802.11B/G/N SDIO Module with Antenna Connectors
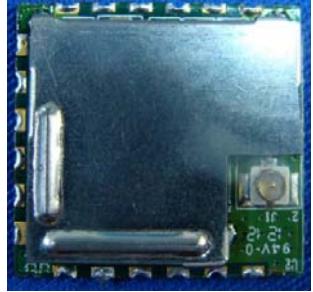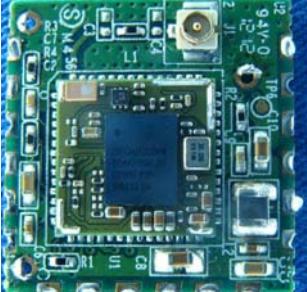
ARGOX-SDM-802.11 BGN

WLAN Module

User Manual

ARGOX-SDM-802.11 BGN WLAN Module

## Product Specification

Features:	Model#: ARGOX-SDM-802.11 BGN WLAN Module
- Core IC: Summit SSD-40L - IEEE 802.11b/g/n compliant - designed for mobile devices - supports WPA/WPA2/WEP 64-bit & 128-bit encryption - w/o Antenna - Dimension: 19.5 x 18.4 x 3.5 mm - SDIO interface	**IEEE802.11b/g/n compliant**

Contents

Pin Definition
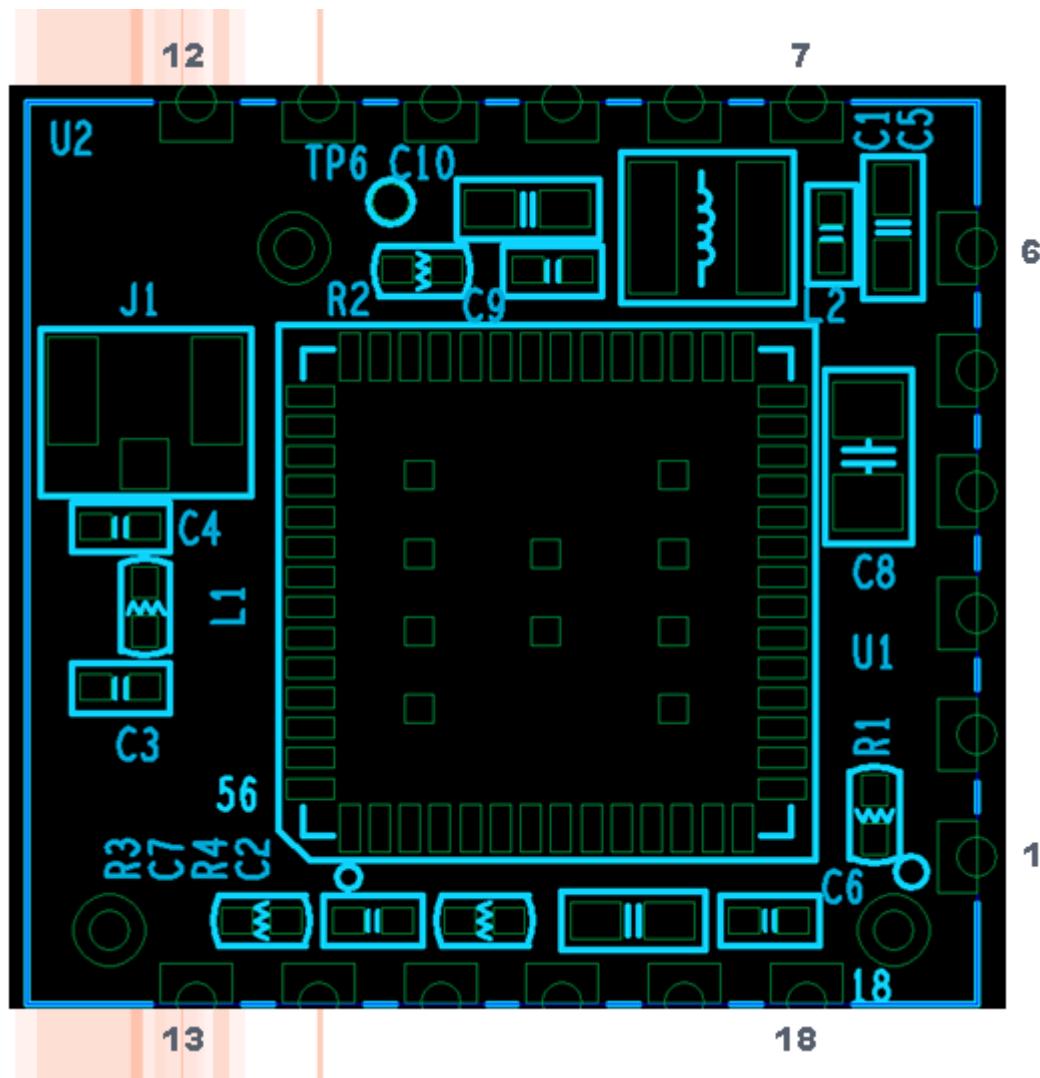
Pin No.	Pin Name	Pin No.	Pin Name
1	V3P3	11	BT_STATE
2	SD_DATA0	12	WLAN_ACTIVE
3	SD2_DATA1	13	BT_FREQ
4	SD2_DATA2	14	GND
5	SD2_DATA3	15	LED_IN
6	V3P3	16	LED_IN
7	GND	17	SD2_CMD
8	GND	18	SD2_CLK
9	NC		
10	BT_PRIORITY		

