Argox WM100-BW Combo Module User Manual

Argox Information Co., Ltd

Contents

WM100-BW
Combo Module USER'S MANUAL

Website: **https://www.argox.com**

Proprietary Statement

This manual contains proprietary information of Argox Information Co., Ltd. It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the expressed written permission of Argox Information Co., Ltd.

Product Improvements
Continuous improvement of products is a policy of Argox Information Co., Ltd. All specifications and signs are subject to change without notice.

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.

This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated. Additional testing and certification may be necessary when multiple modules are used.

USERS MANUAL OF THE END PRODUCT
In the user's manual of the end product, the end user has to be informed to keep at least 20 cm separation with the antenna while this end product is installed and operated.

The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

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.

LABEL OF THE END PRODUCT

The final end product must be labeled in a visible area with the following "Contains FCC ID: NBF-WM100".

This radio transmitter FCC ID: NBF-WM100—has been approved by FCC part 15 Subpart C 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.	Manufacture	Part No.	Antenna type	Peak Gain
1	Unictron	AA222	PIFA	3.9 dBi for 2400 MHz
2	Unictron	TA-S8B-A-WE01	DIPOLE	6.42 dBi for 2400 MHz

Note: The antenna connector is reverse SMA type.

Liability Disclaimer
Argox Information Co., Ltd. takes steps to assure that the company's published engineering specifications and manuals are correct; however, errors do occur. Argox Information Co., Ltd. reserves the right to correct any such errors and disclaims any resulting liability. In no event shall Argox Information Co., Ltd. or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss) arising out of the use of or the results of use of or inability to use such product, even if Argox Information Co., Ltd. has been advised of the possibility of such damages.

RF exposure warning
The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment.
The equipment must not be co-located or operated in conjunction with any other antenna or transmitter.

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

Safety

The user is cautioned that any changes or modifications which are not recommended by Argox Information Co. Ltd. could result in the loss of the user's authority to operate the equipment. To ensure compliance, the users must use accessories and peripherals approved by Argox Information Co. Ltd.

Supplemental Information: This device complies with the requirement of FCC Part 15 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.

The manufacturer declares under sole responsibility that this product conforms to the following standards or other normative documents:
EMC: EN 55022:2010 class A
EN 55024:2010

Argox Information Co., Ltd certifies that the following products and/or components are compliant with the current requirements of the European Union Restriction on the use of Hazardous Substances (RoHS) Directive, 2011/65/EC.

CC Statement

Taiwan regulatory information(NCC):

Countries/Region	RF Standard	EMC Standard	Safety standard
USA	FCC Part 15.247	FCC Part 15, Subpart B, Class A	IEC 62368-1

Getting Started

Congratulations on your choice of WM100-BW combo module, manufactured by Argox Information, a global leader in the barcode industry. WM100-BW is ideally designed to bring more efficiency to your business. This manual will help you get to know facility and provide you with the required information.

Features

- IEEE standards support 802.11b, 802.11g, 802.11n
- Supports channel widths 20/40MHz at 2.4GHz.
- Supports BT version: 5.1, LE.
- Support Class 1 and Class 2 BT power level transmission.
- BT transmission speed including 1,2 and 3 Mbps EDR operations.
- Supports Simple pairing(SP) and Enhanced inquiry Response (EIR) function.
- Dual–stream IEEE 802.11n support 20M and 40MHz channels provide the PHY layer rates up to 600Mbps.

General Specification

Rating voltage	DC 3.3V
Standards	IEEE 802.11b/g/n Bluetooth® v5.2
Chipset	Murata LBEE5KL1YN-814
Data rate	802.11b: 11Mbps 802.11g: 54Mbps 802.11n: 600Mbps BT: 1Mbps,2Mbps,3Mbps
Operating Frequency	2402 -2480 MHz
Antenna	Dipole, PIFA, Pillar
Interface	UART
Modulation	802.11b: DSSS 802.11g: OFDM 802.11n: OFDM
Power consumption	Tx: 300mA Rx: 60mA
Operating Temperature range	5~40℃
Storage Temperature	-20~40℃
Humidity (Non-condensing)	5~60%(Operating), 5~60%(Storing)

Software Specification

Standards	IEEE 802.11b/g/n
Security	WEP,WPA,WPA2,WPA3
Roaming & Scanning	• Scanning & Roaming Optimizations for faster handoffs • Roaming triggers
Debug diagnostics	Support for Debug message zones Dynamic control of debug message zones to optimize log capture
Operating system support	RTOS

