

# Wireless networks that make sense

Complete semiconductor solutions for wireless sensor networks

2011





## The right choice for wireless networks

Wireless networking makes life easier, safer, more comfortable and more secure. This emerging, fast-growing market covers applications ranging from machine-to-machine communication for controlling industrial equipment to remote healthcare monitoring and smart homes. The applications may be very different, but the networking requirements are very similar: reliable, long-range communication between autonomous nodes with long battery lifetimes.

You can find all these characteristics – and more – in DECT ULE. DECT ULE is an ultra-low-energy extension of the DECT standard: a standard that has been field proven in more than 250 million households.

The DECT ULE extension was developed specifically for wireless home networking, and allows typical sensor applications to run for years on standard AAA batteries. Yet it retains all the familiar benefits of DECT like interference-free communication, long range and excellent quality of service. What's more, DECT ULE can be used alongside other DECT systems, which already support a wide range of voice, data and video applications.

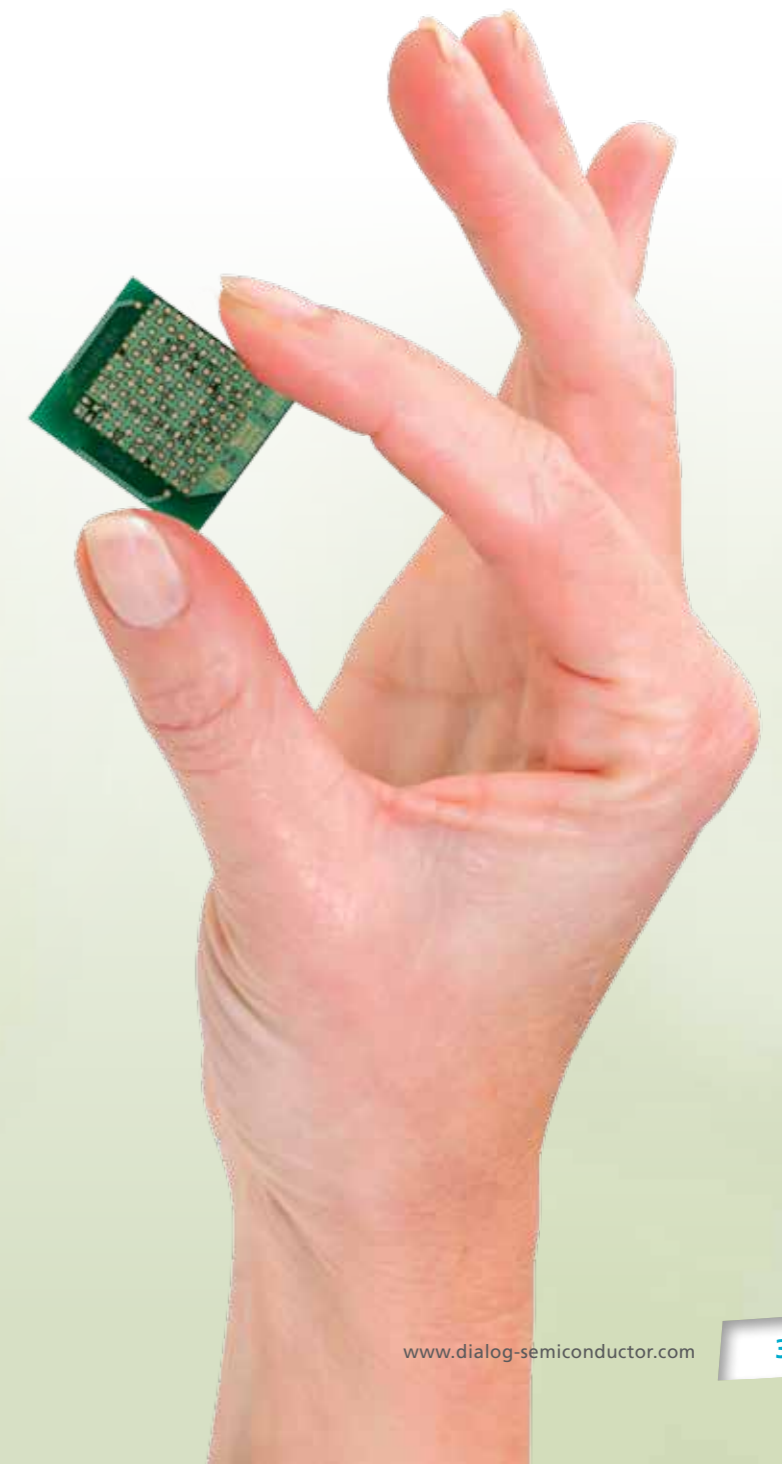
Co-developed by SiTel (now part of Dialog), DECT ULE is easy to use and install, cutting costs for manufacturers and consumers alike. You'll find DECT ULE implemented in all our SmartPulse™ products. For example, if you're looking for easy design-in and short time to market, our fully type approved SmartPulse™ modules integrate all the hardware and software you need – including the antenna. So you can just drop them into your application; no RF expertise or resources are required for design or production ramp up.

