

# BioStation L2

## 설치 가이드

버전 1.14  
한국어

KO 101.00.BSL2 V1.14A

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## 안전을 위한 주의사항

제품을 올바르게 사용하여 위험이나 재산상의 피해를 미리 막기 위한 내용입니다. 반드시 지켜주시기 바랍니다.



### 경고

지시사항을 위반하면 심각한 상해나 사망에 이를 수 있습니다.

#### 설치 관련

**직사 광선, 습기, 먼지나 그을음이 많은 곳에는 설치하지 마십시오.**

- 화재 또는 감전의 원인이 됩니다.

**전열기 등으로 인해 열이 발생하는 곳에는 설치하지 마십시오.**

- 과열로 인한 화재 또는 감전의 원인이 됩니다.

**물기가 없는 장소에 설치하십시오.**

- 습기로 인한 제품 손상 또는 감전의 원인이 됩니다.

**전자파 장애가 없는 곳에 설치하십시오.**

- 제품 손상 또는 감전의 원인이 됩니다.

**사용자가 임의로 제품을 설치하거나 수리하지 마십시오.**

- 화재, 감전, 부상의 원인이 됩니다.
- 사용자의 임의 설치나 수리로 인해 제품이 손상된 경우에는 무상 서비스를 받을 수 없습니다.

#### 사용 관련

**제품 내부에 물, 음료수, 약품 등의 액체가 들어가지 않도록 주의하십시오.**

- 감전, 화재, 제품 손상의 원인이 됩니다.



### 주의

지시 사항을 위반하여 경미한 상해나 제품 손상이 발생할 수 있습니다.

#### 설치 관련

**전원 케이블 등을 통행 장소에 방치하지 마십시오.**

- 제품 파손 또는 신체 상해의 원인이 됩니다.

**자석, TV, (특히 CRT) 모니터, 스피커 등 자성이 강한 물체 주변에 설치하지 마십시오.**

- 고장의 원인이 됩니다.

**직류 12V, 500mA 이상의 전원 어댑터만 사용하십시오.**

- 적합한 전원을 사용하지 않을 때에는 장치가 정상적으로 작동하지 않습니다.

**완전히 노출된 야외에 설치할 경우 외함을 같이 설치하는 것을 권장합니다.**

**Secure I/O 2, 전기정(전기식 잠금장치), BioStation L2는 반드시 개별 전원을 사용하십시오.**

- 전원을 함께 연결하여 사용하면 장치가 오작동할 수 있습니다.

**여러 대의 장치를 설치할 때 최소 거리를 유지하여 설치하십시오.**

- 그렇지 않으면 다른 장치의 RF 성능에 영향을 주어 장치가 오작동할 수 있습니다.

## 사용 관련

제품을 떨어뜨리거나 충격을 주지 마십시오.

- 고장의 원인이 됩니다.

암호를 타인이 알지 못하도록 주의하여 관리하고, 주기적으로 변경하여 주십시오.

- 불법 침입의 원인이 됩니다.

제품의 버튼을 무리하게 누르거나 날카로운 도구를 사용해 누르지 마십시오.

- 고장의 원인이 됩니다.

더러운 손이나 이물질 등으로 지문 접촉부가 오염 및 훼손되지 않도록 주의하여 주십시오.

- 지문 인식 성능 저하 및 고장의 원인이 됩니다.

제품 청소 시 물, 벤젠, 알코올 등이 아닌 부드러운 마른 천으로 닦아 주십시오.

- 제품 고장의 원인이 됩니다.

BioStation L2는 정전식 방식 버튼을 사용합니다. 비 오는 날씨와 같이 습기가 많거나 제품 표면에 물이 많이 묻은 경우 마른 천으로 닦은 뒤 사용하십시오.

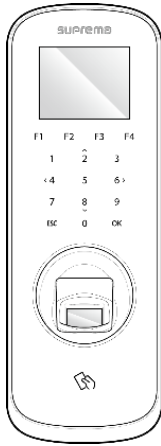
### RTC 배터리

잘못된 종류의 배터리로 교체하면 폭발의 위험이 있습니다.

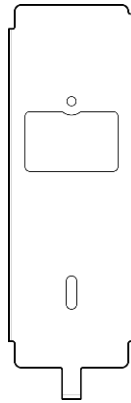
배터리는 거주 지역 또는 국제 폐기물 규정에 따라 폐기하십시오.

