

RACOS

User Manual

L-RA1

2022-1-5

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1. Features

O LG robot and BLE communication interface are connected to control automatic door opening and door closing. Hereinafter, Mac Address setting and BLE output(dBm) adjustment through a separate dip switch setting. Each control state can be checked through the LED. Relay output state value can select no power/DC12V. (Using jumper pins)

2. Applications

- LG Electronics guide robot

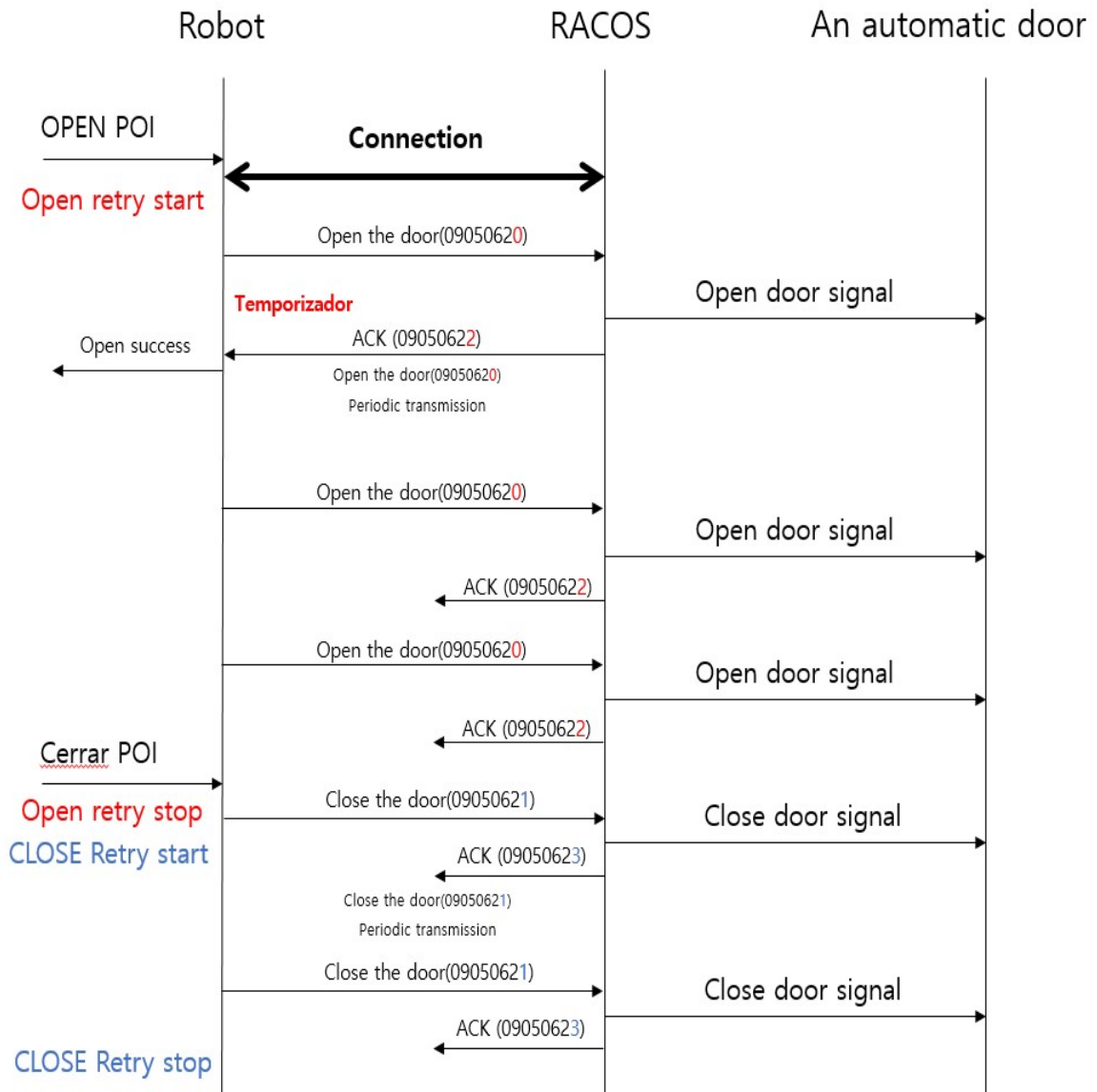
3. Description

It is a BLE communication automatic door control device that is linked to LG Electronics' guide robot. The power connection and relay output terminal of the device are connected to Molex(5267-05P), and when the power supply and automatic door contact control lines are connected, the control is ready. Afterwards, control is performed through a BLE communication connection with LG Electronics' guide robot (control through a separate communication protocol).

