



## Qualcomm® Bluetooth® Low Energy Solutions

# CSRmesh™ Development Kit

### Bluetooth Low Energy Single Mode CSRmesh Development Kit

**The CSRmesh Development Kit is a simplified yet comprehensive platform for developers and product designers who want to rapidly prototype networking of Bluetooth Low Energy (LE) products using the CSRmesh protocol.**

CSRmesh enables Bluetooth LE devices not only to receive and act upon messages, but also to repeat those messages to surrounding devices thus extending the range of Bluetooth LE and turning it into a mesh network for the Internet of Things (IoT).

Many leading module suppliers have adopted the Qualcomm Bluetooth low energy platform. These third party modules enable developers to easily and cost effectively integrate these technologies into their applications – for example, CSRmesh is fully supported on all CSR101x modules to allow the development of innovative turnkey solutions for the IoT.

Kits are available to purchase online from our Sales and Solution Providers and network of distributors, representatives, module suppliers and design houses.

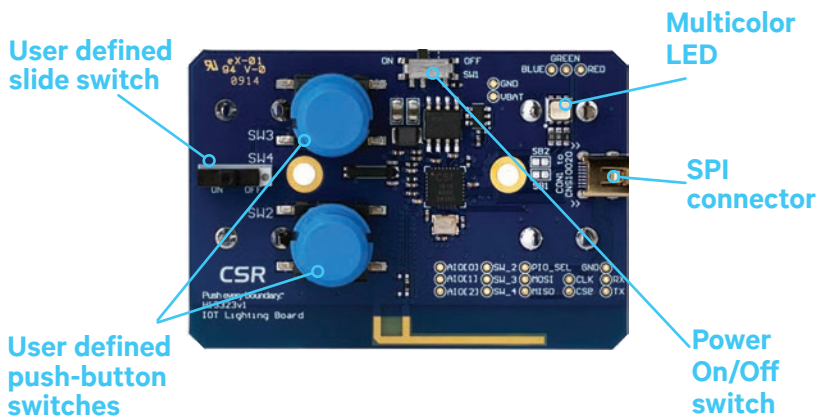
Qualcomm Technologies International, Ltd. (QTIL) is an industry leader in delivering high quality connectivity experiences that help differentiate devices in the Internet of Things. More than singular solutions, we develop flexible, robust product platforms combining silicon, software, and services to provide customers a complete connectivity platform for success.

CSRmesh enables messages to be relayed over multiple Bluetooth devices, turning it into a mesh network for the IoT

### Kit Contents

- Target Boards (x3)
- USB-SPI programmer (x1) and interface cables (x2)
- AA alkaline batteries (3 pairs)
- Setup guide

### CSRmesh Development Board



- CSR1010 IC with EEPROM
- PCB antenna
- 1x RGB LED
- 2x user push buttons & 1x user slide switch
- Power switch
- SPI programming connector
- 2x AA battery holders on reverse
- Pads to connect IO to external devices
- External I<sup>2</sup>C temperature sensor
- The development boards are normally powered from 2 x AA batteries (included), but can also be run from the host USB connection.
- Additional boards can be purchased, if necessary, to make a larger network.



Smart Lighting



Home Automation



Switches



Security



Smart Thermostats

## Features

- **Freedom of Control** - CSRmesh works directly with your existing tablets and smartphones. There is no need for a special hub to connect your devices.
- **Simple Setup** - Just switch on the device. Discovery and control is then handled by the app on your smart device.
- **Safe and Secure** - CSRmesh uses high-level banking-like encryption to ensure safe and secure transmission of messages throughout your network. There is an additional authentication mode for enhanced security.
- **Technology** - CSRmesh is a protocol layer that runs on top of the Bluetooth 4.0 standard. It is supported on single mode Bluetooth LE devices as well as Bluetooth BR/EDR (basic rate/enhanced data rate) devices. By using the existing Bluetooth standard it enables existing consumer devices to interact directly with devices within the CSRmesh network.
- **Resources** - Evaluate CSRmesh technology using the CSRmesh Dev Kit which provides access to a full SDK & enable development of wireless switches and lights.

Product	Part Number
CSRmesh Dev Kit	DK-CSR1010-10184
CSRmesh Dev Board	DB-CSR1010-10185
CSR1010 Dev Kit	DK-CSR1010-10136
CSR1011 Dev Kit	DK-CSR1011-10138

## Related Products

CSR1010/1011 Development Kits  
 CSR101x Starter Dev Kit  
 Environmental Sensor Board  
Products of Qualcomm Technologies International, Ltd.

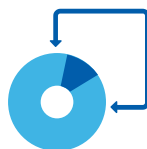
To learn more visit:

[qualcomm.com](http://qualcomm.com) or  
[developer.qualcomm.com](http://developer.qualcomm.com)



## Solution Highlights

<b>Extends range of Bluetooth LE by repeating messages</b>	<ul style="list-style-type: none"> <li>- No setup required, no hub or access point required for local network</li> <li>- Minimal propagation delay node to node</li> </ul>
<b>Messages can be sent to an individual node or to a group</b>	<ul style="list-style-type: none"> <li>- Flood mesh – no routing tables</li> <li>- No single point of failure</li> </ul>
<b>The network is secure</b>	<ul style="list-style-type: none"> <li>- Messages are encrypted to prevent eavesdropping</li> <li>- Optional authentication to prevent man-in-the-middle attacks</li> </ul>
<b>The CSRmesh network is robust</b>	<ul style="list-style-type: none"> <li>- Messages are sent on 3 separate channels</li> <li>- Channels co-exist very well with Wi-Fi</li> <li>- Uses proven silicon – CSR101x, CSR8811, CSR8670, etc.</li> </ul>
<b>Communicates directly with the phone</b>	<ul style="list-style-type: none"> <li>- Unlike ZigBee, Z-wave or any other proprietary protocol</li> <li>- Simple bridging to Bluetooth dual mode devices – no additional components</li> </ul>
<b>Networks are secured using a network key</b>	<ul style="list-style-type: none"> <li>- Can be pre-generated or derived from a pass phrase</li> </ul>
<b>All devices within network are trusted devices</b>	<ul style="list-style-type: none"> <li>- Can send messages to any other group of devices</li> </ul>
<b>Devices can be in "multiple networks"</b>	<ul style="list-style-type: none"> <li>- Knowledge of one network key does not enable access to other network keys or their functionality</li> </ul>
<b>Message encryption and authentication</b>	<ul style="list-style-type: none"> <li>- Prevents against eavesdropping, replay and man-in-the-middle attacks</li> </ul>



## Software Development Kit

Once you purchase the CSRmesh Development Kit, you can download the latest SDK with a valid activation code. The SDK provides a complete graphical code development environment for the CSR101x IC products using its xIDE environment with breakpoint, variable viewing, memory viewing, etc. The SDK is based on a GCC compiler tool chain, and command line build and make tools are available for rapid development and regression builds.