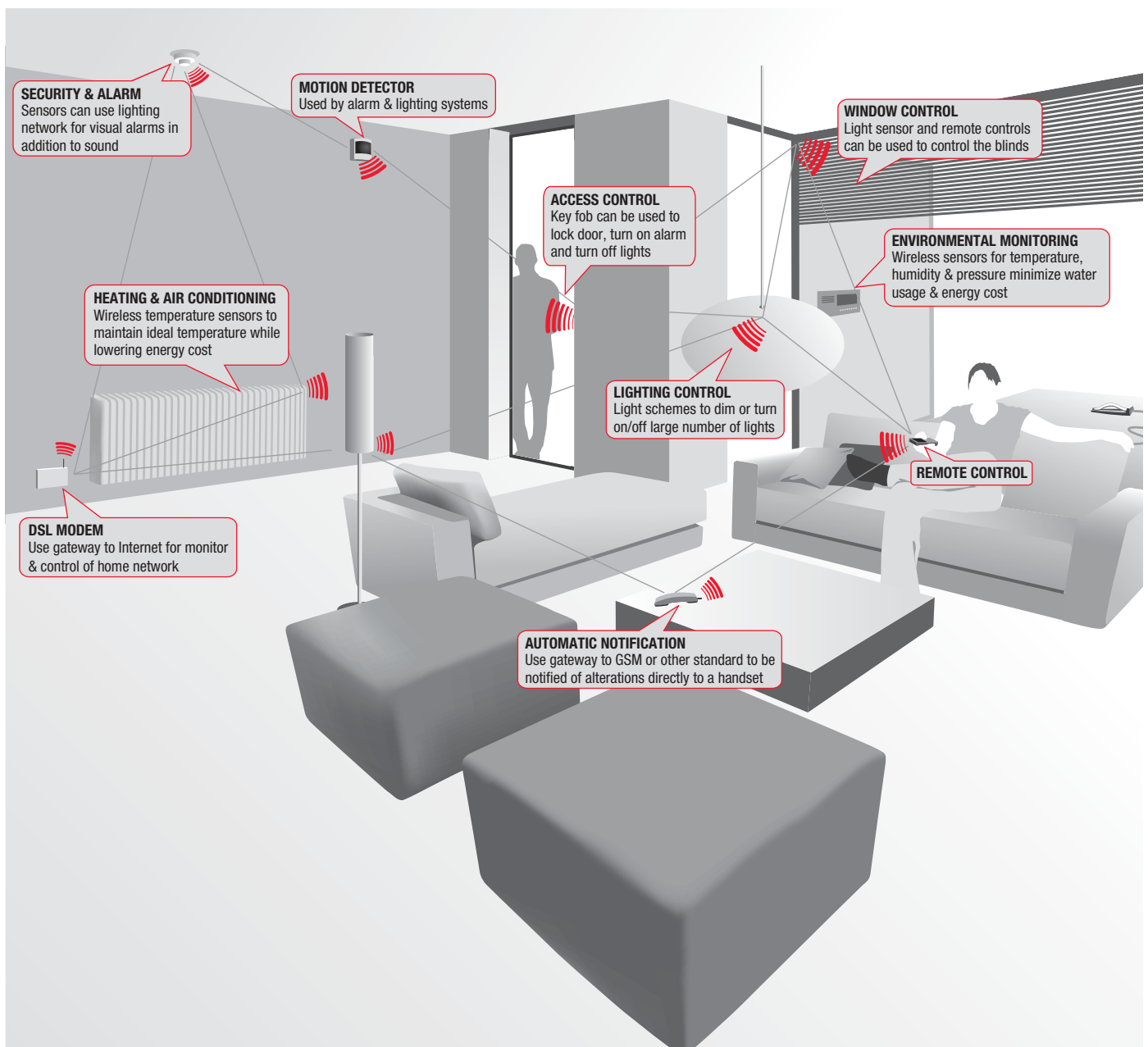


ZigBee[®] Wireless Networking Overview



ZigBee® Wireless Networking

About ZigBee 802.15.4

ZigBee is a standards-based technology for remote monitoring, control and sensor network applications. The standard was created to address the need for a cost-effective, standards-based wireless networking solution that supports low data-rates, low-power consumption, security, and reliability. With its support of self-healing mesh networking, ZigBee is a decentralized network topology very similar to the Internet. It allows nodes to find new routes throughout the network if one route fails, making it a robust wireless solution.

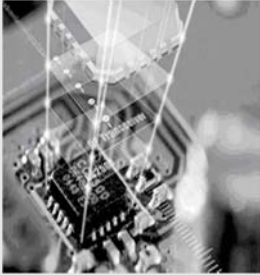


- A global ecosystem with more than 375 members creating a worldwide wireless standard for home, commercial and industrial applications.
- The only global wireless communications standard enabling the development of green, smart, easily deployable, low-cost, low power monitoring and control products.
- Innovative standards for energy management, home and commercial automation, health care, retail, telecom and consumer electronics, connecting the widest range of devices to work together intelligently.