The main functions are as follows

- Automatic door control through LG Electronics' guide robot and BLE communication connection (door open, door closed)

Operation	data
Door open(LG Robot -> RACOS BLE Module)	09050620
Door close(LG Robot -> RACOS BLE Module)	09050621
Response to the door open(RACOS BLE Module -> LG Robot)	09050622
Response to the door close(RACOS BLE Module -> LG Robot)	09050623



[Figure 3] Operation Block Diagram

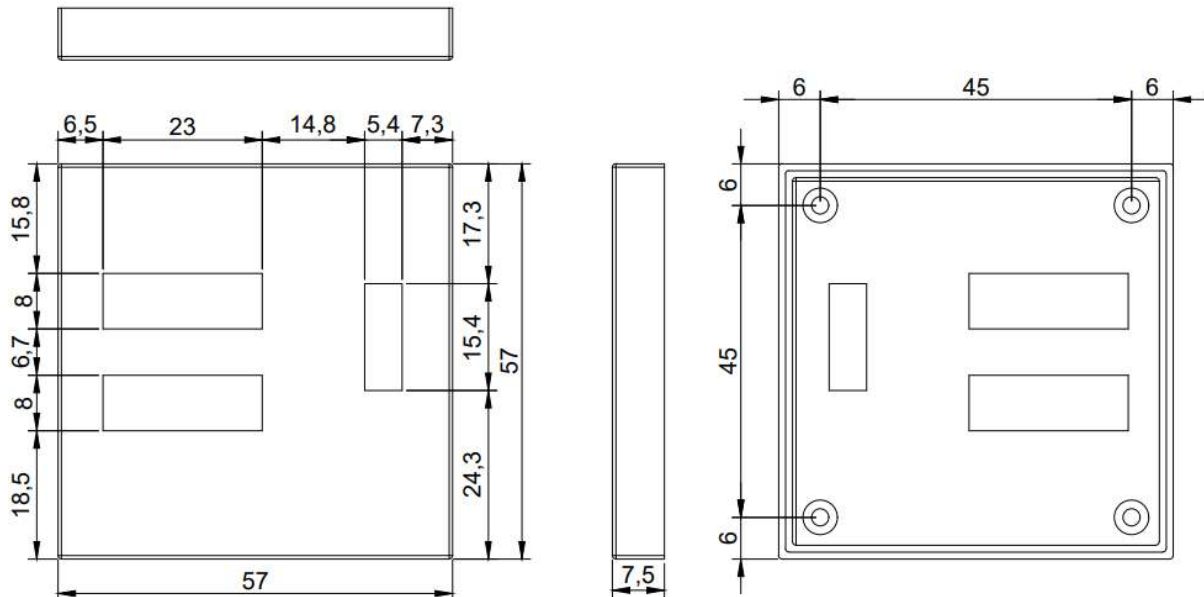
4. Product information



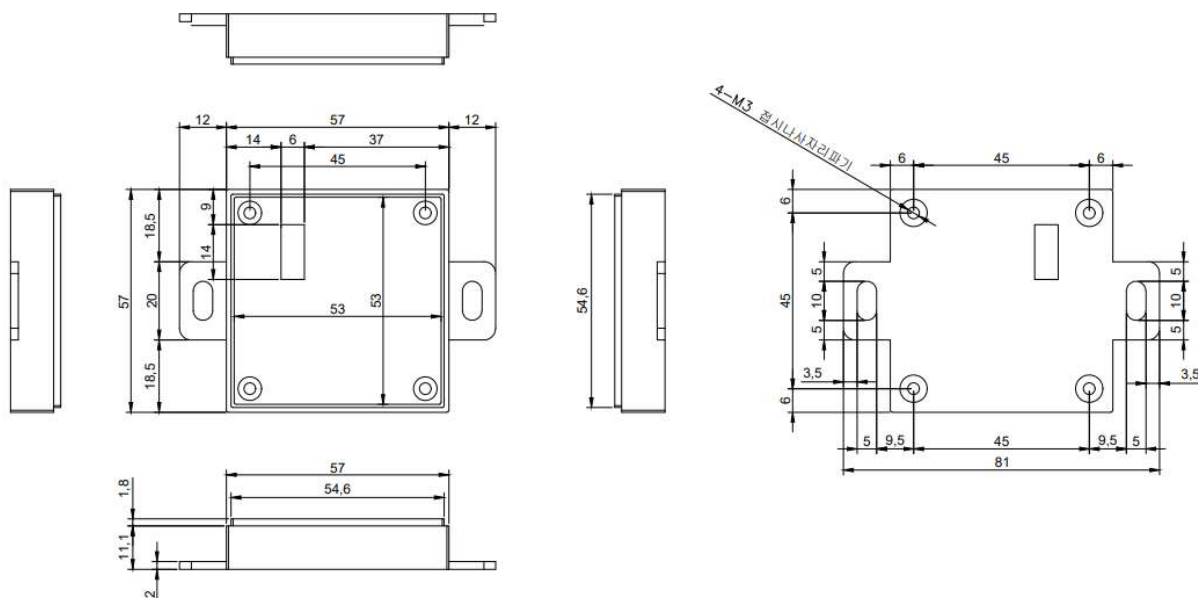
[Figure 9.1 L-RA1 The front part]