Specifications Table

Feature	Description
Physical Interface	0.62 mm pitch LGA (land grid array) (0.62 GSP)
Wi-Fi Interface	1-bit or 4-bit Secure Digital I/O
Antenna Interface	Single antenna port (when mounted on an MSD40L board)
Chip Set	Broadcom BCM4319
Input Voltage Requirements	3.3 VDC ± 10% (core)
I/O Signaling Voltage	1.8/3.3 VDC ± 10%
Current Consumption (At maximum transmit power setting)	802.11b (16 dBm output power) Transmit: 294 mA (970 mW) Receive: 40 mA (132 mW) Standby: TBD mA (TBD mW) 802.11g (13 dBm output power) Transmit:275 mA (908 mW) Receive: 40 mA (132 mW) Standby: TBD mA (TBD mW) 802.11n (12 dBm output power) (20-MHz channel) Transmit: 255 mA (842 mW) Receive: 40 mA (132 mW) TBD mA (TBD mW)
Operating Temperature	-20° to 70°C (-4° to 158°F) (SDIO)
Operating Humidity	10 to 90% (non-condensing)
Storage Temperature	-30° to 85°C (-22° to 185°F)
Storage Humidity	10 to 90% (non-condensing)
Maximum Electrostatic Discharge	± 2 kV
Length Note: Length, width, and thickness measurements include the metal shielding.	10 mm (0.39")
Width	10 mm (0.39")
Thickness	1.3 mm (0.05")
Mounting	See "Mounting" section for more information
Wireless Media	Direct Sequence-Spread Spectrum (DSSS) Orthogonal Frequency Divisional Multiplexing (OFDM)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)

Network Architecture Types	Infrastructure and ad hoc
Network Standards	IEEE 802.11b, 802.11d, 802.11e, 802.11g, 802.11i, 802.11n
Data Rates Supported	802.11b (DSSS) 1, 2, 5.5, 11 Mbps
	802.11g (OFDM) 6, 9, 12, 18, 24, 36, 48, 54 Mbps
	802.11n (OFDM, MCS 0-7) 6.5, 7.2, 13.0, 14.4, 19.5, 21.7, 26.0, 28.9, 39.0, 43.3, 52.0, 57.8, 58.5, 65.0, 72.2 Mbps
Modulation	BPSK @ 1, 6, 6.5, 7.2 and 9 Mbps
	QPSK @ 2, 12, 13, 14.4,18, 19.5 and 21.7 Mbps
	CCK @ 5.5 and 11 Mbps
	16-QAM @ 24, 26, 28.9, 36, 39 and 43.3 Mbps
	64-QAM @ 48, 52, 54, 57.8, 58.5, 65, and 72.2 Mbps
802.11n Spatial Streams	1 (Single Input, Single Output)
2.4 GHz Frequency Bands	ETSI
	2.4 GHz to 2.483 GHz
	FCC
	2.4 to 2.483 GHz
	MIC (Japan) (formerly TELEC)
	2.4 GHz to 2.495 GHz
	KCC
	2.4 GHz to 2.483 GHz
2.4 GHz Operating Channels	ETSI: 13 (3 non-overlapping)
	FCC: 11 (3 non-overlapping)
	MIC (Japan): 14 (4 non-overlapping)
	KCC: 13 (3 non-overlapping)
Transmit Power Settings Note: Maximum transmit power varies according to individual country regulations. All values nominal, +/-2 dBm	802.11b
	16 dBm (40 mW)
	802.11g
	13 dBm (20 mW)
	802.11n
	12 dBm (16 mW)

