

August BLE Module User Manual

August Home, Inc. 657 Bryant Street, San Francisco, CA 94107

Product Name: August BLE Module Gen 2

Description: August BLE Radio Module

Model Number: MD-02

FCC ID: 2AB6UMD02

IC: 12163A-MD02



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Document Revision History

Version	Date	Product Application
1.0	28 August, 2021	1 st edition of the MD-02 User Manual

Description and Product Features

The purpose of this radio communication module is to provide a Yale Smart Lock system the ability to communicate with the user's mobile phone via BLE (Bluetooth Low Energy).

The basic premise of the radio module is to abstract the specifics of the radio protocol so that the user can choose the suitable module to integrate the smart lock to the rest of their home automation and/or security system. Modules supporting industry standard protocols such as Z-wave and Zigbee are available separately.

Software Description

The radio module firmware contained in the device, contains the following components:

1. Bluetooth Low Energy (BLE) stack
The stack provides the underlying interfaces to establish radio communications with the user's mobile phone over BLE.
2. Application Firmware
 - a. Implements a manufacturer specific data transfer protocol to communicate with the Yale smart lock.
 - b. Translates messages between the application running on the user's mobile phone and the Yale smart lock. Providing an interface to the user to operate the Yale smart lock remotely and provides a way to indicate to the user the current status of the lock.
 - c. Stores configuration parameters and usage logs.
 - d. Implements Over-The-Air (OTA) firmware updates.

Installation Procedure



The MD-02 is installed above the battery compartment of the Yale lock.

Pre-requisites

Hardware

1. Compatible Yale Smart Lock (with deadbolt and keypad).
2. August BLE radio module (MD-02).
3. Compatible smartphone running the Apple iOS or the Google Android operating system.

Software

The August mobile application can be downloaded by the normal means or can be found at:

<http://www.august.com/app>.

Procedure

1. Follow the procedure for installing the radio module as described in the user manual provided with the Yale Smart Lock.
2. Invoke the “Setup a New Device” procedure in the August mobile application and follow the steps as shown in the application.

General Procedures

Once the installation procedure is complete, all functionality of the lock is exposed to the user via the August mobile application.

Operating the Yale lock

1. Open the August application on mobile phone.
2. Navigate to the homepage.
3. The current status of the Yale lock is displayed as a red circle (for locked) or a green circle (for unlocked). *An orange circle with dashed lines indicates the door is ajar.*
4. Tap on the red or green circle to change the status of the lock.

Access Control

Navigate to the “Guest List” page via the icon depicting people found on the bottom of the page. Users can be added or removed. A user must have the August mobile application installed on their phone and an activated August account before they can use the lock.

Settings

Navigate to the device settings page via the icon depicting a gear, found on the bottom of the lock page. Here various settings such as volume control, relock timing, audio prompts language, etc. can be modified. This interface also provides the ability to perform calibration of the sensors in BLE module as well as the BLE serial number, firmware version, etc..

Electrical Specifications

Absolute Maximum Ratings

Note: These are absolute maximum ratings beyond which the unit can be permanently damaged.

Rating	Min	Max	Unit
Storage Temperature	-40	60	°C
BAT Input Voltage	4.4	13.5	V
Signal Voltages	0	3.45	V

Recommended Operating Conditions

Rating	Min	Max	Unit
Operating Temperature	0	55	°C
BAT Input Voltage	4.5	8.0	V
Signal Voltages	0	3.0	V

DC Characteristics

Parameter	Test Conditions	Min	Typ	Max	Unit
Logic-0 input voltage		0		0.5	V
Logic-1 input voltage		1.2		3.3	V
Logic-0 input current	Input 0V	33		702	µA
Logic-1 input current	Input 3.0V	60		180	µA
Logic-0 output voltage	Output load 4.8mA	0		0.5	V
Logic-1 output voltage	Output load 4.8mA	2.4		3.0	V
BAT Input current	Normal operation at 6.0V	0.180		30.0	mA

Power Requirements:

In order to meet the voltage and current requirements of the MD-02, power is supplied by the Yale smart lock which uses x4 AA alkaline batteries as the power source is supplied by pin number 2 of the Yale interface connector. Under normal operating conditions (five unlock/lock cycles at 22°C), the alkaline batteries can last from several months to one year depending on the age and quality of the batteries installed.

The MD-02 measures L: 2.24" x W: 1.10" x H: 0.510" and weighs approximately 0.2 oz. (5.7g).

RF Specifications

Specification and Frequencies: Bluetooth v5.0 (BLE), 2.4GHz ISM band (2402MHz to 2480MHz),

Channels: 40 x 2.0MHz channels

Data rate & Modulation: 1 - 2Mbps, GFSK, 250 kHz deviation.

Transmitted Power: 0dBm Max.

Receive Sensitivity: -97dBm (typical)

Antenna: Printed circuit board Internal Single-band (Internal IFA)

Antenna Gain in dBi: 0dBi Typical

Certification Information and Labeling

The MD-02 can be easily installed and removed from the Yale smart lock battery compartment giving the user access to the serial number, FCC, and IC information (the labels are placed on the housing of the MD-02). The serial number, FCC and IC information and firmware revision is also available via the iOS and Android smart phone application under the settings menu selection.

FCC Regulations

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

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.

Exposure: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow specific operating instructions for satisfying RF exposure compliance. The module is not designed for portable or mobile. The equipment should be installed and operated with a minimum distance 20cm between the radiator & your body.

IC Regulations

Antenna Statement

Under Innovation, Science and Economic Development Canada (ISED) regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by (ISED) 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.

Conformément à la réglementation Innovation, Sciences et Développement économique Canada (ISED), le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par (ISED) Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

License exempt

This device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). 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 the device.

Le présent appareil est conforme aux Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radiation Exposure Statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20 cm entre le radiateur et votre corps.