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INVENTEK SYSTEMS

ISM34x-USB

Embedded Serial-to-WiFi Module

eS-WiFi™

802.11 a/b/g/n, Bluetooth 4.0, NFC

Preliminary Data Sheet

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1 GENERAL DESCRIPTION

The Inventek IS340-USB Wi-Fi / BT dongle consist of an ISM4334x-M4G-L44 is an embedded wireless internet connectivity module that operates in the 2.4 & 5.0 GHz spectrum. The Wi-Fi module's hardware consists of an ARM Cortex M4 host processor, Broadcom BCM43341/0 Dual-Band (2.4 GHz / 5 GHz) 802.11 a/b/g/n MAC/Baseband/Radio with Integrated Bluetooth 4.0 and NFC support. The module has two antenna options, an on board dual band chip 2.4 & 5 GHz or an U.FL connector for external 2.4 & 5 GHz antenna.

There are two versions of the module offered, one that supports NFC (ISM43341-M4G-L44) and one that does not (ISM43340-M4G-L44).

Hardware Features

- Dual port FTDI USB chip that can be used as a VCOM port or JTAG to program the ST microcontroller on board.
- On Board Flash for over the air updates
- 2.4 and 5 GHz antenna with a zero ohm resistor for a stuffing option for external antenna's
- External connector for NFC along with a L/C circuit that can be tuned for your NFC antenna.
- The Wi-Fi module requires no operating system and has a completely integrated TCP/IP Stack.
- The module hardware can be used with Inventek's AT Command set (IWIN) or with Broadcom's WICED™ SDK3.1.2 or later. Please download the Inventek 3.1.2 patch for the Broadcom SDK

Typical Applications:

- PDA, Pocket PC, computing devices.
- Building automation and smart energy control.
- Industrial sensing and remote equipment monitoring.
- Warehousing, logistics and freight management.
- PC and gaming peripherals.
- Printers, scanners, alarm and video systems.
- Medical applications including patient monitoring and remote diagnostics.

2 PART NUMBER DETAIL DESCRIPTION

2.1 Ordering Information

Device	Description	Firmware	Ordering Number
ISM430-USB	Wi-Fi/BT USB dongle	USB	ISM430-USB
ISM431-USB	Wi-Fi/BT & NFC USB dongle	USB	ISM430-USB

3 CERTIFICATIONS

3.1 Limitations

Inventek Systems products are not authorized for use in safety-critical applications (such as life support) where a failure of the Inventek Systems product would reasonably be expected to cause severe personal injury or death.

3.2 Regulatory Compliance

CE



Regulator	Status
FCC	In Process
IC	In Process
RoHS	Compliant

3.3 FCC and IC User's Manual Statements:

OEM INSTRUCTIONS:

This module is limited to OEM installation only.

OEM integrators must ensure that the end-user has no manual instructions to remove or install the module. OEM's must comply with FCC marking regulation part 15 declaration of conformity (Section 2.925(e)).

This module is to be installed only in mobile or fixed applications (Please refer to FCC CFR 47 Part 2.1091(b) for a definition of mobile and fixed devices).

Separate approval is required for all other operating configurations, including portable configurations with respect to FCC CFR 47 Part 2.1093, and different antenna configurations.

The antennas used with this module must be installed to provide a separation distance of at least 20cm from all persons, and must not be co-located or transmit simultaneously with any other antenna or transmitter, except in accordance with FCC multi transmitter product procedures.

The ISM43340/1 Modules has been designed to operate with the following antennas and gains. Use with other antenna types or with these antenna types at higher gains is strictly prohibited.

Manufacturer	Type of Antenna	Model	Gain dBi	Type of Connector
Inventek	U.FL port Antenna	W2.4-5P-U	2.6 (@ 2.4 GHz) 3.3 (@ 5 GHz)	U.FL
Inventek	Chip Antenna	AA077	1.4 (@ 2.4 GHz) 2.3 (@ 5 GHz)	Chip

FCC Notice-

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

A clearly visible label is required on the outside of the user's (OEM) enclosure stat the following text:

Contains FCC ID: 07P-341
Contains IC: 10147A-341

This transmitter module has been certified for FCC Part 15 operation; when installed in a host device, the host manufacturer is responsible for making sure that the host device with the transmitter installed continues to be compliant with Part 15B unintentional radiator requirements

Industry Canada User's Manual Statements:**IC RSS-210/RSS-Gen Notices-**

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L'opération est soumise aux deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Sous la réglementation d'Industrie Canada, ce transmetteur radio ne peut fonctionner en utilisant une antenne d'un type et un maximum (ou moins) gain approuvées pour l'émetteur par Industrie Canada. Pour réduire le risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de manière que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour une communication réussie.

The radio transmitter has been approved by Industry Canada to operate with the antenna types listed above with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Cet émetteur de radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antennes énumérées ci-dessus avec le gain maximal admissible et impédance d'antenne requise pour chaque type d'antenne indiquée. Types d'antennes ne figurant pas dans cette liste, ayant un gain supérieur au gain maximum indiquée pour ce type, sont strictement interdites pour l'utilisation avec cet appareil.

