

User Manual

Sichuan AnSphere Technology Co., Ltd.

Revision History

Version	Description	Author	Date
V0.1	Initial version	Juan He	11-30-2021
V0.2	Complete instructions	Juan He	7-12-2021

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1 Instruction

BUNN is based on Microsoft Azure Sphere OS and provides end-to-end IoT security solutions. BUNN has been configured with multiple interfaces including BLE, Ethernet, RS232,SD,USB.

Product features:

- Data storage: support to read & write SD from MT3620 through SPI and PC through USB
- Data transfer: support to data transfer through BLE, Ethernet, RS232,SD,USB
- BLE configuration: support to configure communication ways through BLE by APP
- Operating ambient temperature range: -30°C to +70°C (-22°F to 158°F)
- Operating ambient humidity: 10-95%

2 Components

2.1 Hardware list

Item	Number	Description
BUNN	1	Main product
Debug Dongle cable(optional)	1	Azure sphere debug cable
SD Card(optional)	1	Memory flash for main board
USB flash disk(optional)	1	Reading components for main board
5V2A DC Power Adapter(optional)	1	Power for main board

2.2 Software list

Item	Version	Description
bunn_sd_singed.imagepackage	1.0	Main executable program
lan-enc28j60-isu0-int5_signed.imagepackage	1.0	Northbound network driver

3 Operation steps

3.1 Hardware preparation

BUNN PCBA interfaces shows in figure 1.

1. Connect power cables to BUNN

2. Insert SD card to BUNN
3. Insert USB to BUNN
4. Connect Ethernet
5. Connect BUNN to PC through USB
6. Connect dongle to BUNN through mini HDMI

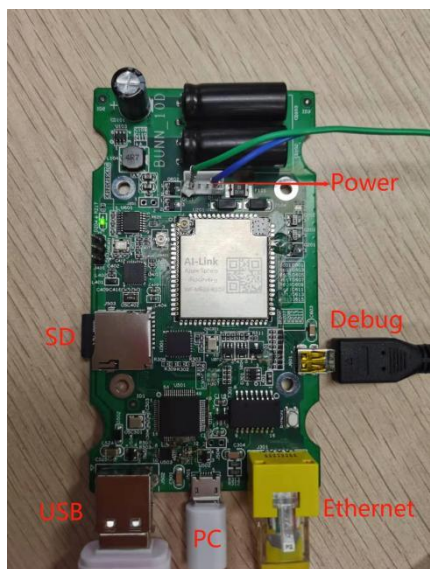


Figure 1. Device interfaces



Figure 2. UART Pins

3.2 Software preparation

1. Format one SD card with FAT32 file system

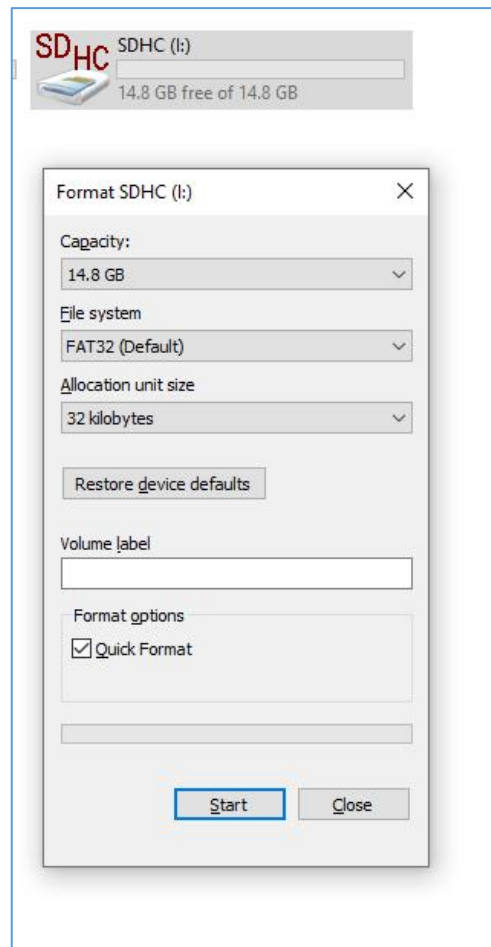



Figure 3 formatting SD

2. Download images

Download command:

- (1) `azsphere device sideload deploy --force --imagepackage G:\bunn_sd_singed.imagepackage`
- (2) `azsphere device sideload deploy --force --imagepackage G:\lan-enc28j60-isu0-int5_signed.imagepackage`


bunn_sd_singed.i
magepackage


lan-enc28j60-isu0
-int5_signed.imag

```

C:\Users\Administrator\Documents>azsphere device sideload deploy --force --imagepackage G:\bunn_sd_singed.imagepackage
Deploying 'G:\bunn_sd_singed.imagepackage' to the attached device.
Image package 'G:\bunn_sd_singed.imagepackage' has been deployed to the attached device.

C:\Users\Administrator\Documents>azsphere device image list-installed
Installed images:
--> lan-enc28j60-isu0-int5
--> Image type: Board configuration
--> Component ID: 91ecec4e-7e7e-40da-bb38-01f4d10f3f45
--> Image ID: c4402be3-d851-4035-842d-1e1a4177f944
--> BUNN_FactoryTest
--> Image type: Application
--> Component ID: afa76f5c-1af7-4b20-8e41-c6ce013c42a9
--> Image ID: 419de458-91fd-47e2-b4f7-a1411654d226
C:\Users\Administrator\Documents>