[Figure 9.2 L-RA1 The back part]



[Figure 9.3 L-RA1 The size of the front part of the size]



[Figure 9.4 L-RA1 The size of the back part of the size]

Item	Content
Size	45x45x11.1 (mm)
Frequency	2.4GHz
Power	Max EIRP -1dBm
In-box Accessories	SSWH5264ASY-5P (Molex 5267-05S For connection), Screw, Screw support

5. Environmental Conditions

Item	Standard		
Voltage Range	Dc Link		12V±5%
Operating Condition	Temperature	Relay	-20°C ~ 50°C
		Main MCU	-20°C ~ 50°C
		BLE MCU	-20°C ~ 50°C
	Humidity		85% RH MAX
Storage Condition	Temperature	Relay	-40°C ~ 70°C
		Main MCU	-40°C ~ 85°C
		BLE MCU	-40°C ~ 125°C
	Humidity		85% RH MAX
Posture	Shaft Horizontal Only		

Note: No Dew Condensation

6. Product Composition

Item	Content	
Main PCB	Power	DC 12V
	Use	Transmitting and receiving data from BLE Module, Relay Control
BLE Module	Power	DC 3.3V
	Use	Transmitting and receiving data from Main PCB, Connect to BLE Device

7. Circuit contents

Item	Content
Constant voltage circuit	AP1509-50S(12V->5V), LM1117-3.3(5V->3.3V)
Relay circuit	DS1E-M-DC5V (2 Ch, A&B Contact point)
LED circuit	LED for status display When power is applied for the first time, all LEDs are lit up. Red LED lights when detecting a switch change. Blue LED lights up when receiving the BLE signal. White LED lights during relay operation.
Switch circuit	SW1: Address setting switch (MAC) SW2: Output setting switch (BLE TX dBm)

8. Electrical specification

Item	Standard	
Rated voltage	DC12V±5%	DC Link
Standby current	13mA	
Operating current	75mA	

9. In/Out (CN1, Molex 5267-05S)

1P	2P	3P	4P	5P
VCC	GND	NO	COM	NC

- When the locking device requests DC12V input, the jumper pin can be connected to supply DC12V.

10. Federal Communications Commission(FCC) 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.

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.

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

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 and For indoor use only, use outdoors or in other modes not covered by this manual may violate the FCC regulation and violate the user authority to use the product.

FCC RF Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Supplier's Declaration of Conformity

47 CFR § 2.1077 Compliance Information

Responsible Party – U.S. Contact Information

LG ELECTRONICS U.S.A, INC.

Street Address: 111 SYLVAN AVENUE, NORTH BUILDING

ENGLEWOOD CLIFFS, N.J. 07632

City, State: U.S.A

Telephone number or internet contact information

- Name : Kyung-Su Han
- Telephone number : 1-201-266-2215
- Internet contact information : kyungsu.han@lge.com

Industry Canada Statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Avis d'Industrie Canada

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'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;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Avis d'Industrie Canada sur l'exposition aux rayonnements

Cet appareil est conforme aux limites d'exposition aux rayonnements d'Industrie Canada pour un environnement non contrôlé.

REMARQUE : LE FABRICANT N'EST PAS RESPONSABLE DES INTERFÉRENCES RADIOÉLECTRIQUES CAUSÉES PAR DES MODIFICATIONS NON AUTORISÉES APPORTÉES À CET APPAREIL. DE TELLES MODIFICATIONS POURRAIENT ANNULER L'AUTORISATION ACCORDÉE À L'UTILISATEUR DE FAIRE FONCTIONNER L'APPAREIL.