4 SPECIFICATIONS

4.1 Module Architecture

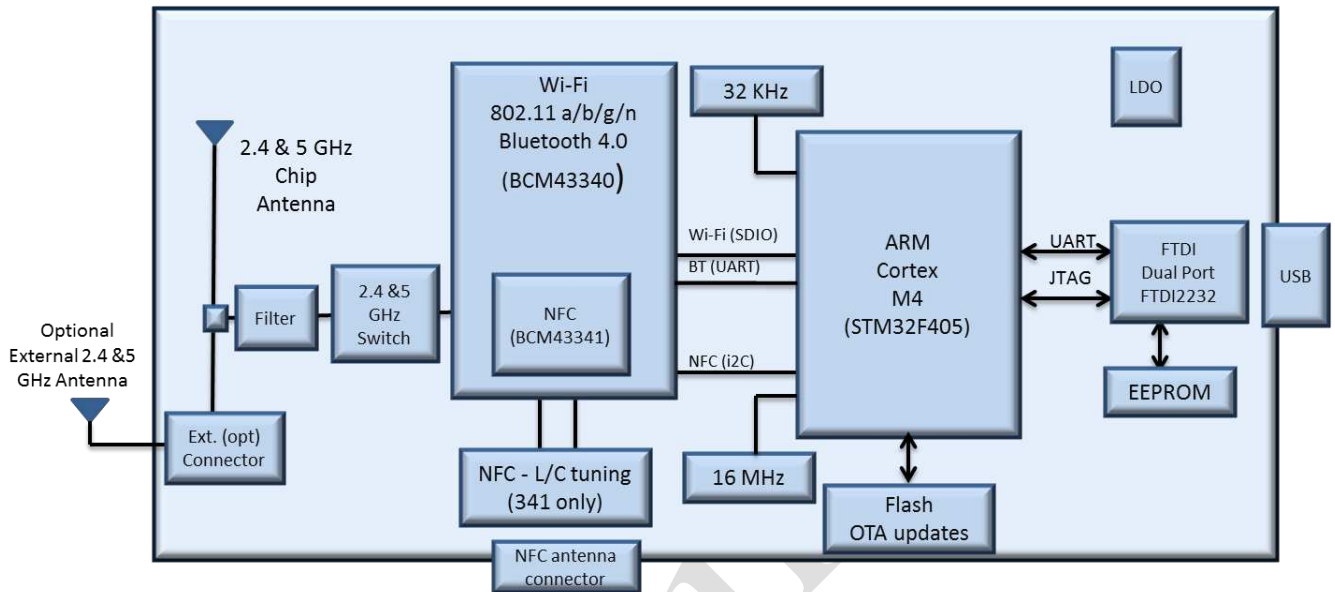


Figure 1 Inventek's ISM340-USB / ISM341-USB with NFC Block Diagram

4.2 External Antenna Connections

ISM34x-USB module is designed for use with an optional external antenna via a connection using the U.FL connector. A zero ohm resistor is used to select the external antenna

Item	Description
Connector	U.FL series
Manufacturer	I-PEX Co., Ltd.
Part No.	20279-001E-01
Height	1.25 mm
Width	2 mm
DC	3.0 – 5.0 V

Table 1 On-Board Antenna Connector

4.3 NFC Connector

Conn HDR 1mm 2 POS SMD	1	Molex	501568-0207
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4.4 Environmental Specifications

Item	Description
Operating temperature range	-40 deg. C to +85 deg. C
Storage temperature range	-40 deg. C to +85 deg. C
Humidity	95% max non-condensing

Note 1: The ISM34x-USB supports a functional operating range of -40°C to +85°C. However the optimal RF performance specified in this data sheet is only guaranteed for temperatures from -10°C to +65°C

4.5 External Antenna

The Inventek U.FL PCB antenna will be tested for FCC and CE certification. The part number is W2.4-5P-U. It is a dual band 2.4/5 GHz PCB antenna with a U.FL connector.

The Inventek W2.4-5P-U PCB antenna is FCC and CE certified and can be found on the Inventek Website.



5 ON BOARD PROCESSOR

The eS-WiFi module is available with an ST Microcontroller, STM32F405 processor.

STM32F405 (1 MB), Flash Microcontroller
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6 ISM340-USB Quick Start Guide

Installing the ISM340-USB dongle: Before you plug the board into your computer download and install the eS-WiFi PC demo software and Drivers:

www.inventeksys.com/wp-content/uploads/Inventek_Systems_eS-WiFiDemo_v1.4_b2.zip

Save the eS-Wifi Demo.zip

Run as Administrator.

Select Menu>Install Drivers on the eS-WiFi Demo to pre-install the drivers then plug-in the board.

Identify serial Com port from Device. Set Baud rate to 115,200, 8 Data bits, 1 Stop bit , Parity None, and Flow control None

The other option is to use a terminal program such as Hyper-terminal, PuTTY

Install the Broadcom WICED SDK and install the platform Patch:

WICED SDK <http://community.broadcom.com/community/wiced-wifi>

ISM340 SDK patch: <http://www.inventeksys.com/wp-content/uploads/Wiced3.1.2patch.zip>

7 PRODUCT COMPLIANCE CONSIDERATIONS

RoHS: Restriction of Hazardous Substances (RoHS) directive has come into force since 1st July 2006 all electronic products sold in the EU must be free of hazardous materials, such as lead. Inventek is fully committed to being one of the first to introduce lead-free products while maintaining backwards compatibility and focusing on a continuously high level of product and manufacturing quality.

EMI/EMC: The Inventek module design embeds EMI/EMC suppression features and accommodations to allow for higher operational reliability in noisier (RF) environments and easier integration compliance in host (OEM) applications.

FCC/CE: The module will be tested for FCC/IC/CE compliance.

8 REVISION CONTROL

Document : ISM43341-M4G-L44	Wi-Fi module
External Release	DOC-DS-20089

Date	Author	Revision	Comment
4/27/2014	KMT	1.0	Preliminary

9 CONTACT INFORMATION

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