Output Power & Sensitivity

- 802.11g

Data rate	Tx ± 2dBm	Rx Sensitivity
54Mbps	13 dBm	≦ -65 dBm

- 802.11n/2.4GHz

Data rate	Tx ± 2dBm	Rx Sensitivity
65Mbps	12 dBm	≦ -64 dBm

- Bluetooth

Data rate	Tx ± 2dBm(Class 1 Device)	Rx Sensitivity
3Mbps	0≦ Output Power≦ +10 dBm	0.1% BR,BER at -91 dBm

PIN ASSIGNMENT

PIN#	PIN Name	Description
1	VDD_3V3_SIP	Power
2	I2C1_SDA	IIC
3	SPI1_SCK	SPI
4	LED_STS_L1	Status
5	GPIO_PB2_OUT	Status
6	VDD_3V3_SIP	Power
7	I2C1_SCL	IIC
8	SPI1_NSS	SPI
9	GND	GND
10	SWDCLK	SWD
11	GND	GND
12	UART7_TX	UART
13	SPI1_MISO	SPI
14	GND	GND
15	SWDIO	SWD
16	GND	GND
17	UATR7_RX	UART
18	SPI1_MOSI	SPI
19	GND	GND
20	mNRST	nRESET

CERTIFICATION

PIFA Ant.