# 시작하기

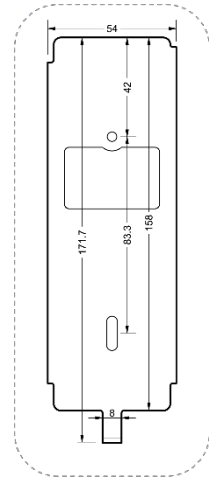
## 구성품



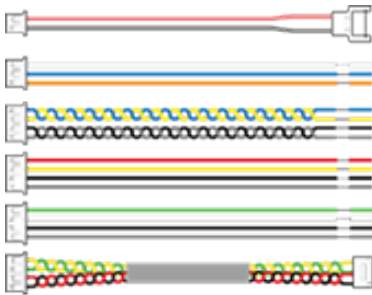
BioStation L2



벽걸이용 브래킷



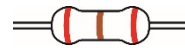
드릴링 템플릿



연결 케이블  
(2핀 1개, 3핀 1개, 4핀 4개)



다이오드



120 Ω 저항



PVC 앵커 x2



페라이트 코어



고정용 나사 x2



브래킷 고정용 나사  
(별 모양)



오픈소스라이선스 가이드

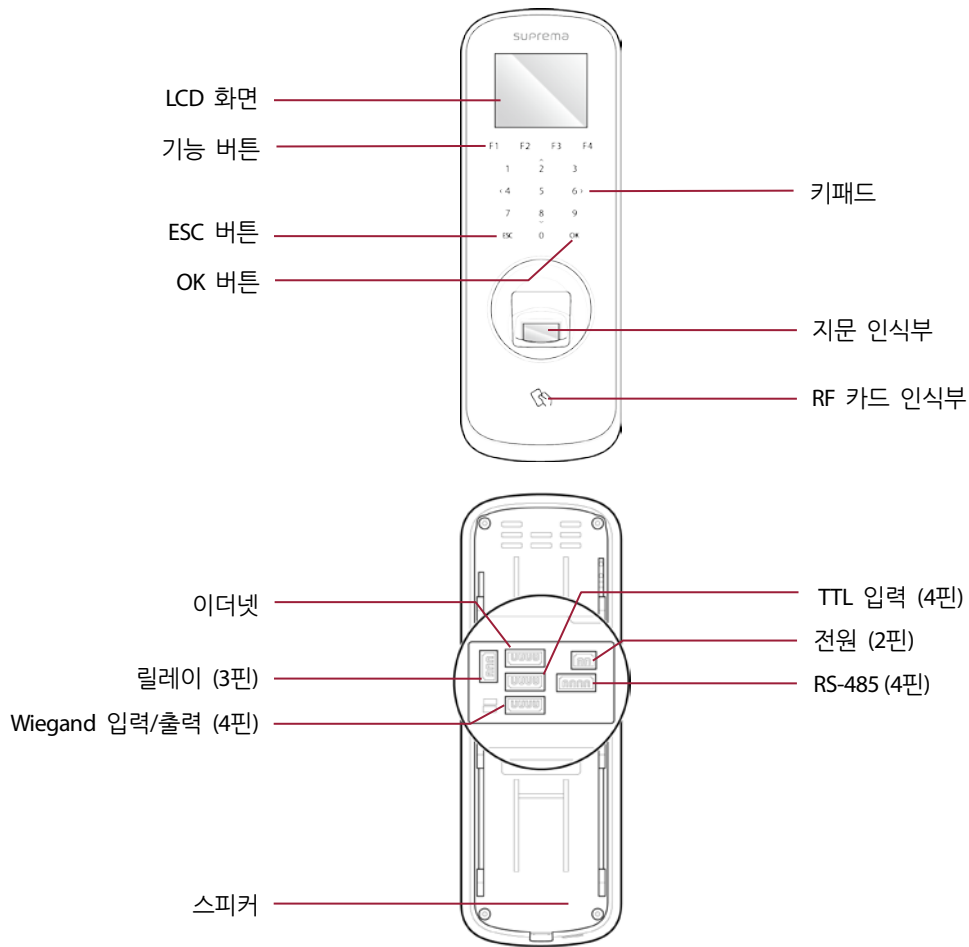


퀵 가이드

### 알아두기

- 구성품은 설치 환경에 따라 달라질 수 있습니다.

