

# SX-59HLS

## Wireless 802.11n System on Module with Enterprise Security for IoT Applications



Smaller, Cheaper, and Higher Performance Wireless Module

The SX-59HLS is an ultra-low power Hosted Dual Band 1x1 802.11a/b/g/n Internet-of-Things (IoT) wireless module based on the Qualcomm QCA4012-2 System-on-Chip (SoC). It integrates a QCA4012-2 SoC with 16-Mbit SPI Flash, 40 MHz TCXO, single Balun IC, and a 2.4/5 GHz printed PCB antenna. It is ideal for hosted applications, as 800 Kbyte of on-chip RAM memory is available for customer applications and third-party software thus making an external MCU optional. It also supports a UART AT command set for optional external MCU.

The SX-59HLS is a first in class to provide enterprise security for today's high performing networks. With support for TLS v1.2, WPA2 and the most common EAP types (PEAP, TLS, TTLS, FAST), the module provides an easy to use AT style interface for the transferring and storage of certificates, configuring of network parameters and installation of user credentials.

SX-59HLS delivers Wi-Fi connectivity, integrated intelligence, security, and advanced services for many IoT systems including medical devices, remote control, appliances, home & factory automation, energy management, residential lighting, security, sensors, wearables, etc.

### Key Features:

- Ultra-Low-Power**  
 Since an external CPU is not required the overall system power is reduced. It additionally supports power save features including deep sleep modes which help reduce power usage during periods of inactivity.
- Industry Leading Enterprise Security**  
 The SX-59HLS supports WPA and WPA2 including 802.1x Extensible Authentication Protocol (EAP) types. The module provides an easy to use AT style interface for the transferring and storage of certificates
- Small Form Factor**  
 Small form factor makes it ideal for IoT applications. This also gives OEMs greater flexibility and efficiency in their product designs.

### Fast Time to Market

Eliminating the need for the development of a wireless LAN driver and security supplicant, it is ideal for minimizing upfront engineering investment and reducing time to market. The module has modular certifications for North America, Europe and Japan, thus reducing certification costs.

### Silex AT Commands

Silex AT command application (Silex AT command) is a modem-like UART control command set for the SX-59HLS Wi-Fi module making it easier to configure, debug and control the radio module.

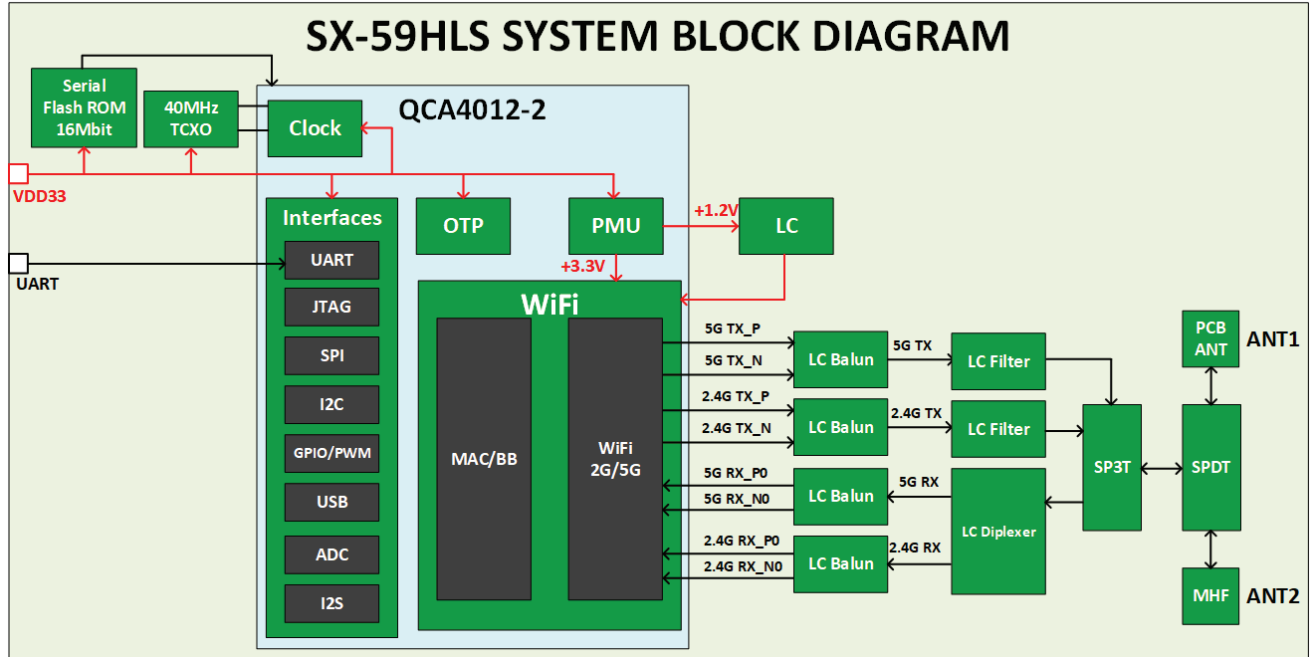
### Hardware Specifications:

Product Name	SX-59HLS
Radio Chipset	QCA4012-2 (Qualcomm)
CPU and Memory	Integrated 16-Mbit SPI Flash, 800 Kbyte of on-chip RAM memory
Radio Specifications	802.11a/b/g/n (1x1)
Supported Interface	High Speed UART
Security	WPA/WPA2 802.11x (LEAP, PEAP, TLS, TTLS, FAST)
WPS 2.0	WPS - Push Button Configuration WPS - PIN Code Method
Operating Voltage	3.3V +/-5%
Operating Temperature	0 to +70 degrees C
Dimensions	43.00 x 20.00 x 2.5mm (L x W x H)
Modular Certifications	FCC / IC / CE / MIC

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### silex global sales & support locations

SX-59HLS Block Diagram



Silex AT Command (Software)

The SX-59HLS module (bulk and sample pack) comes with Silex AT command firmware already pre-programmed from the factory. Silex AT command works just like a modem. It is intended to connect to a host system with UART and works as serial-to-Wi-Fi media converter. Silex AT command can run on one of the three UART ports of QCA4012.

The Silex developed AT command set makes it easier to configure and control the SX-59HLS radio module.

- Debug messages
- UART setting and control
- GPIO Reading and writing
- OWM channel setting
- Webservice
- DHCP client and server
- SNTP client
- AWS IoT MQTT connection agent
- Certificate storage and management

Evaluation Kit

**SX-59HLS-EVK** is an evaluation board for SX-59HLS module. The SX-59HLS module is soldered on the evaluation board with appropriate headers and a USB interface to easily connect the module with a PC. The AT command set can be used to begin evaluation.



SX-59HLS-EVK

Ordering Information

SX-59HLS:	Bulk Package
SX-59HLS-SP:	Sample Pack for small quantities
SX-59HLS-EVK:	Evaluation Kit for SX-59HLS module

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