Application Areas

A technology specifically targeted for wireless sensor networks, ZigBee 802.15.4 can be used in any monitoring and control application that requires a wireless link. The primary target markets are:

- Home, building and industrial automation
- Smart wireless lighting control
- Home control/security
- Medical/patient monitoring
- Logistics and asset tracking
- Sensor networks and active RFID
- Advanced metering/smart energy
- Commercial building automation
- Energy harvesting

For more information on the ZigBee Alliance, please visit www.zigbee.org

		SoC small footprint, high integration, low cost	Co-processor flexible, easy to use and reduced time to market	Dual-chip ultra-low power or high performance
Complete ZigBee Solutions	Application	CC2530 or CC2538	Any MCU (MSP430™ , Tiva™ ARM®) Any MPU (Sitara™ ARM)	MSP430
	Protocol stack		CC253x-based coprocessors with UART/SPI/USB interface: <ul style="list-style-type: none"> • Stack and application profile • Protocol stack • MAC only 	
	Radio			CC2520
	RF front end (optional)	CC2590 / CC2591	CC2590 / CC2591	CC2590 / CC2591

Ti's three paths to ZigBee

TI's ZigBee® Solutions

A longstanding member of the ZigBee Alliance and with golden unit recognized ZigBee-compliant platforms, TI is a leading supplier of ZigBee solutions. Unlike other hardware suppliers that outsource their ZigBee stack development, TI has a dedicated internal software engineering team that is working on the latest versions of the ZigBee standards and application profiles.

By choosing ZigBee from TI, you get complete solutions, state-of-the-art wireless products and a cost-effective, worldwide proven technology that is easy to use and deploy:

- Complete hardware and software ZigBee-compliant platforms certified by a ZigBee Alliance-approved test house
- A free IEEE 802.15.4 MAC software and golden unit status Z-Stack™ protocol stack
- High-performance radio featuring excellent coexistence with WLAN, *Bluetooth*® and other 2.4-GHz solutions
- Development kits and tools
- Application support
- Peripheral driver libraries to simplify the development of your own applications

Three Paths to ZigBee

TI offers three ZigBee-compliant platforms, built on the CC2538 system-on-chip (SoC), CC2530 SoC and the CC2520+MSP430™ two-chip solution.

- The CC2538 ARM® Cortex™-M3 SoC is the industry's first 512-kB Flash device with enough on-chip memory to support onboard over-the-air download.
- The ZigBee second-generation CC2530 system-on-chip (SoC) is a ZigBee golden unit that is targeted for low-power applications and small-form-factor designs.
- By running the CC2530 as a ZigBee Network Processor, it will run the ZigBee stack and handle all the network processing, offloading a separate host processor that runs the main application. The host processor communicates with the CC2530 over a serial interface. This partitioning option allows the designer to keep the ZigBee application profile and any other applications on the main processor.

- The second-generation CC2520 IEEE 802.15.4 transceiver can be used with the MSP430 MCU and Tiva™ suite of ARM Cortex-M3 technology. It is recommended for designers who want additional Flash and RAM.

Z-Stack™ – TI's Industry-Leading ZigBee Protocol Stack

Z-Stack is TI's royalty-free protocol stack for a growing portfolio of IEEE 802.15.4 products and platforms. Z-Stack is a certified ZigBee Compliant Platform and a golden unit for the ZigBee 2012 specifications, and supports multiple application profiles.

Z-Stack can be downloaded from the TI web site.

Key features

- A fully compliant ZigBee PRO feature set on the CC2538 and CC2530 families of SoCs and an extensive family of MSP430 microcontrollers coupled with the CC2520 transceiver
- A range of sample applications including support for the ZigBee Smart Energy, ZigBee Home Automation and ZigBee Light Link Profiles
- Over-The-Air download support
- Incorporated support for the CC2591 (www.ti.com/cc2591), an RF PA/LNA front end which supports up to 22dBm output power and improved receive sensitivity

ZigBee Development Kits

TI offers a wide variety of development kits for the CC2538, CC2530 and CC2520 ZigBee devices. The standard range of development kits (DK) offers a complete platform for software development and hardware and RF performance testing. The ZigBee Development Kits (ZDK) contain additional nodes for experimenting with the mesh capabilities of ZigBee. The ZigBee Light Link (ZLL) kit demonstrates the new ZigBee Light Link profile with LED lamps and a remote controller.



TI's ZigBee Online Forum

Join the ZigBee forum on TI's E2E™ online community and connect with Tiers and fellow engineers – ask questions, share knowledge, explore ideas, and help solve problems.

www.ti.com/zigbee-forum

TI's Developer Network

TI is dedicated to offering customers the best possible support. We continuously receive requests from customers who wish to get access to third parties to speed up the application development. In TI's Developer Network you can find providers of state-of-the-art ZigBee design services and modules.

For more information on TI's ZigBee networking solutions, please visit www.ti.com/zigbee

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	Korea	080-551-2804
	Malaysia	1-800-80-3973
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	Singapore	800-886-1028
	Taiwan	0800-006800
	Thailand	001-800-886-0010
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