Embedded Wi-Fi 802.11
b/g/n Applications Utilizing
Leading-Edge Wi-Fi Technology

INVENTEK SYSTEMS
EMBEDDED WIRELESS SOLUTIONS
The IoT / Cloud Ready Solution
Inventek Serial-to-Wi-Fi Portfolio

*All eS-WiFi (embedded Serial) Wi-Fi modules have the following main features:*

- 802.11 a/b/g/n Wi-Fi protocol support based on Broadcom WICED Technology.
- Integrated TCP/IP Stack residing on Cortex ARM microcontroller.
- AT command set or Broadcom WICED Firmware.
- Connects to any 8/16/32 bit host microcomputer.
- Simultaneous STA and Access Point Cloud connected options.
- Host Interfaces include UART and SPI (USB for select modules).
- WEP, WPA, WPA2 and WPS

### Part Number Details

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Wi-Fi BT BLE NFC</th>
<th>Band</th>
<th>Micro</th>
<th>Host Interface</th>
<th>Antenna</th>
<th>Dimensions (mm)</th>
<th>Package</th>
<th>FCC/IC Approved</th>
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</thead>
<tbody>
<tr>
<td>ISM4390-M3H-L44-ED</td>
<td>Wi-Fi</td>
<td>2.4</td>
<td>Cortex M3 (48 MHz)</td>
<td>UART-1Mbps +</td>
<td>Micro-strip or External</td>
<td>14.5 x 30</td>
<td>44-pin LGA</td>
<td>In Process</td>
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<td>ISM90—L57</td>
<td>Wi-Fi</td>
<td>2.4</td>
<td>Cortex M3 (48 MHz)</td>
<td>UART-1Mbps +</td>
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<td>10.5 x 10.5</td>
<td>57-pin LGA</td>
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<td>ISM43362-M3G-L44-U</td>
<td>Wi-Fi</td>
<td>2.4</td>
<td>Cortex M3 (120MHz)</td>
<td>UART-1Mbps, SPI-5Mbps, USB HID</td>
<td>External - U.FL Connector</td>
<td>14.5 x 30</td>
<td>44-pin LGA</td>
<td>Yes</td>
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<tr>
<td>ISM43362-M3G-L44-E</td>
<td>Wi-Fi</td>
<td>2.4</td>
<td>Cortex M3 (120MHz)</td>
<td>UART-1Mbps, SPI-5Mbps, USB HID</td>
<td>Micro-strip Etched</td>
<td>14.5 x 30</td>
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<tr>
<td>ISM43340–M4G-L44-C</td>
<td>Wi-Fi BT BLE</td>
<td>2.4 &amp; 5</td>
<td>Cortex M4 (168 MHz)</td>
<td>UART-1Mbps, SPI-5Mbps</td>
<td>Chip or External</td>
<td>14.5 x 30</td>
<td>44-pin LGA</td>
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<tr>
<td>ISM43341–M4G-L44-C</td>
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<td>2.4 &amp; 5</td>
<td>Cortex M4 (168 MHz)</td>
<td>UART-1Mbps, SPI-5Mbps</td>
<td>Chip or External</td>
<td>14.5 x 30</td>
<td>44-pin LGA</td>
<td>In Process</td>
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</table>

**eS-WiFi USB with integrated TCP/IP stack**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Wi-Fi Band</th>
<th>Host Interface</th>
<th>Antenna</th>
<th>Dimensions (mm)</th>
<th>Package</th>
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</thead>
<tbody>
<tr>
<td>ISM43362-M3G-USB</td>
<td>2.4 GHz</td>
<td>USB HID 300 Kbps</td>
<td>Internal Stamped Metal</td>
<td>10 x 17 w/o USB Connector</td>
<td>USB Dongle</td>
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</table>
Wi-Fi SIP Modules

Inventek Systems offers Wi-Fi SIP modules for higher volume applications running a full Operating Systems