## 각 부분의 명칭 및 기능



명칭	기능 설명
<b>LCD 화면</b>	동작을 위한 UI를 제공합니다.
<b>기능 버튼</b>	근태 키, 문자 변경, 빈 칸 입력 등에 사용합니다.
<b>키패드</b>	<ul style="list-style-type: none"> <li>• <b>0~9</b>: 숫자 또는 문자를 입력할 때 사용합니다.</li> <li>• <b>^, 8</b>: <b>2 &lt; 4, 6 &gt;, \</b>: 원하는 항목으로 이동할 때 사용합니다.</li> </ul>
<b>OK 버튼</b>	근태 모드 선택 및 설정을 저장할 때 사용합니다. 작업 코드가 설정되어 있다면 길게 눌러서 사용자의 작업 코드를 변경할 수 있습니다.
<b>ESC 버튼</b>	메뉴 열기, 이전 화면으로 이동, 입력을 취소할 때 사용합니다.
<b>스피커</b>	소리를 들을 수 있습니다.
<b>지문 인식부</b>	출입을 위해 지문을 인식시키는 부분입니다.
<b>RF 카드 인식부</b>	출입을 위해 카드를 인식시키는 부분입니다.
<b>TTL 입력 (4핀)</b>	TTL 입력 케이블을 연결합니다.
<b>RS-485 (4핀)</b>	RS-485 케이블을 연결합니다.
<b>릴레이 (3핀)</b>	릴레이 케이블을 연결합니다.
<b>전원 (2핀)</b>	전원 케이블을 연결합니다.
<b>이더넷 (4핀)</b>	이더넷 케이블을 연결합니다.
<b>Wiegand 입출력 (4핀)</b>	Wiegand 입출력 케이블을 연결합니다.

## 케이블 및 커넥터

### 전원



핀	명칭	색상
1	PWR +VDC	빨간색(흰띠)
2	PWR GND	검은색(흰띠)

### 릴레이



핀	명칭	색상
1	RLY NO	흰색
2	RLY COM	파란색
3	RLY NC	주황색

### RS-485



핀	명칭	색상
1	485 TRXP	파란색
2	485 TRXN	노란색
3	485 GND	검은색
4	SH GND	회색

### TTL 입력



핀	명칭	색상
1	TTL IN0	빨간색
2	TTL IN1	노란색
3	TTL GND	검은색
4	SH GND	회색

Wiegand 입출력



핀	명칭	색상
1	WG D0	초록색
2	WG D1	흰색
3	WG GND	검은색
4	SH GND	회색

이더넷



핀	명칭	색상
1	ENET RXN	노란색
2	ENET RXP	초록색
3	ENET TXN	빨간색
4	ENET TXP	검은색



## 올바른 지문 입력 방법

지문 인식률을 높이기 위해 올바르게 지문을 등록하십시오. BioStation L2는 사용자의 지문 입력 각도 및 위치가 바뀌더라도 지문을 인식할 수 있습니다. 지문을 등록할 때 다음 사항에 유의하여 등록하면 인식률을 높일 수 있습니다.

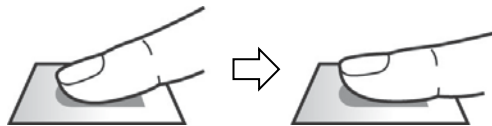
### 지문 입력을 위한 손가락 선택

- 한 손에 짐을 들거나 손가락에 상처가 나는 경우와 같이 특정 손가락의 지문을 사용하기 어려운 경우를 대비하여, 한 명의 사용자 당 최대 10 개의 지문을 등록할 수 있습니다.
- 지문이 잘 인식되지 않는 사용자의 경우 동일 손가락을 두 번 중복으로 등록하여 인식률을 높일 수 있습니다.
- 손가락에 상처가 있거나 지문이 흐릴 경우 다른 손가락의 지문을 입력하십시오.
- 지문 입력 시 검지 또는 중지를 사용할 것을 권장합니다. 다른 손가락은 지문 센서 중앙에 정확히 위치하기 어려워서 인식률이 떨어질 수 있습니다.



### 지문 등록 방법

- 1 지문을 등록할 때 LCD 화면에 “센서에 손가락을 대십시오.” 라고 표시되면 등록할 손가락을 지문 인식부에 올리고, 살며시 눌러 지문이 잘 인식되도록 하십시오.