Typical Receiver Sensitivity	**802.11b**
	1 Mbps -91 dBm
	2 Mbps -89.5 dBm
	5.5 Mbps -90 dBm
	11 Mbps -86 dBm (PER <= 10%)
	802.11g
	6 Mbps -85 dBm
	9 Mbps -83 dBm
	12 Mbps -83 dBm
	18 Mbps -82 dBm
	24 Mbps -78 dBm
	36 Mbps -78 dBm
	48 Mbps -73dBm
	54 Mbps -70 dBm (PER <= 10%)
Operating Systems Supported	Windows Mobile 6.5
	Windows Mobile 6.1
	Windows Mobile 6.0
	Windows Mobile 5.0
	Windows Embedded CE 6.0 R3
	Windows Embedded CE 6.0 R2
	Windows Embedded CE 6.0
	Windows Embedded CE 5.0
Security	Standards
	Wireless Equivalent Privacy (WEP)
	Wi-Fi Protected Access (WPA)
	IEEE 802.11i (WPA2)
	Encryption
	Wireless Equivalent Privacy (WEP, RC4 Algorithm)
	Temporal Key Integrity Protocol (TKIP, RC4 Algorithm)
	Advanced Encryption Standard (AES, Rijndael Algorithm)
	Encryption Key Provisioning
	Static (40-bit and 128-bit lengths)
	Pre-Shared (PSK)
	Dynamic
	802.1X Extensible Authentication Protocol Types
	EAP-FAST
	EAP-TLS
	EAP-TTLS

	PEAP-GTC
	PEAP-MSCHAPv2
	PEAP-TLS
	LEAP
Compliance	ETSI Regulatory Domain
Note: These agency approvals are pending.	EN 300 328
	EN 301 489-1
	EN 301 489-17
	EN 301 893
	EN 60950-1
	EU 2002/95/EC (RoHS)
	FCC Regulatory Domain
	FCC 15.247 DTS – 802.11b/g/n (Wi-Fi) – 2.4 GHz & 5.8 GHz
	FCC 15.407 UNII – 802.11a (Wi-Fi) – 2.4 GHz & 5.4 GHz
	Industry Canada
	RSS-210 – 802.11a/b/g/n/n (Wi-Fi) – 2.4 GHz, 5.8 GHz, 5.2 GHz, and 5.4 GHz
Certifications	Summit will be pursuing Wi-Fi Alliance and CCX certifications for this radio in the near term.
Warranty	**One-Year Warranty**
All specifications are subject to change without notice	

Description

ARGOX-SDM-802.11 BGN WLAN module is designed with Summit SSD-40L wireless LAN module IC which compliant with IEEE802.11 b/g/n standard. It also supports WPA/WPA2/WEP 64-bit & 128-bit encryption and external antenna must be applied to the module via J1 connector. It communicates with host device by SDIO interface and external 3.3V dc power must be supplied to the module.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT
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.

CAUTION:
Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Labeling requirements
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.

RF exposure warning
This equipment must be installed and operated in accordance with provided instructions and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be providing with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: NBF-SDMN"

Information for the OEMs and Integrators

The following statement must be included with all versions of this document supplied to an OEM or integrator, but should not be distributed to the end user.

1) This device is intended for OEM integrators only.

2) Please see the full Grant of Equipment document for other restrictions.

This radio transmitter FCC ID: NBF-SDMN has been approved by FCC to operate with the antenna types listed below 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.

Antenna List

| No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Ji-Haw	69-70002-001	PIFA	3.48 dBi for 2.4 GHz
2	Ji-Haw	69-70003-001	PIFA	3.23 dBi for 2.4 GHz
3	LYNwave	ALB120-052020-150052	PIFA	2.70 dBi for 2.4 GHz
4	Wgt	AQ060WIPI01+A	PIFA	4.36 dBi for 2.4 GHz
5	Aristotle Enterprises	69-70003-006	PIFA	3.40 dBi for 2.4 GHz

Note: The antenna connector is I-pex type.

