieve an unmatched holistic connectivity system for smart homes.

## How It Works: YoLink Smart Home Solution



## Welcome to Fail-Safe Device Communication

Connecting household devices to the Internet makes a smart home run efficiently, but when an outage occurs some smart devices can instantly become disabled. Internet service provider and power outages can result in dark homes when wireless light bulbs will not turn on or uncomfortable homes when smart thermostats cannot function.

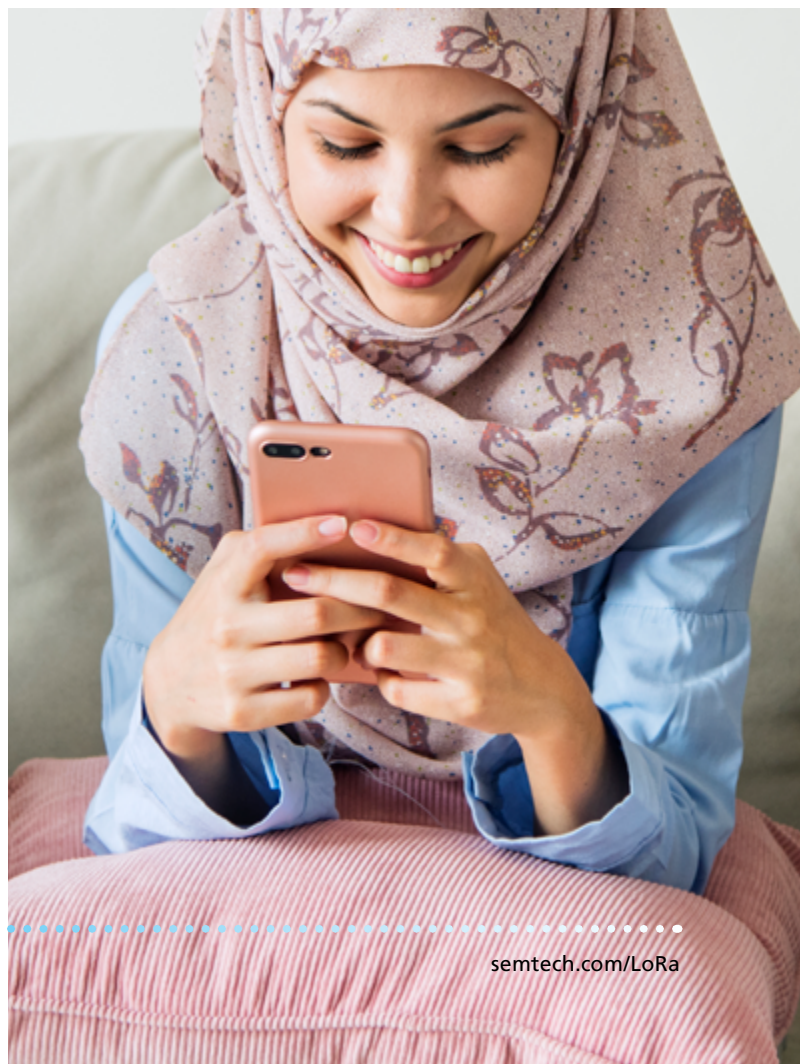
YoLink’s “one family, one hub, one app” solution features a YoLink Hub that allows sensors and controllers to communicate wirelessly. The system also provides the capability for the devices to communicate with each other offline using a remote controller. With this functionality, devices can communicate even when disconnected from the YoLink Hub due to Internet or power outage. Therefore, smart home systems will not be interrupted by power outages or disruptions in Wi-Fi service. This feature is critical for smart home installations and is not available with many competing smart home solutions, which only provide direct links from devices to gateways.

## YoLink’s Revolutionary Do-It-Yourself Installation

YoLink’s smart home automation products are well-suited for do-it-yourself (DIY) smart home projects due to their ease of installation. Upon purchase, a customer downloads the YoLink App to a smart phone or tablet and creates an account. Next, the user connects the YoLink Hub to a router with a wired or Wi-Fi Internet connection. Setting up the LoRa-enabled sensors is as easy as scanning the QR codes located on the devices with your mobile device and then turning them on.

Within seconds, the YoLink App can remotely control devices with zero latency. Action devices (e.g. turning on lights, etc.) can also be controlled remotely on the YoLink App and through digital voice assistants. Valuable data is communicated via LoRaWAN to the Cloud for the YoLink App to deliver alerts and customized notifications, history records and battery information.

**It’s that easy.**  
**No technology savviness required.**



# YoLink's Smart Home Products Are Sold on Amazon and Other Retail Outlets

HERE ARE THE MOST POPULAR YOLINK SMART HOME DEVICES

## DOOR & WINDOW SENSOR



Automatically receive email or text notifications when doors or windows are opened or closed. The sensors can be used to send notifications when children return from school, alerts when refrigerator doors have been open too long, and can augment central alarming system for increased security.

## GARAGE DOOR CONTROLLER



Place the sensor next to your garage door controller unit and it becomes smart with the ability to remotely check, and open and close your garage door through the YoLink App. The smart finger garage door controller is battery powered with no wiring and 100% compatible with all brands of garage door openers.

## HUB



The YoLink Hub acts as the bridge of the smart home. All of YoLink's portfolio of 20 LoRa-enabled devices can be controlled from the YoLink Smart Home App – anytime, anywhere. The Hub transmits data between devices and the server.

## MOTION SENSOR



Detect motion in spaces throughout the house and yard including the mailbox or garage. Set motion sensors to automatically turn on / off lights in various rooms and outdoor areas when a person enters and exits, therefore providing energy use savings for consumers.