- 2 “뵙” 소리가 난 뒤 재입력 화면이 나타나면, 등록된 손가락의 지문을 다시 스캔하십시오. (등록할 손가락의 지문은 2번 입력합니다.)

### 알아두기

#### 지문 등록 시 주의사항

지문 인식할 때 처음에 등록된 지문과 비교하기 때문에 지문 등록이 가장 중요합니다. 지문을 등록할 때 다음 사항에 유의하십시오.

- 손가락이 센서에 완전히 접촉이 되도록 깊이 위치시키십시오.
- 지문의 중심점 부분이 센서의 중심에 오도록 위치시키십시오.
- 손가락에 상처가 있거나 지문이 흐릴 경우 다른 손가락의 지문을 입력하십시오.
- 지문 인식 시 화면 안내에 따라 움직이지 말고 정확하게 입력하십시오.
- 손가락을 세워 센서와의 접촉 면적이 작아 지거나 손가락 각도가 틀어진 경우에는 지문 인식이 되지 않을 수 있습니다.



#### 지문 인식이 잘 되지 않는 경우

BioStation L2는 계절의 변화나 손가락의 상태 변화에 관계없이 지문을 인식할 수 있습니다. 하지만, 외부 환경이나 지문 입력 방법에 따라 인식률의 차이가 있을 수 있습니다.

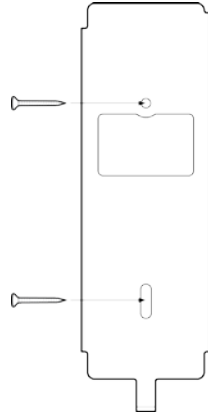
지문이 잘 인식되지 않는 경우 다음의 조치를 취할 것을 권장합니다.

- 손가락에 물이나 땀이 있을 경우 물기를 닦은 뒤 입력하십시오.
- 손가락이 너무 건조한 경우 손 끝에 입김을 가볍게 분 뒤 입력하십시오.
- 손가락에 상처가 생긴 경우 다른 손가락의 지문을 다시 등록하십시오.
- 처음 등록된 지문은 올바르게 입력되지 않은 경우가 많으므로 ‘지문 등록 시 주의사항’에 따라 지문을 다시 등록하십시오.

# 설치

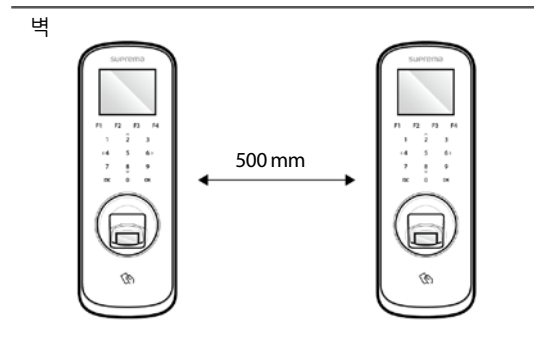
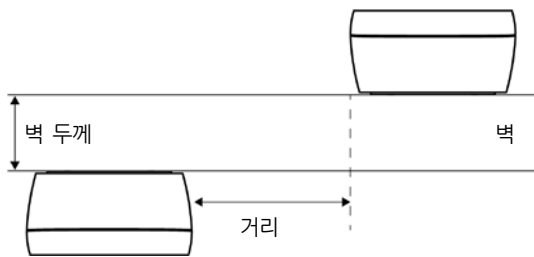
## 브래킷 및 제품 고정

- 1 제공된 드릴링 템플릿을 이용하여 브래킷을 장착할 위치를 정하십시오. BioStation L2를 장착할 위치에 브래킷 고정용 나사를 이용하여 브래킷을 단단히 고정하십시오.



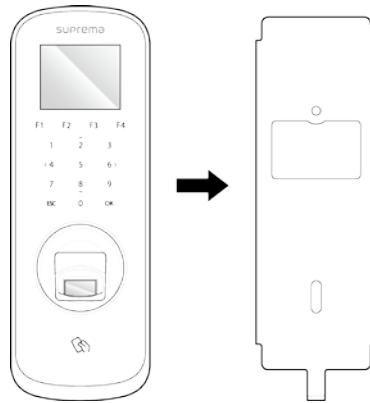
### 알아두기

- BioStation L2를 콘크리트 벽에 설치할 경우 드릴로 구멍을 뚫어 PVC 앵커를 끼운 뒤 고정용 나사로 고정하십시오.
- RF 신호 간섭을 피하기 위해 최소 이격 거리를 확인하여 설치하십시오.

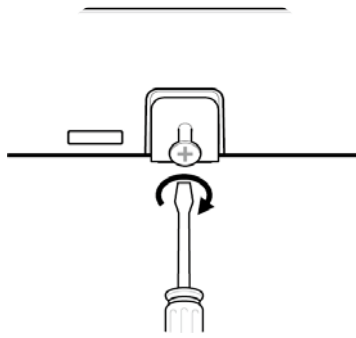


벽 두께	거리
100 mm	470 mm
120 mm	400 mm
150 mm	300 mm

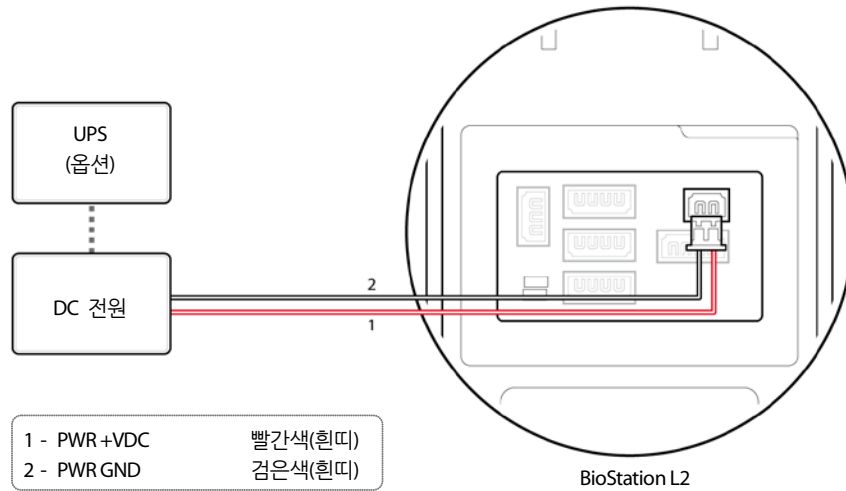
- 2** 고정된 브래킷 위에 BioStation L2를 장착하십시오.



- 3** BioStation L2의 제품 고정용 나사를 돌려 BioStation L2와 브래킷을 조립하십시오.



## 전원 연결



### 알아두기

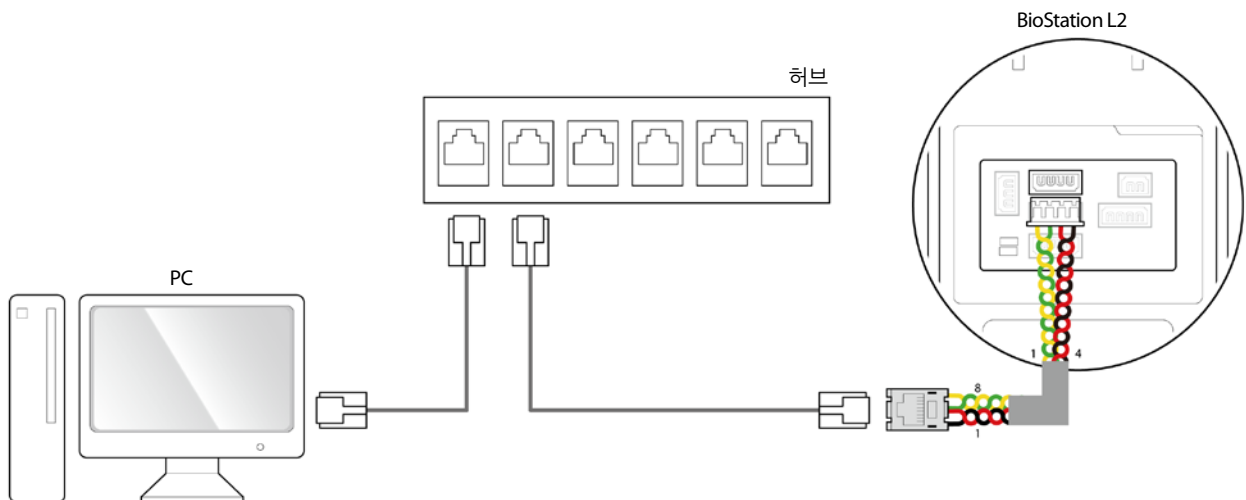
- 전원 어댑터는 DC 12V(± 10%), 최소 1,500mA 이상의 제품으로 IEC/EN 60950-1 승인을 받은 제품을 사용하십시오. 전원 어댑터에 다른 기기를 연결하여 사용하려면 단말기의 소모 전력과 다른 기기에 필요한 소모 전력을 합한 전류 용량 이상의 어댑터를 사용해야 합니다.
- Secure I/O 2, 전기정(전기식 잠금장치), BioStation L2는 반드시 개별 전원을 사용하십시오. 전원을 함께 연결하여 사용하면 장치가 오작동할 수 있습니다.