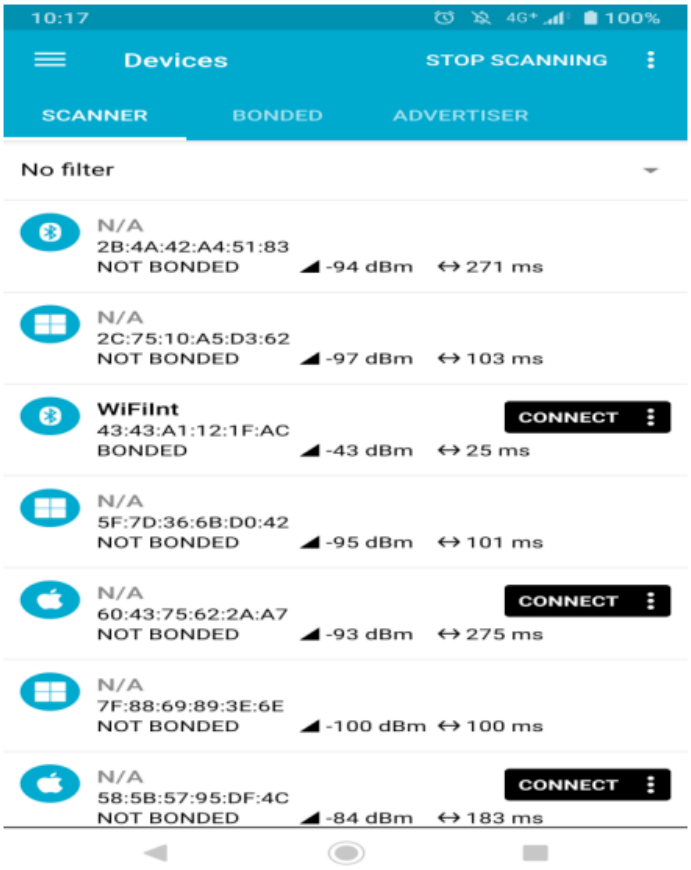
- FCC
- CE RED
- NCC

DIPOLE Ant,

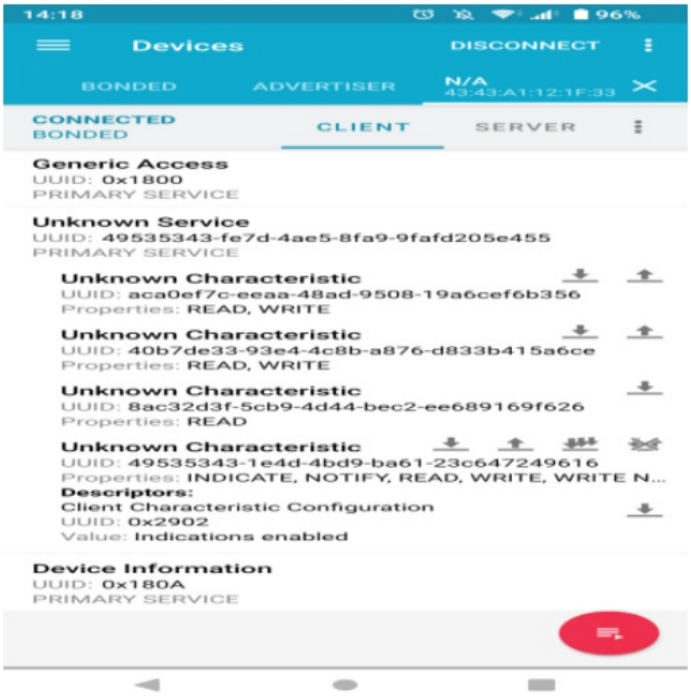
- FCC
- CE RED
- NCC

BLE setting Wi-Fi connection

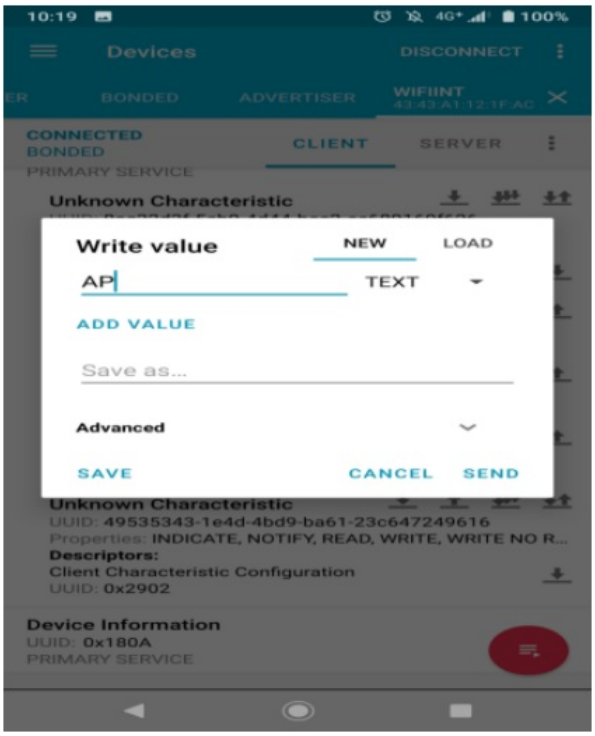
1. Search WM100-BW device(ex. XXXX) via Bluetooth utility ”NRF Connect” and link(we can modify device name and confirm WM-100BW device by MAC address)



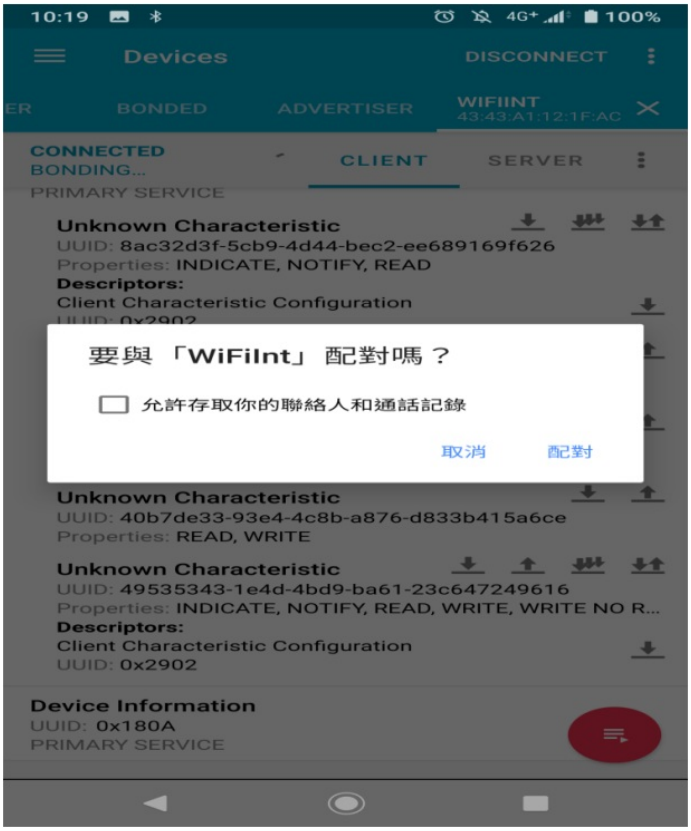
2. Click Unknown Characteristic in the Unknown service, UUID was aca0ef7c-eeaa-48ad-9508-19a6ced6b356, click button ”Write” to process and setting wifi SSID, see below illustration