- 802.11 a/b/g/n Wi-Fi SIP based on Broadcom Wi-Fi Technology.
- 72.2 Mbps for a single 802.11n stream
- Complete Drivers for Linux and Android Operating Systems
- IEEE 802.11n D7.0 (OFDM 72.2 Mbps in single stream with 20MHz, Short GI)
- IEEE 802.11g (OFDM 54 Mbps) and IEEE 802.11b (DSSS 11Mbps)
- IEEE 802.11b (DSSS 11Mbps)
- IEEE 802.11i (security)
- WPA™, WPA2™ (Wi-Fi Protected Access)
- 4 bit SDIO interface for WLAN
- 4-Wire Bluetooth co-existence handshake interface support.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Wi-Fi BT BLE NFC</th>
<th>Band GHz</th>
<th>Host Interface</th>
<th>Drivers Available</th>
<th>Antenna</th>
<th>Dimensions (mm)</th>
<th>Package</th>
<th>FCC/IC Approved</th>
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<tr>
<td>ISM43362-L36</td>
<td>Wi-Fi</td>
<td>2.4</td>
<td>SDIO</td>
<td>Linux, Android</td>
<td>Micro-strip or external</td>
<td>24.4 x 14.5</td>
<td>36-pin LGA</td>
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<td>ISM43362-881</td>
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<td>2.4</td>
<td>SDIO</td>
<td>Linux, Android</td>
<td>None</td>
<td>8.1 x 8.6</td>
<td>81 pin BGA</td>
<td>No</td>
</tr>
<tr>
<td>ISM4340-L77</td>
<td>Wi-Fi BT, BLE</td>
<td>2.4 &amp; 5</td>
<td>SDIO</td>
<td>Linux, Android</td>
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<td>13.3 x 14.5</td>
<td>77 pin LGA</td>
<td>No</td>
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<td>ISM4341-L77</td>
<td>Wi-Fi BT, BLE, NFC</td>
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<td>SDIO</td>
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<td>13.3 x 14.5</td>
<td>77 pin LGA</td>
<td>No</td>
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</table>

SIP DRIVERS BY PLATFORM

<table>
<thead>
<tr>
<th>Kernel</th>
<th>Version</th>
<th>Distribution</th>
<th>BROADCOM BCM5892</th>
<th>TI SITARA</th>
<th>Atmel SAM9N12</th>
<th>Intel x86 (x32)</th>
<th>Intel x86 (x64)</th>
<th>Freescale IMX</th>
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</thead>
<tbody>
<tr>
<td>Linux</td>
<td>3.x</td>
<td>Ubuntu</td>
<td>In development Q1 15</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>In development Q1 15</td>
</tr>
<tr>
<td>Linux</td>
<td>3.x</td>
<td>Angstrom</td>
<td>In development Q1 15</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>In development Q1 15</td>
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<tr>
<td>Linux</td>
<td>2.x</td>
<td>Fedora</td>
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<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>In development Q1 15</td>
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<tr>
<td>Android</td>
<td>TBD</td>
<td>TBD</td>
<td>In development Q1 15</td>
<td>In development Q1 15</td>
<td>In development Q1 15</td>
<td>In development Q1 15</td>
<td>In development Q1 15</td>
<td></td>
</tr>
</tbody>
</table>
Robust and Simple AT Commands (IWIN)

Fast Time to Market

- OS Independent—No drivers required
- No need for extensive networking or WiFi knowledge
- Soft Access Point for Wi-Fi network connects in end products
- Direct Connect option allow for simple peer to peer network
- Cloud Agents Ported to run on eS-WiFi Modules

Simple Commands

- Joining to network
  WiFi Security: WEP/WPA/WPA2-Personal
  Auto-connect on power up
- Scanning for networks
- Pinging
- Power Save Modes
- Making TCP or UDP connections
- Sending & Receiving Data Control of

Only 8 AT Commands to send data (IWIN)

Joining a Network
1. C1=Inventek (Set SSID)
2. C2=hav3fun (Set Password)
3. C3=2 (Set Security Type)
4. C0 (Join Network)

Four simple commands and your connected!