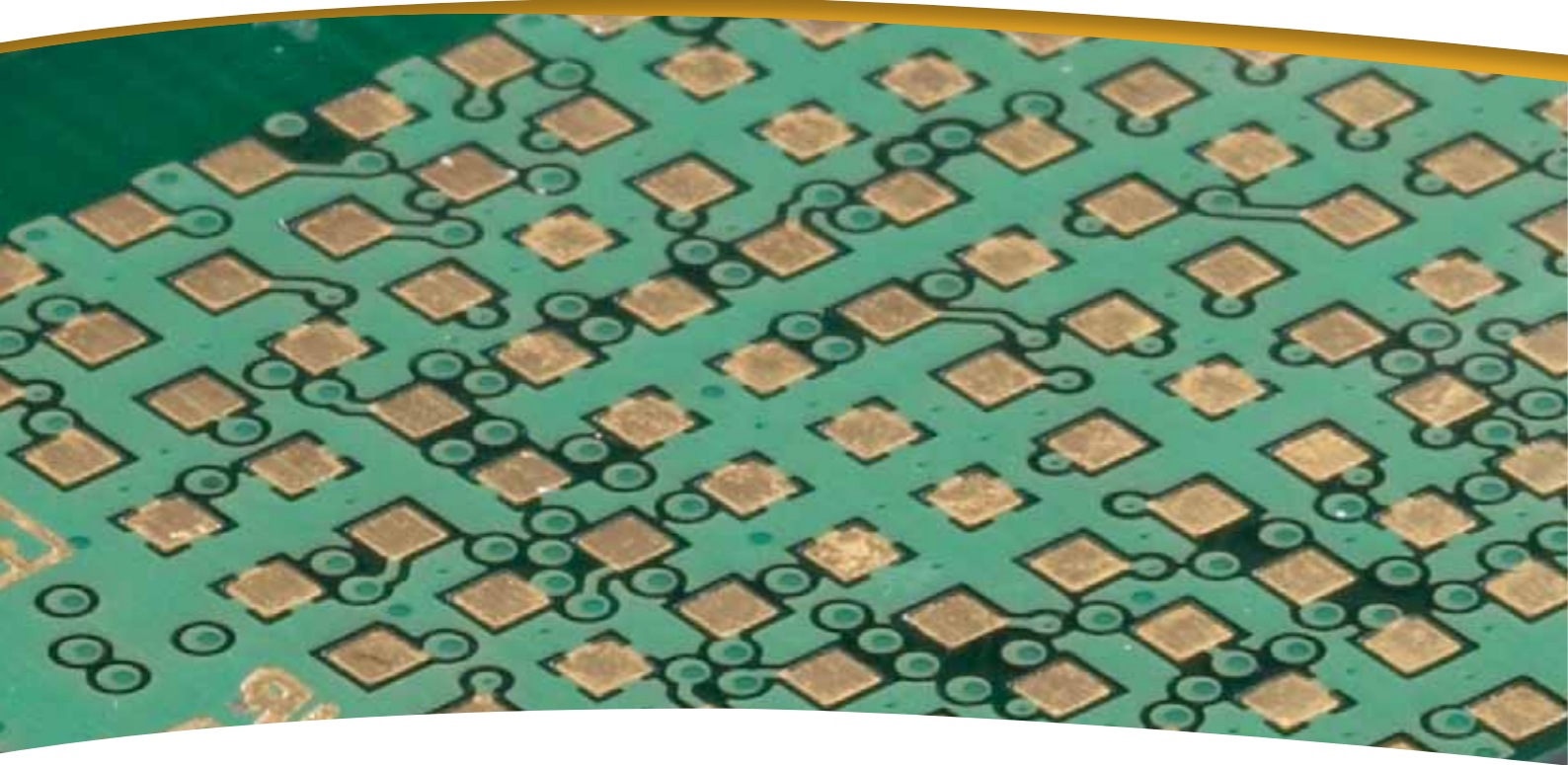
### Technology benefits

- Easy to install and use, perfect for self-installed consumer applications
  - Whole house coverage means no need for complex mesh networks
  - System configures itself
  - Push-button registration of new nodes to expand network
- Reliable operation for maximum user satisfaction
  - Operates in interference-free DECT band
  - Data is transferred using an extensively proven protocol
  - System chooses the right frequency channel in every situation
- Nodes can operate for years on standard batteries

### The Dialog difference

- Co-creator of the DECT ULE standard
- Proven expertise in wireless networks and IP solutions
- Low-cost internet access solutions
- Type-approved SmartPulse™ modules include antenna
  - No RF knowledge required
  - Can be used worldwide
- Easy-to-use, open-source development environment





## Hardware platform

DECT ULE's long range means it can handle most wireless sensor networking applications using a simple star configuration. That avoids the complexity of creating a mesh or carefully placed repeaters.

SmartPulse™ wireless sensor modules are the ideal networking choice for sensor nodes. These certified, drop-in modules combine a transceiver, baseband, power amplifier and antenna – as well as complete protocol and application interface software – in one compact package. You can choose between two types of SmartPulse™ wireless sensor module depending on your application needs: data-only and voice-and-data.

Offering the same level of integration as a wireless sensor module, the SmartPulse™ cordless voice module makes it easy to develop the basestation at the heart of your network. The module handles all your networking needs, controlling sensors and voice module-based nodes. Simply combine it with a host processor for controllers in standalone networks or to bridge to the outside world.

In addition, our flexible VoIP processors provide a simple route for creating IP basestations that connect to the internet, helping you combine the unique benefits of a DECT ULE network with the limitless possibilities of the World Wide Web.