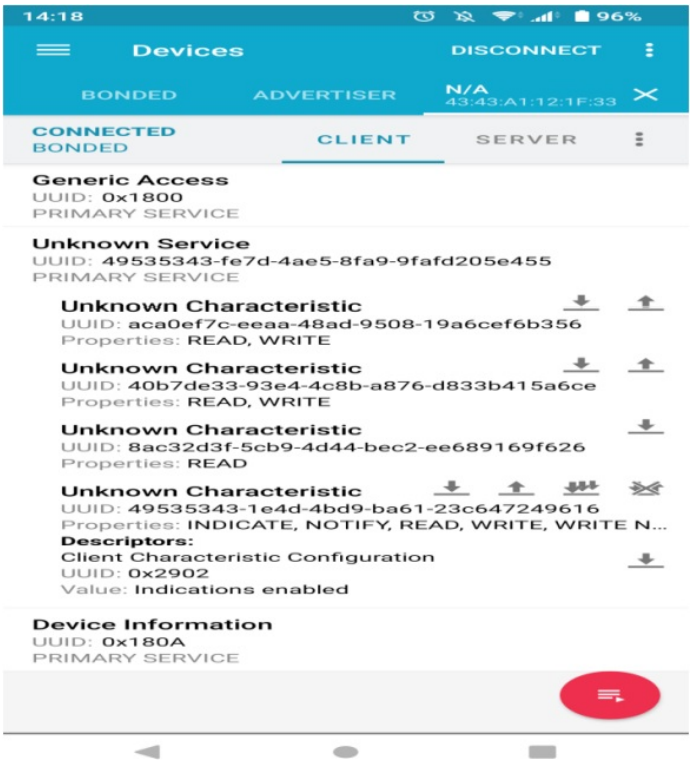
3. Choose TEXT and input AP name, press SEND



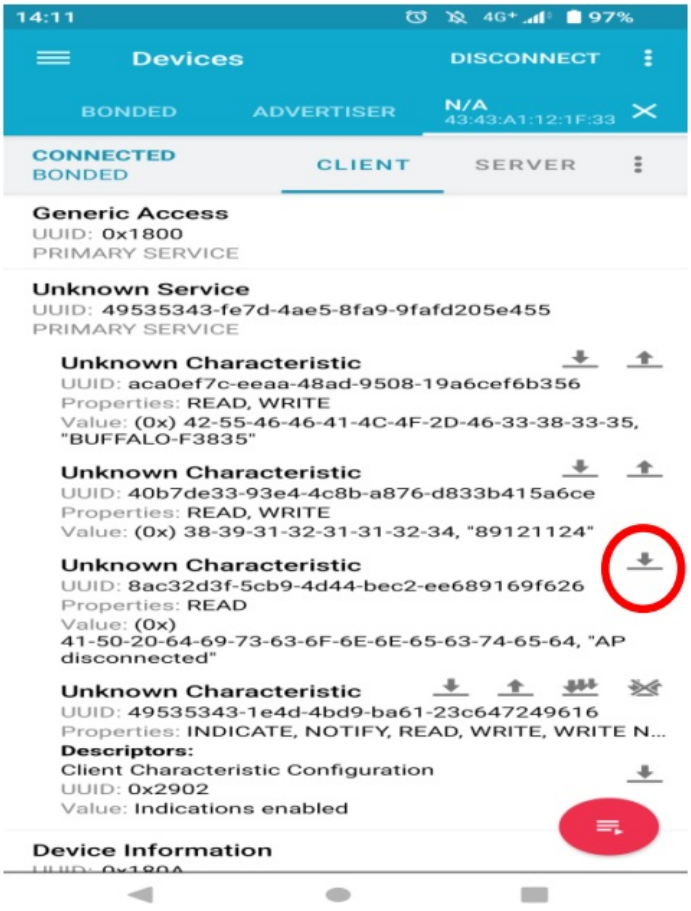
4. Click button <pairing> to process match up if this was the first time to implement.