```

Figure 4 Download command

3.3 AT command debug

1. Download serial tool for debug.
2. Configure serial tool
 - (1) Port: use the serial port
 - (2) Parity: None
 - (3) Flow control: None
 - (4) Baud rate: 115200
 - (5) Data bits: 8
 - (6) Stop bits: 1

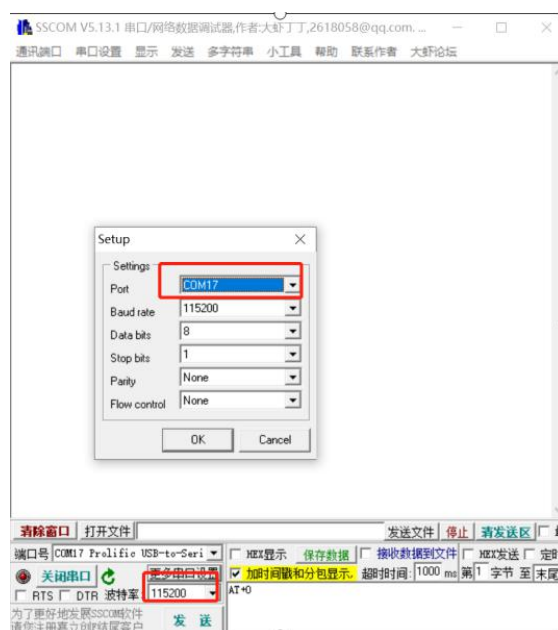


Figure 5 SSCOM configuration

3. AT commands for debug

AT command	AT command note	AT response	AT response note
AT+1	Request to connect RS232	AT+1	Success

AT+2	Request to start LED	AT+2-ok AT+2-fail	Success Fail
AT+3	Request to stop LED	AT+3-ok AT+3-fail	Success Fail
AT+4	Request to connect Ethernet	AT+4-ok AT+4-fail	Success Fail
AT+6	Request to R/W SD through MT3620	AT+6-ok AT+6-fail	Success Fail
AT+7	Request to get MAC of BLE	AT+7+MAC	Success
AT+8	Request to get power down information	AT+8-ok AT+8-fail	Power down Power on
AT+9	Request to R/W SD through PC	AT+9-ok AT+9-fail	Success Fail
AT+0	Request to R/W USB through PC	AT+0-ok AT+0-fail	Success Fail
AT+d	Request to open watch-dog	AT+d-ok AT+d-fail	Success Fail

Table 1 AT commands

4 Support

Contact:

1. Email: crl@changhong.us
2. Phone: 1-408-970-0349
3. Address: 3945 Freedom Circle, Suite 320, Santa Clara, CA 95054

5 FCC ID Label

Bluetooth modular
Model name: nRF52810
FCC ID: 2A4AD-NRF52810

FCC NOTE FOR MODULER STATMENT

1.1 List of applicable FCC rules:

The module complies with FCC Part 15.247.

1.2 Summarize the specific operational use conditions:

The module has been certified for Fix, Mobile, Portable applications.

This transmitter must not be co - located or operating in conjunction with any other antenna or transmitter.

1.3 Limited module procedures:

The module has not its own RF shielding, which belong to limited module Standard requires:

Clear and specific instructions describing the conditions, limitations and procedures for third - parties to use and/or integrate the module into a host device (see Comprehensive integration instructions below).

Resolve: Supply example as follows:

Installation Notes:

1) nRF52810 Module Power supply range is DC 3.3V, when you use nRF52810 Module design product, the power supply cannot exceed this range.

2) When connect nRF52810 Module to the host device, the host device must be power off.

3) Make sure the module pins correctly installed.

4) Make sure that the module does not allow users to replace or demolition.

1.4 Trace antenna designs:

Not applicable.

1.5 RF exposure considerations:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.

Note: the host product manuals must include a statement in order to alert the users of FCC RF exposure compliance.

1.6 Antennas

The antenna type is a dipole antenna, is permanently attached, can' t be replaced.

1.7 Label and compliance information

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.

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

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.

The system integrator must place an exterior label on the outside of the final product housing the nRF52810 Modules. Below is the content that must be included on this label.

The host product Labeling Requirements:

NOTICE: The host product must make sure that FCC labeling requirements are met. This includes clearly visible exterior label on the outside of the final product housing that displays the contents shown in below:

Contains FCC ID:2A4AD-NRF52810

1.8 Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements. In setting up the configurations, if the pairing and call box options for testing does not work, then the host product manufacturer should coordinate with the module manufacturer for access to test mode software.

1.9 Additional testing, Part 15 Subpart B disclaimer:

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) list on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.

1.10 Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements.