

USER GUIDE
RFID LOCKER LOCK
(MODEL : BLE100)



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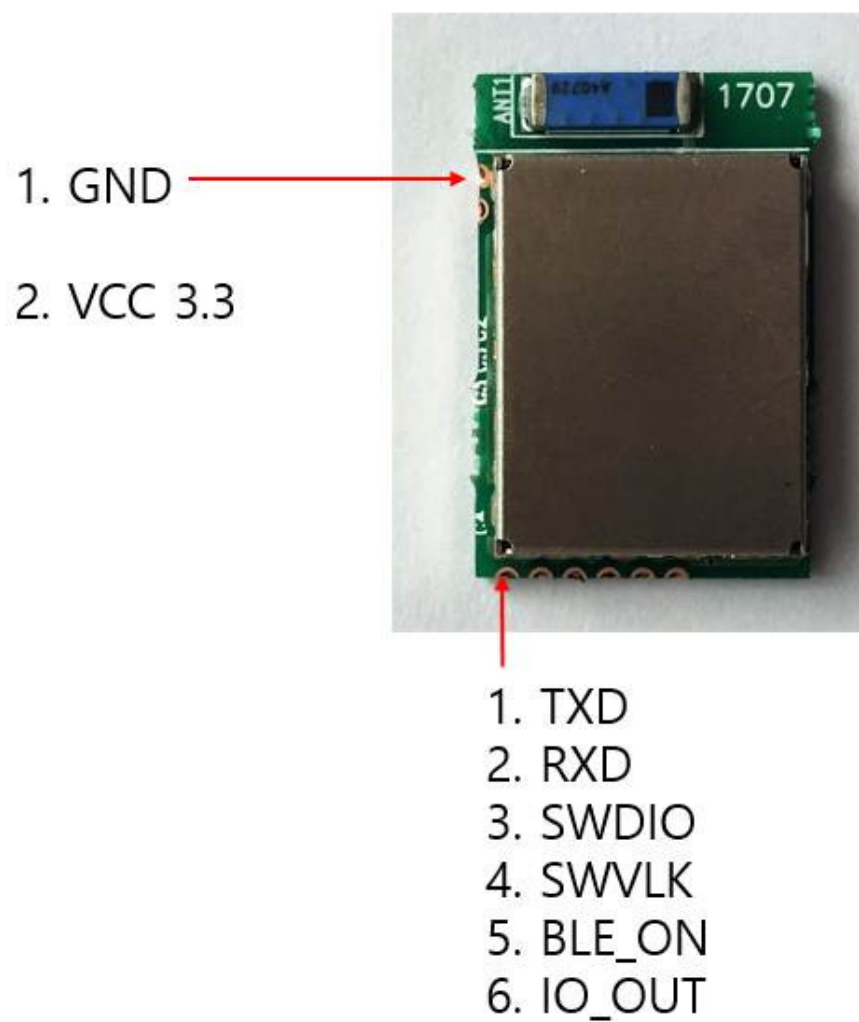
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1. BLE Module Spec

1.1 Overview

- This module performs the function of connecting the locks by Passtech with BLE 4.1 or its more recent versions.

1.2 Composition



1.3 Specification

- Operating Frequency : 2.4~2.4835Ghz
- -93dBm sensitivity in Bluetooth® low energy mode : BLE 4.1
- 250 kbps, 1 Mbps, 2 Mbps supported data rates
- TX Power -20 to +4 dBm in 4 dB steps
- RSSI (1 dB resolution)
- ARM® Cortex™-M0 32 bit processor
- 256 kB embedded flash program memory
- 16 kB RAM
- Serial Wire Debug (SWD)
- Operation Voltage DC 3.3V
- UART 38400bps Interface
- Wake up I/O 2EA

1.4 Communication Protocol And Packet

- 1) Data Flow
- Advertising Start

Main to Mobile Phone				
Mobile Phone		Front		Main
				Wake up
			←←	"M" + "I" + locker ID
	←←	"M" + "I" + locker ID		
ADV start with locker ID				

- Card Registration

Main to Mobile Phone				
Mobile Phone		Front		Main
m' + 'r' + phone sn	→→			
	←←	ACK/NAK (BCC)		
		"m" + 'r' + phone sn	→→	
			←←	"M" + 'R' + Card Data
	←←	"M" + 'R' + Card Data		
ACK/NAK	→→			

- BLE Phone use

열기				
Mobile Phone		Front		Main
m' + 'i' + phone srn	→→			
	←←	ACK/NAK (BCC)		
		"m" + 'i' + phone srn	→→	
			←←	"M" + 'O' - Card Data request cmd
	←←	"M" + 'O' - Card Data request cmd		
ACK/NAK	→→			
Mobile Phone		Front		Main
m' + "'o" + Card Data	←←	ACK/NAK	→→	
	→→	"m" + 'o" + Card Data	→→	
			←←	"M" + "O" + OK/NG + Locker
	←←	"M" + "O" + OK/NG + Locker		
ACK/NAK	→→			

2) Packet Format

STX	LEN	CMD	DATA	ETX	BCC
0x02(1)	DATALEN(1)	CMD(1)	DATA(LEN)	0x03(1)	0xHH(1)

STX (1) : 0x02
 LEN (1) : 0x00~0xFF
 CMD (1) : Command Code
 DATA (LEN) : Data
 ETX (1) : 0x03
 BCC (1) : STX ~ ETX 까지 ^ (Exclusive OR) Value

3) IC Control Command

- ADVERTISING START

CMD (1) : I

DATA (6)	
TEXT	
CMD (1)	TERMINAL ID(5)

NORMAL MODE : TERMINAL ID = LOCKER ID
 REGISTER MODE : TERMINAL ID = "REGIS"

- BLE CHIP POWER ON/OFF
CMD (1) : P

DATA (2)	
TEXT	
CMD (1)	STATE (1)

STATE (1) – ON "1" OFF "2"

- BLE SETTING CMD
CMD (1) : S

DATA (3)		
TEXT		
CMD (1)	종류 (1)	STATE (1)

종류 : A

STATE (1) – T (stop)

4) Card Data Command

- CARD REGISTER REQUEST
CMD (1) : R

DATA(195)											
TEXT						CIPHERTEXT					TEXT
CMD (1)	from date(10)	to date(10)	Assign Locker ID (25)	Free Locker ID (25) 아직 추가 안함	lockerinx (1)	카드 데이터 (48*2)	폰 시리얼(16)	카드 시리얼(7*2)	AID(4*2)	KEY B(6*2)	reseved (2)

- CARD DATA RESPONSE
CMD (1) : o

DATA(162)								
TEXT			CIPHERTEXT					TEXT
CMD (1)	폰 시리얼(16)	현재시간 (12)	카드 데이터 (48*2)	폰 시리얼(16)	카드 시리얼(7*2)	AID(4*2)	KEY B(6*2)	reseved (3)

- CARD REGISTER RESPONSE

CMD (1) : r

DATA (17)	
TEXT	
CMD (1)	폰 시리얼(16)

- CARD DATA REQUEST

CMD (1) : O

DATA (15)	
TEXT	
CMD (1)	0x20 (14)

DATA (15)			
TEXT			
CMD (1)	OK/NG (2)	Locker ID (5)	0x20 (7)