Hosted Information

The "PA-6030" is a test-hosted board for Argox Information Co., Ltd. "ARGOX-SDM-802.11 BGN" RF module. The hosted board manufacture and model name is Argox Information Co., Ltd. / PA-6030, PT-9130-1-1, PT-9230-1-1, PT-9132-0-0, PT-9232-0-0

1. Hardware Setup

a.) The RF module need to soldered on the test-hosted board.
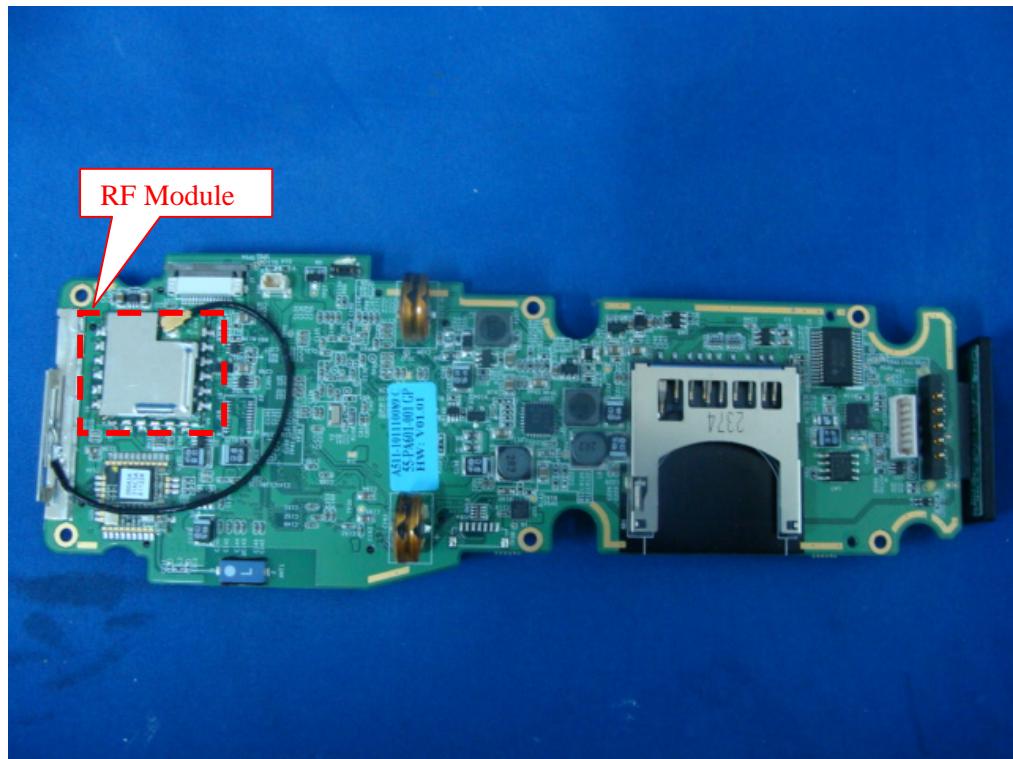
RF Module

The ARGOX-SDM-802.11 BGN has received Limited Module Approval (LMA) from FCC. This is because the ARGOX-SDM-802.11 BGN does not have a built-in +3.3V regulator circuit. Argox Information Co., Ltd. recommends that customers follow the +3.3V supply voltage requirements given in this data sheet.

If the power supply recommendations are followed, then customers will not need to go through formal certification of the product for WiFi related RF behavior for FCC. It is the product manufacturers responsibility to make sure that the power supply recommendations is followed, and that the RF behavior meets the certification requirements when the module is installed in the final product.

經型式認證合格之低功率射頻電機,非經許可,公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通信;經發現有干擾現象時,應立即停用,並改善至無干擾時方得繼續使用。
前項合法通信,指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

本模組於取得認證後將依規定於模組本體標示審驗合格標籤,並要求最終產品平台廠商
(OEM Integrator)於最終產品平台(End Product)上標示"本產品內含射頻模組,
其 NCC 型式認證號碼為: CCXXxxYYyyyZzW