## TEMPERATURE & HUMIDITY SENSOR



Wireless monitoring of temperature and humidity with low power sensors allows consumers to access readings and historical trends remotely. Alert notification system with multiple threshold settings provides cost-effective protection. Amazon Alexa, Google Home Assist and IFTTT compatibility allows customized rules and triggered actions.

## WATER LEAK SYSTEM



The water leak detector protects property from costly and damaging leaks. It has a long range indoors and outdoors (up to 1/4 mile) between several areas around the home including basement, greenhouse and hard-to-reach areas.

[Amazon.com/yoSmart](https://www.amazon.com/yoSmart)



## YoSmart Product Benefits

Increase energy efficiency and improve appliance functionality

Allow homeowners to control all applications from one app

Maximize home security and surveillance

Connect many different products using a single hub

Easy installation both indoor and outdoor

Gain insights into home operations and energy usage



## Extreme Data Security

Privacy and cyber security, like range, are no longer barriers to consumers setting up a smart home with this solution. The “transparent” YoLink Hub does not store any customer information on the device. It only transmits the encrypted message between the Cloud and customer account.

YoLink Smart Home solutions and LoRa are both designed for high performance and low power consumption with an emphasis on data security. All YoLink devices are encrypted during production with a unique 128-bit AES key (AppKey) and a globally unique identifier (EUI-64-based DevEUI) which are used during the device authentication process. Similarly, LoRaWAN application payloads are always encrypted end-to-end between devices and the application server. In simple terms, the network and the product do not have access to each other’s data – ensuring the ultimate level of security.

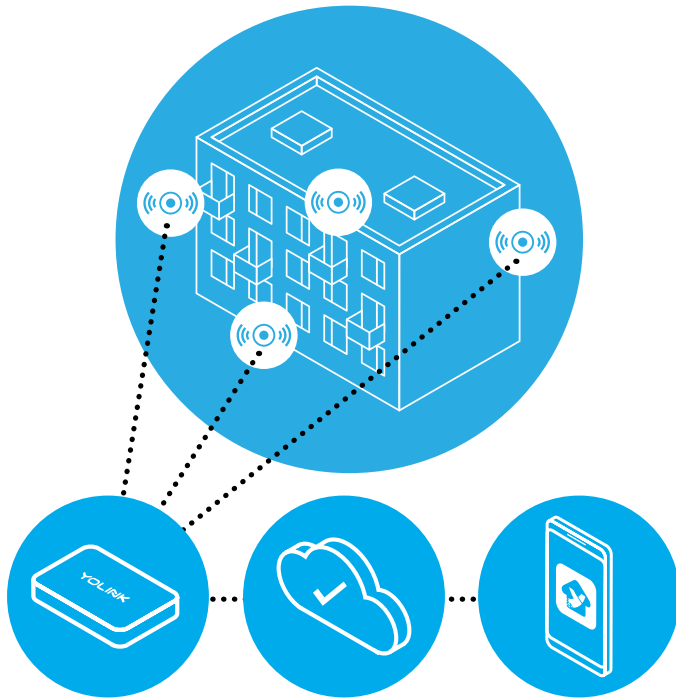


“YoSmart and Semtech have successfully introduced enhanced consumer solutions in the expanding global smart home device market that overcome previous challenges associated with connectivity and interoperability.”

— MARC PEGULU, VP OF IOT  
PRODUCT MARKETING, SEMTECH







## Be Everywhere at Once

With the extended long-range capabilities of LoRa, entire apartment complexes can operate by installing a single hub to share among the smart home devices throughout the building. For example, a property management company can install water leak detectors within each apartment unit of a building and receive immediate alerts when a sensor is triggered.

YoLink customers with multiple homes, offices or dwellings can monitor and control their combined smart home applications using a single app on their mobile device. This is changing the way to connect and control smart home products by utilizing LoRa devices' proven connectivity advantages to deliver accurate and real-time data on the status of smart home systems.

## Smart Communities Based on LoRa

Semtech's LoRa devices have grown rapidly as the platform of choice for industrial and enterprise IoT applications with its potential in the consumer space only beginning to be realized.

A home is more than just what lies within its walls – a home extends throughout an entire property, into the garden, to detached structures, to the street, and even to mobile assets. With LoRa, customers are able to maintain dependable connectivity even when devices become mobile and significantly increase their range, enabling customers to keep track of valuable "assets" like pets or bicycles.

**Consumers want dependable connectivity that works "out of the box."**  
**That is what LoRa brings to a smart home.**

Adding to the increasing momentum for using LoRa devices in the smart home industry, Semtech has teamed with Amazon to collaborate on its network, Amazon Sidewalk. Leveraging the long range features of LoRa, Amazon Sidewalk will enable device connectivity from the home to the garden, and into the neighborhood to benefit entire communities.





Semtech is a leading supplier of high performance analog and mixed-signal semiconductors and advanced algorithms for infrastructure, high-end consumer and industrial equipment. Semtech, publicly traded since 1967, is listed on the Global Select Market under the symbol SMTC and has more than 32 sales and application support offices in 14 countries as well as representatives and distribution support locations in more than 30 countries.

Semtech is dedicated to providing proprietary platforms, differentiated by innovation, size, efficiency, performance, and reach. Our solutions are used in some of the most innovative systems and products in the fastest growing markets today. These markets include smartphones, LCD TVs, notebooks, tablets, smart grid, automotive, automatic meter reading, medical, wireless infrastructure, PON, Internet of Things, optical transport, and datacenters. More than 5,000 customers worldwide rely on our diverse product portfolio and world class technology roadmap for solutions in low-power wireless communications, optical data transport, video broadcasting, power management, circuit protection, touch sensing, and more, making Semtech one of the most balanced semiconductor companies in the industry.

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