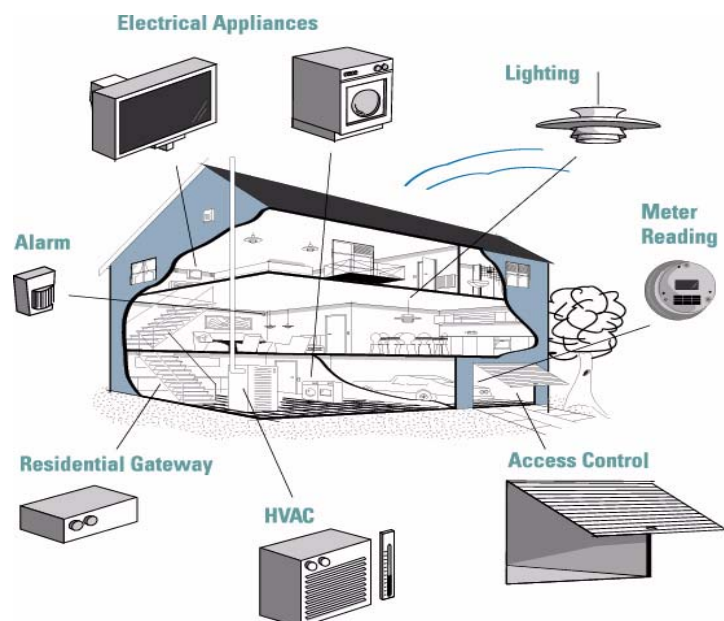


# Z-Wave™

the wireless control language



Z-Wave™ is a wireless RF-based communications technology designed for residential and light commercial control and status reading applications such as meter reading, lighting and appliance control, HVAC, access control, intruder and fire detection, etc. Z-Wave transforms any stand-alone device into an intelligent networked device that can be controlled and monitored wirelessly.

Z-Wave delivers high quality networking at a fraction of the cost of other similar technologies by focusing on narrow bandwidth applications and substituting costly hardware with innovative software solutions.

The Z-Wave technology is available in the Z-Wave Single Chip solutions. The Z-Wave protocol stack is embedded in the chips, and Flash memory is available to the manufacturer/OEM for their application software. For smooth product development, a range of manufacturing blueprints of the PCB circuitry surrounding the Z-Wave Single Chip is offered – including antenna circuitry and filters.



## Z-WAVE™ FEATURES:

- Low Cost For Mass Market
- Highly Robust And Reliable
- Full Home Signal Coverage
- Easy Network Management
- Low Power Consumption
- Versatile



## About Zensys:

Zensys ([www.zen-sys.com](http://www.zen-sys.com)) is a leading provider of wireless networking technology for control and status reading applications. Our Z-Wave™, technology is an RF based, two-way; mesh network, communications protocol that enables everyday devices to be controlled and monitored wirelessly. Zensys offers a family of low-cost, low-power, radio chip sets embedded with Z-Wave, as well as a suite of development tools and services making it easy for companies to develop wireless products for residential and light commercial applications including lighting and appliance control, energy management, access control, security, and building automation.

## MAIN FEATURES OF THE Z-WAVE™ TECHNOLOGY

Z-Wave™ delivers the optimal balance of the following mass-market requirements:

### Low Cost For Mass Market

To ensure the lowest possible cost, Z-Wave is dedicated to control and status reading applications, and therefore operates with a bandwidth of just 9.6 kbps. Z-Wave is not suited for bandwidth intensive applications such as voice/video transfer. Its bandwidth is tailored to the specific applications for which it was designed - and so is its cost per node. Innovative protocol handling techniques replace costly HW implementations to deliver the right price points. Additionally, the implementation in a mixed-signal single chip ensures the lowest cost points.

### Highly Robust And Reliable

Many RF technologies communicate across the public bands. Consequently, the public bands are crowded with interference, resulting in poor reliability for most RF technologies. Z-Wave minimizes these "noise and distortion" problems by using transmission mechanisms such as 2-way acknowledgement, condensed frame formats and random back-off algorithms, ensuring highly reliable communication between all the devices in the network.

### Full Home Signal Coverage

Most control systems today require physical wire connections to ensure full building coverage because the range and reliability of most wireless systems is limited. Z-Wave's dynamic routing principle, integrated into the technology, secures a virtually unlimited signal range, as each of the Z-Wave devices repeats the signal from one device to the next. The same routing principle ensures the RF-signals are routed around radio dead spots and signal reflections thereby securing a highly robust transmission covering the entire home.

### Easy Network Management

Z-Wave is designed to enable automatic network address assignment at installation, simple inclusion/exclusion of nodes, and simple association/disassociation of nodes to one another. These protocol-handling techniques ensure easy installation, expansion, and management of the Z-Wave control network. Further, each Z-Wave network has its own unique Network Identifier preventing control problems or interference from neighboring networks.

### Low Power Consumption

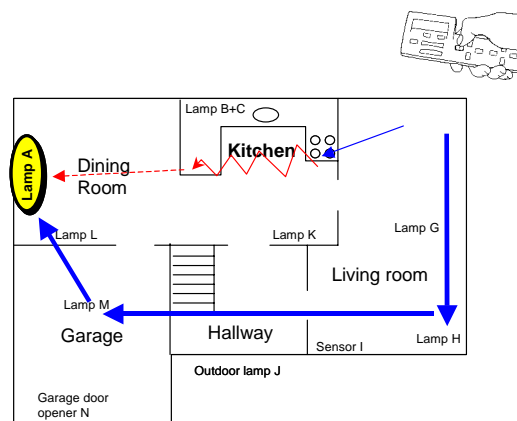
Unlike most control systems, Z-Wave's lightweight protocol implementation and compressed frames helps keep power consumption low. Additionally, Zensys' Z-Wave single chip solutions enable advanced power saving modes for battery-operated devices such as thermostats and sensors.

### Versatility

Z-Wave is a scalable protocol that was developed with the versatility to include additional features and applications as well as to connect to other protocols. To ensure future flexibility, backwards compatibility and expanded applications, Z-Wave provides multiple feature support by the use of generic command classes and a variable frame structure as well as by providing a well-defined API for OEM specific applications.

## Z-Wave™ Routing:

One of the key features of the Z-Wave technology is the routing capability of all the nodes in the network. Z-Wave automatically routes the signal from one node to the next and around obstacles and radio dead spots. The result is vastly improved coverage and reliability with virtually unlimited range.

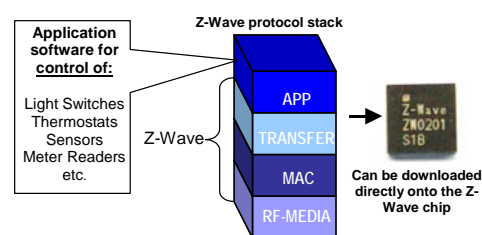


Example:

From the living room the user tries to control a lamp in the dining room.

The direct transmission to lamp A is blocked by reflections from the oven in the kitchen. Z-Wave automatically selects an alternative signal route thereby securing the command is carried out.

## Total Z-Wave Solution



To implement a Z-Wave™ solution into your company's next project, please contact Zensys at:

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