## 네트워크 연결

### TCP/IP

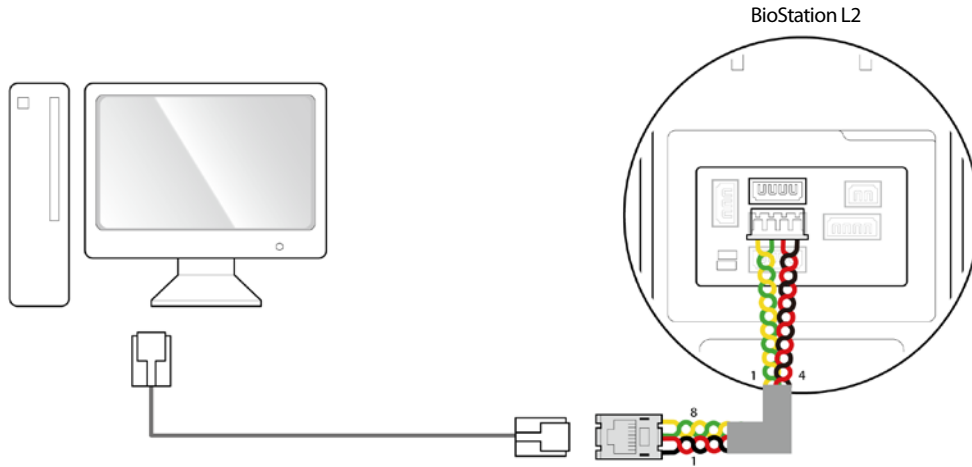
#### LAN 연결 (허브와 연결)

일반 타입의 CAT-5 케이블을 사용하여 허브와 연결할 수 있습니다.



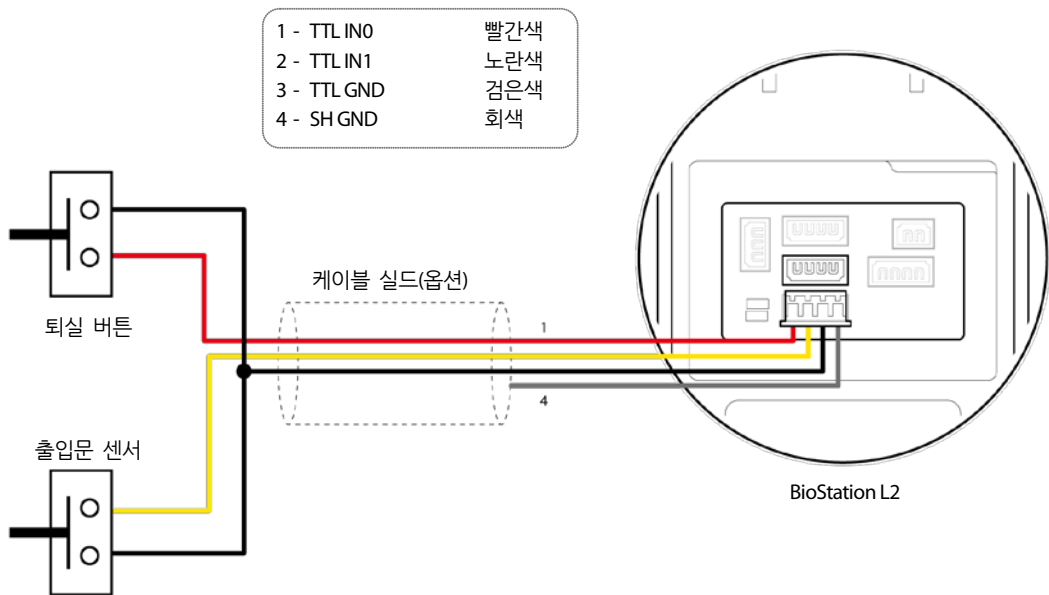
**LAN 연결 (PC와 직접 연결)**

BioStation L2 는 자동 MDI/MDIX 기능을 가지고 있으므로 크로스 케이블 아닌 일반 스트레이트 타입의 CAT-5 케이블로 PC와 직접 연결할 수 있습니다.