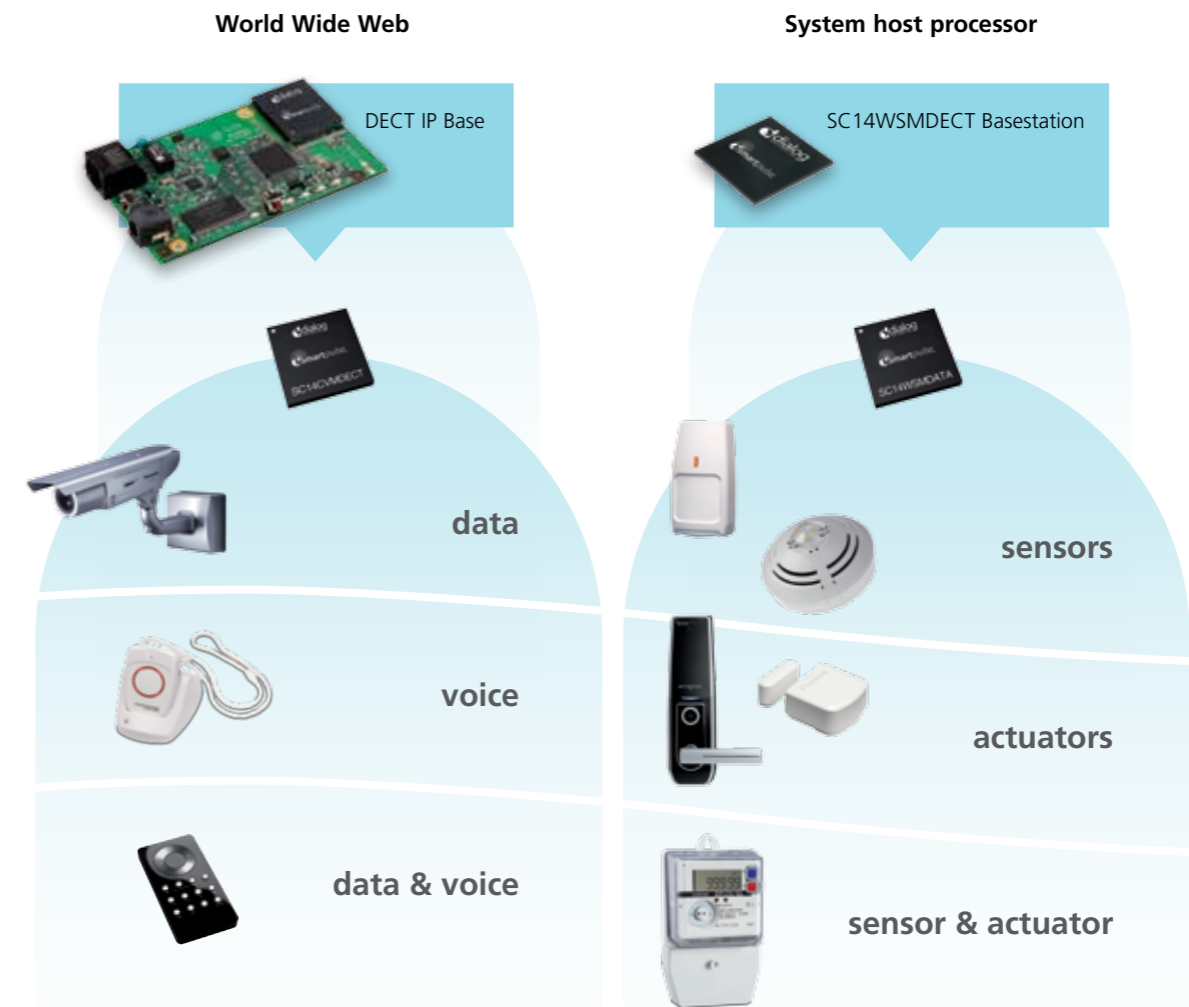
For connected smart home applications, we offer a number of solutions for Integrated Access Devices that combine sensor networking with cordless telephony, digital TV delivery and Wi-Fi in a single box (see our IAD brochure for more details).

## Software

### DECT ULE protocol software

All our SmartPulse™ modules are supplied with complete DECT ULE protocol software. This software provides all the high-level networking functionality, so you can focus on your application. The module hardware and software can be easily configured either via an AT command set or directly through the Application Programming Interface (API).

### DECT ULE products solution concepts



## Development tools

Choose a Dialog solution and you are choosing a solution that comes with all the support you need to bring your product to market fast. The extensive range of support available includes tools developed by Dialog as well as third-party vendors.