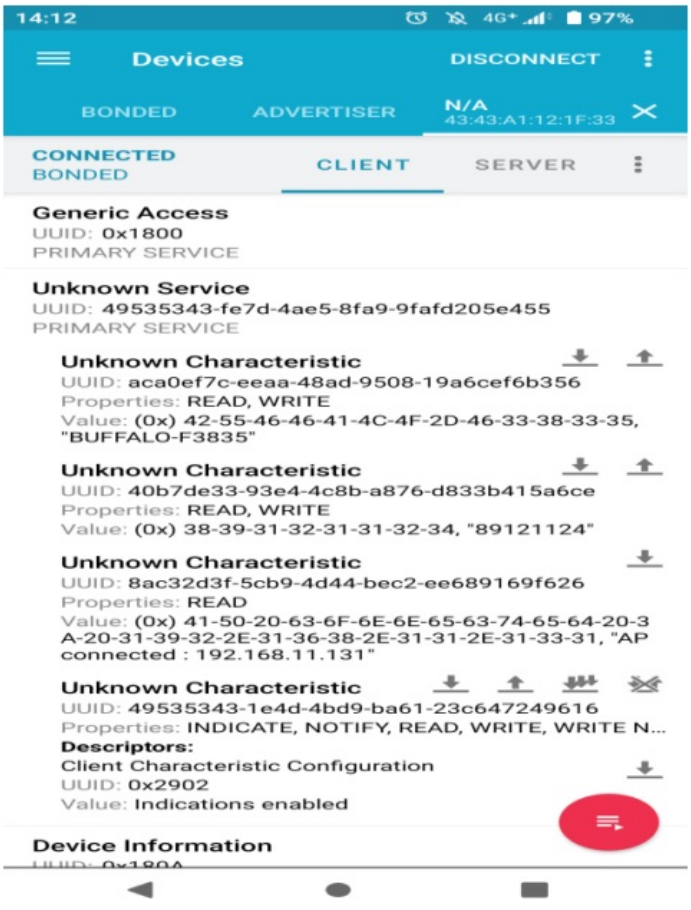


5. Click Unknown Characteristic in the Unknown service, UUID was 40b7de33-93e4-4c8b-a876-d833b415a6ce, click button ”Write” to process and setting wifi password, see below illustration



6. Wi-Fi access IP and connection automatically.
7. Click Unknown Characteristic in the Unknown service, UUID was 8ac32d3f-5cb9-4d44-bec2-ee689169f626, click button “Read” and get show Wifi connection status, see below illustration


14:11
97%
Devices
DISCONNECT
BONDED
ADVERTISER
N/A
43:43:A1:12:1F:33
CONNECTED
BONDED
CLIENT
SERVER
Generic Access
UUID: 0x1800
PRIMARY SERVICE
Unknown Service
UUID: 49535343-fe7d-4ae5-8fa9-9fafd205e455
PRIMARY SERVICE
Unknown Characteristic
UUID: aca0ef7c-eeaa-48ad-9508-19a6cef6b356
Properties: READ, WRITE
Value: (0x) 42-55-46-46-41-4C-4F-2D-46-33-38-33-35, "BUFFALO-F3835"
Unknown Characteristic
UUID: 40b7de33-93e4-4c8b-a876-d833b415a6ce
Properties: READ, WRITE
Value: (0x) 38-39-31-32-31-31-32-34, "89121124"
Unknown Characteristic
UUID: 8ac32d3f-5cb9-4d44-bec2-ee689169f626
Properties: READ
Value: (0x) 41-50-20-64-69-73-63-6F-6E-6E-65-63-74-65-64, "AP disconnected"
Unknown Characteristic
UUID: 49535343-1e4d-4bd9-ba61-23c647249616
Properties: INDICATE, NOTIFY, READ, WRITE, WRITE N...
Descriptors:
Client Characteristic Configuration
UUID: 0x2902
Value: Indications enabled
Device Information


14:12
97%
Devices
DISCONNECT
BONDED
ADVERTISER
N/A
43:43:A1:12:1F:33
CONNECTED
BONDED
CLIENT
SERVER
Generic Access
UUID: 0x1800
PRIMARY SERVICE
Unknown Service
UUID: 49535343-fe7d-4ae5-8fa9-9fafd205e455
PRIMARY SERVICE
Unknown Characteristic
UUID: aca0ef7c-eeaa-48ad-9508-19a6cef6b356
Properties: READ, WRITE
Value: (0x) 42-55-46-46-41-4C-4F-2D-46-33-38-33-35, "BUFFALO-F3835"
Unknown Characteristic
UUID: 40b7de33-93e4-4c8b-a876-d833b415a6ce
Properties: READ, WRITE
Value: (0x) 38-39-31-32-31-31-32-34, "89121124"
Unknown Characteristic
UUID: 8ac32d3f-5cb9-4d44-bec2-ee689169f626
Properties: READ
Value: (0x) 41-50-20-63-6F-6E-6E-65-63-74-65-64-20-3A-20-31-39-32-2E-31-36-38-2E-31-31-2E-31-33-31, "AP connected : 192.168.11.131"
Unknown Characteristic
UUID: 49535343-1e4d-4bd9-ba61-23c647249616
Properties: INDICATE, NOTIFY, READ, WRITE, WRITE N...
Descriptors:
Client Characteristic Configuration
UUID: 0x2902
Value: Indications enabled
Device Information

Documents / Resources

	Argox WM100-BW Combo Module [pdf] User Manual WM100, NBF-WM100, NBFWM100, WM100-BW Combo Module, WM100-BW, WM100-BW Module, Combo Module, Module

References

- User Manual