Creating a Connection
1. P2=5300 (Set TCP Local Port)
2. P5=1 (Start TCP Server)

Sending & Receiving Data
1. S0\r48415645 (Send Data)
2. R0 (Receive Data) 48415645

Production Ready IOT Solutions

Connecting Anything, to Anyone, at Anytime

- Home Appliances
- HVAC Systems
- Energy Meters
- Medical Devices
- Sensors
- Consumer Devices
- Environmental Monitors.
Simply Connecting Embedded Devices

The Wi-Fi module hardware consists of an Cortex M3 host processor, integrated antenna and Broadcom Wi-Fi radio. The module has an USB, SPI and UART interfaces enabling connection in an embedded design. The Wi-Fi module requires no operating system and has a complete integrated TCP/IP Stack that only requires a simple AT command set to establish connectivity for any wireless product, minimizing development time, testing routines and certification.

Typical Applications:
PDA, Pocket PC, computing devices
Building automation and smart energy control.
Industrial sensing and remote monitoring.
Warehousing, logistics and freight management
PC and gaming peripherals
Printers, scanners, alarm and video systems
Medical applications
Patient monitoring and remote diagnostics

6-8 Wires Interconnect:
eS-WiFi only requires six connections to integrate a UART (serial to Wi-Fi)
802.11 b/g/n Wi-Fi solution to your embedded device.

Complete with FCC certification

SoftAP Configuration:
SoftAP is Running on eS-WiFi in a thermostat. The SoftAP will be accessed by a iPad, PC or Smartphone as a web browser to configure the Thermostat as a client on a network.
Inventek integrates Cypress PSOC and Broadcom Wi-Fi for Embedded Device to Device Communication

**Wirelessly Managing the “health” of the system**

Managing environmental sensors (e.g. temp, humidity, lighting, power supplies, system cooling in real-time, system communications, Providing simple user interface and debug ports, Managing system communications

**Wirelessly Connect the “health” of the system to the Cloud**

**Wirelessly Control the “health” of the system with your Smartphone**

PSoc 3 and PSoc 5 are a true programmable embedded system-on-chip integrating configurable analog and digital peripheral functions, memory and a microcontroller on a single chip. A complete programmable embedded 802.11 b/g/n Wireless system design platform.
Inventek Wi-Fi Evaluation Boards

Inventek eS-WiFi Evaluation Boards

The Inventek evaluation boards support supports the family of eS-Wifi 802.11 Wi-Fi modules. The modules are designed with a complete integrated TCP/IP stack and come with a simple to use AT command set making embedded Wi-Fi into your device simple. The eS-Wifi has a family of footprint compatible modules Based on Broadcom’s leading edge WI-Fi radio’s. The Standard 44 pin Land Grid package allows simple migration for future cost reduction platforms.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISM43362-M3G-EVB</td>
<td>Serial to WiFi EVB, Broadcom BCM43362, STMF205, External Antenna (Optional Ext.)</td>
<td>Production</td>
</tr>
<tr>
<td>ISM4390-M3H-ED-EVB</td>
<td>Serial to WiFi EVB, Broadcom BCM4390</td>
<td>Sampling –9/14</td>
</tr>
<tr>
<td>ISM43341-M4G-L44-E</td>
<td>Serial to WiFi EVB, Broadcom BCM4341, STMF405, Etched Antenna</td>
<td>Sampling—10/14</td>
</tr>
</tbody>
</table>

Evaluation Boards Overview

Cypress PSOC 3 or PSOC 5 Evaluation

The Inventek evaluation boards support supports the family of Cypress PSOC 3 and PSOC 5 EVB’s. A simple custom PSOC module allows you to use the custom created PSOC creator to drag and drop a connection to any of the eS-Wi-Fi modules. The kit comes with a simple to use user guide, drivers and real life applications to create a wireless em-
CONTACT US and start your Embedded Connected design today

INVENTEK SYSTEMS WIRELESS MODULE OFFERING:

LEADING THE SMART, TIME TO MARKET IoT REVOLUTION

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