### Development kits

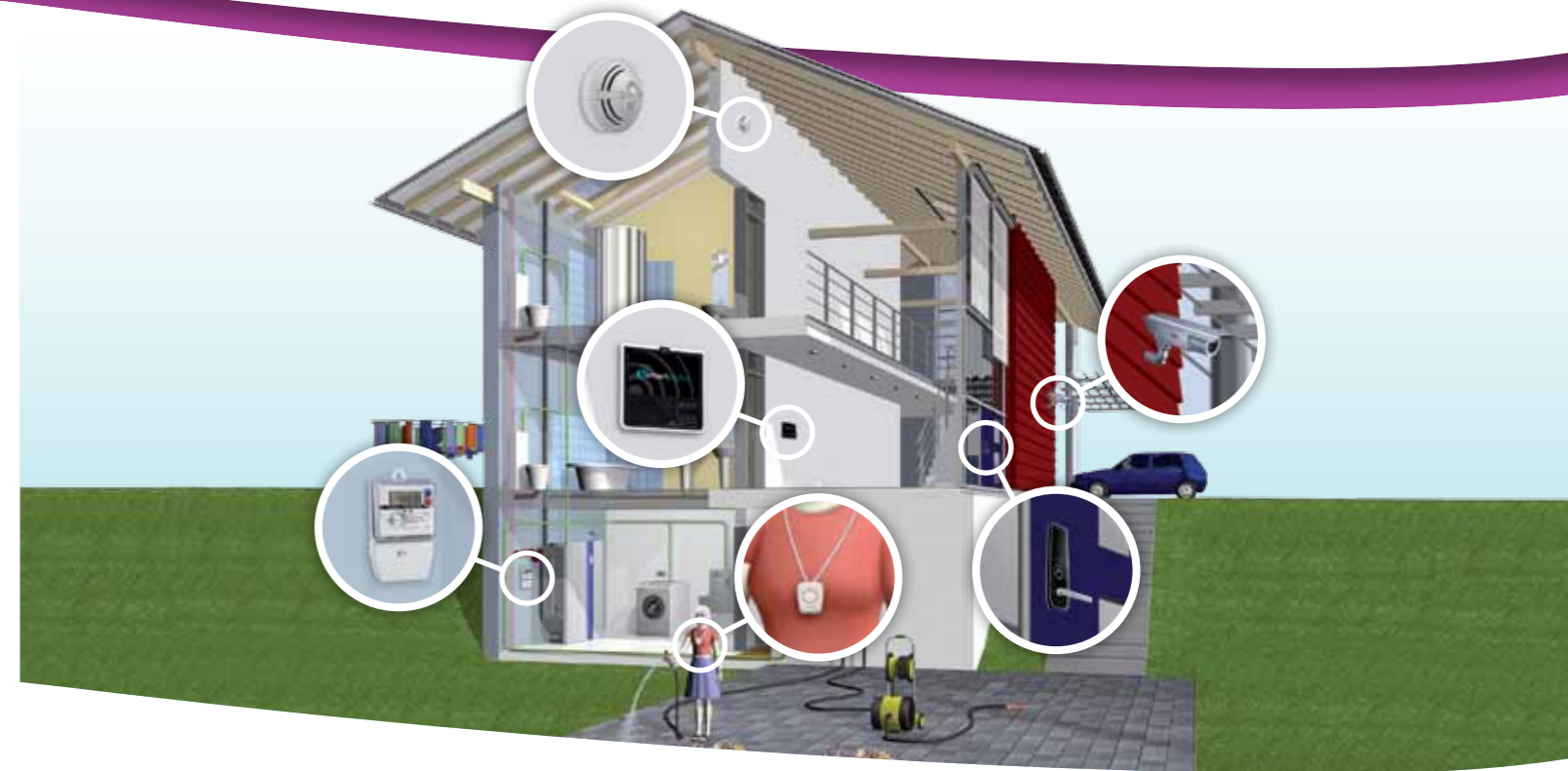
To help accelerate your product creation cycle, we offer complete development kits for all our SmartPulse™ modules.

The wireless sensor module kit includes a SC14CVMDECT-based basestation, a SC14WSMDATA development board (featuring a module, various interfaces, battery and power connector) and USB cables. You also get demonstration software, application examples and the Athena IDE, enabling rapid application creation.

Meanwhile, our DECT IP basestation reference design kit offers easy prototyping of internet-enabled DECT ULE systems. The kit features a DECT IP basestation that combines a SC14CVMDECT for basestation-node communication with one of our energy-efficient VoIP processors for hassle-free internet connectivity. It comes complete with example sensor and actuator nodes based on the SC14WSMDATA wireless sensor module, plus our Rhea µClinux-based VoIP software development platform.

### Athena IDE

The Athena Integrated Development Environment (IDE) is an easy-to-use, open-source toolset for creating new application software. It features an Eclipse-based IDE, a GNU C/C++ compiler and linker, and a code download and verification tool – all preconfigured and tested to work straight out of the box.



### Applications

#### Utility metering

- Remote metering
- Energy monitoring
- Equipment control

#### Healthcare

- Personal Help Button (PHB) (healthcare alarms for the elderly)
- Home care monitoring
- Activity monitoring
- Assisted living services e.g. fall detection

#### Security

- Smoke / fire detector and alarm system
- Burglar alarm (with automatic police notification)
- Alarm buttons with voice
- Door entry system
- Surveillance system

#### Home automation

- Climate control (Heating Ventilation Air Conditioning system)
- Internet controlled home appliances
- Home control display



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