**TTL 연결**

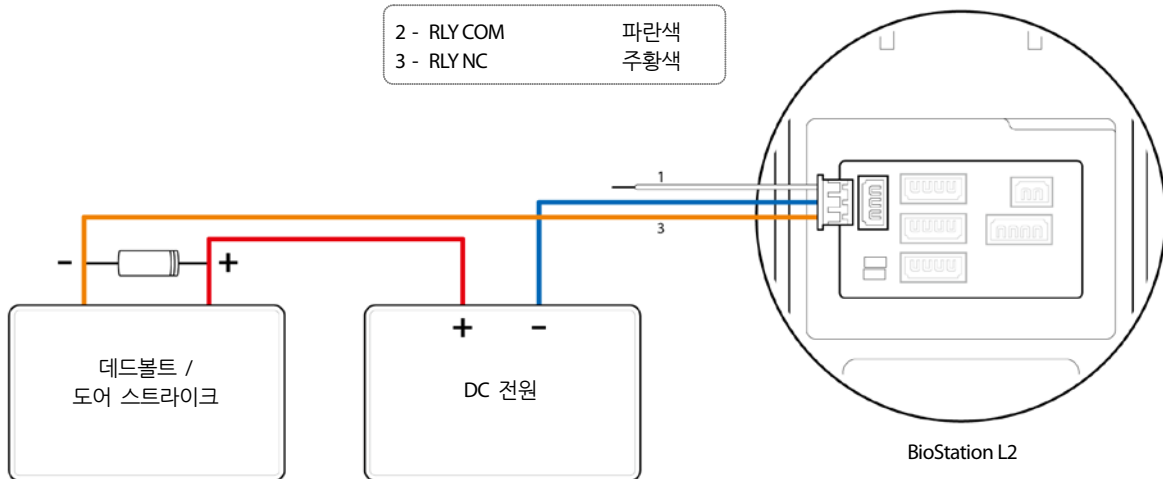
**TTL 입력 연결**



## 릴레이 연결

### Fail Safe Lock

Fail Safe Lock을 사용하려면 아래 그림과 같이 N/C 릴레이를 연결하십시오. Fail Safe Lock은 정상 시 릴레이 회로에 전류가 흐르며, 릴레이가 동작하여 전류를 일시적으로 차단하면 출입문이 열립니다. 정전이 되거나 외부 요인으로 장치의 전원이 끊길 경우 출입문이 열립니다.

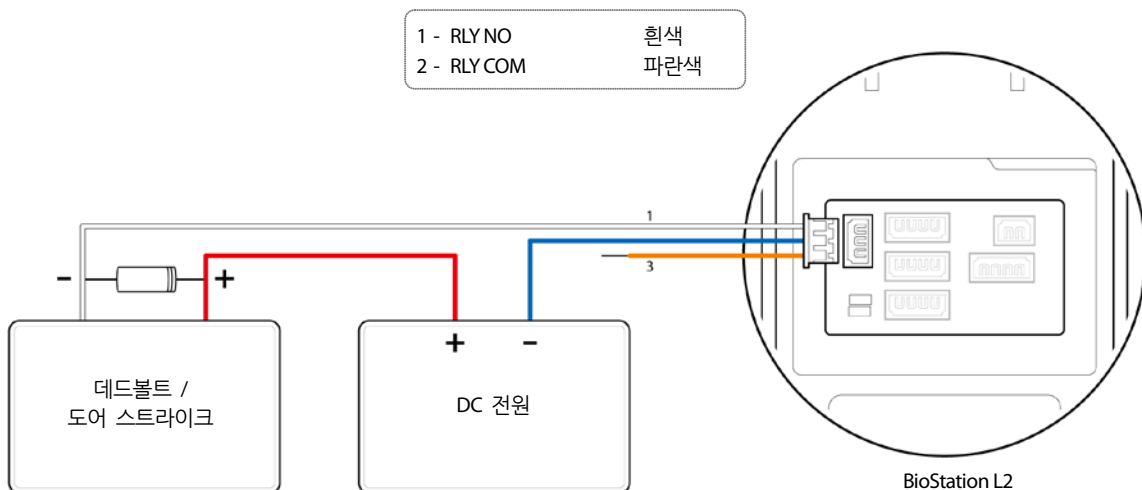


#### 알아두기

- 출입문 잠금 장치가 작동할 때 발생하는 역전류로부터 릴레이를 보호하기 위해 그림과 같이 출입문 잠금 장치 배선 양쪽에 다이오드를 설치하십시오.
- 다이오드의 설치 방향에 주의하십시오. 다이오드는 출입문 잠금 장치와 가깝게 설치하십시오.
- BioStation L2와 출입문 잠금 장치는 별도의 전원을 사용하십시오.

### Fail Secure Lock

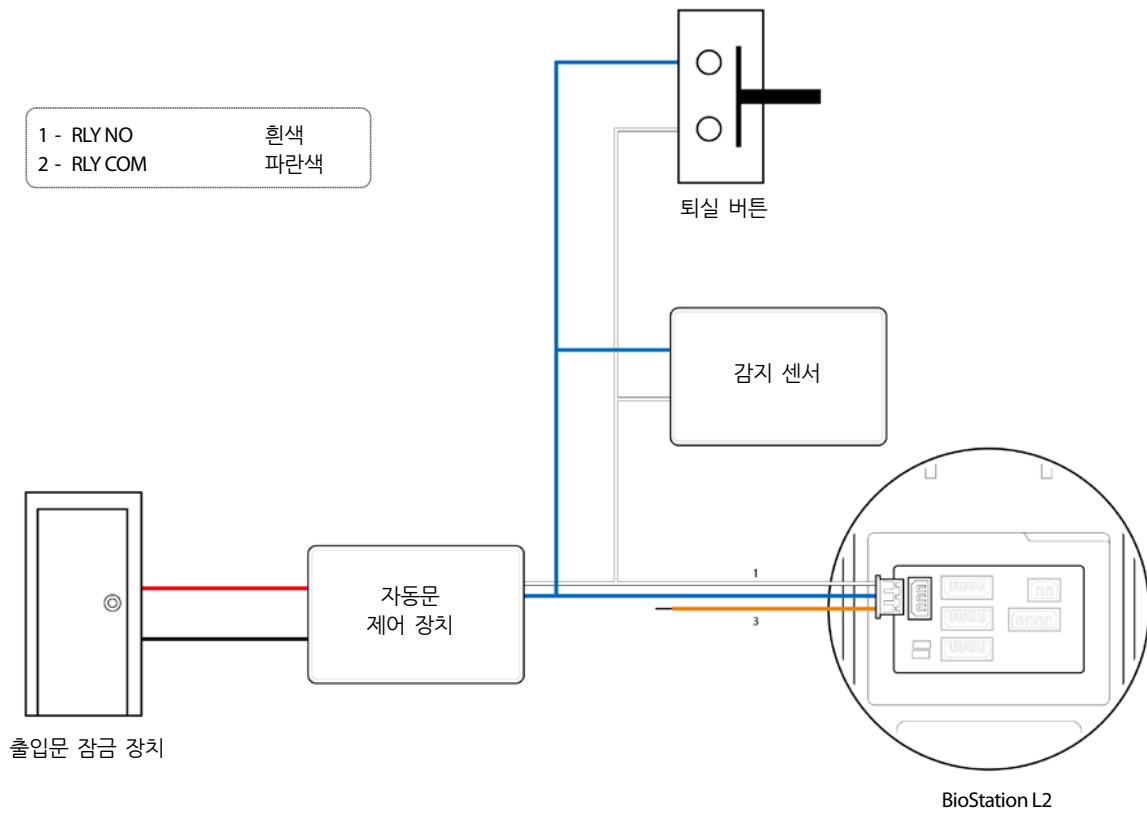
Fail Secure Lock을 사용하려면 아래 그림과 같이 N/O 릴레이를 연결하십시오. Fail Secure Lock은 정상 시 릴레이 회로에 전류가 흐르지 않으며, 릴레이가 동작하여 전류가 흐르면 출입문이 열립니다. 정전이 되거나 외부 요인으로 장치의 전원이 끊길 경우 출입문이 잠깁니다.



#### 알아두기

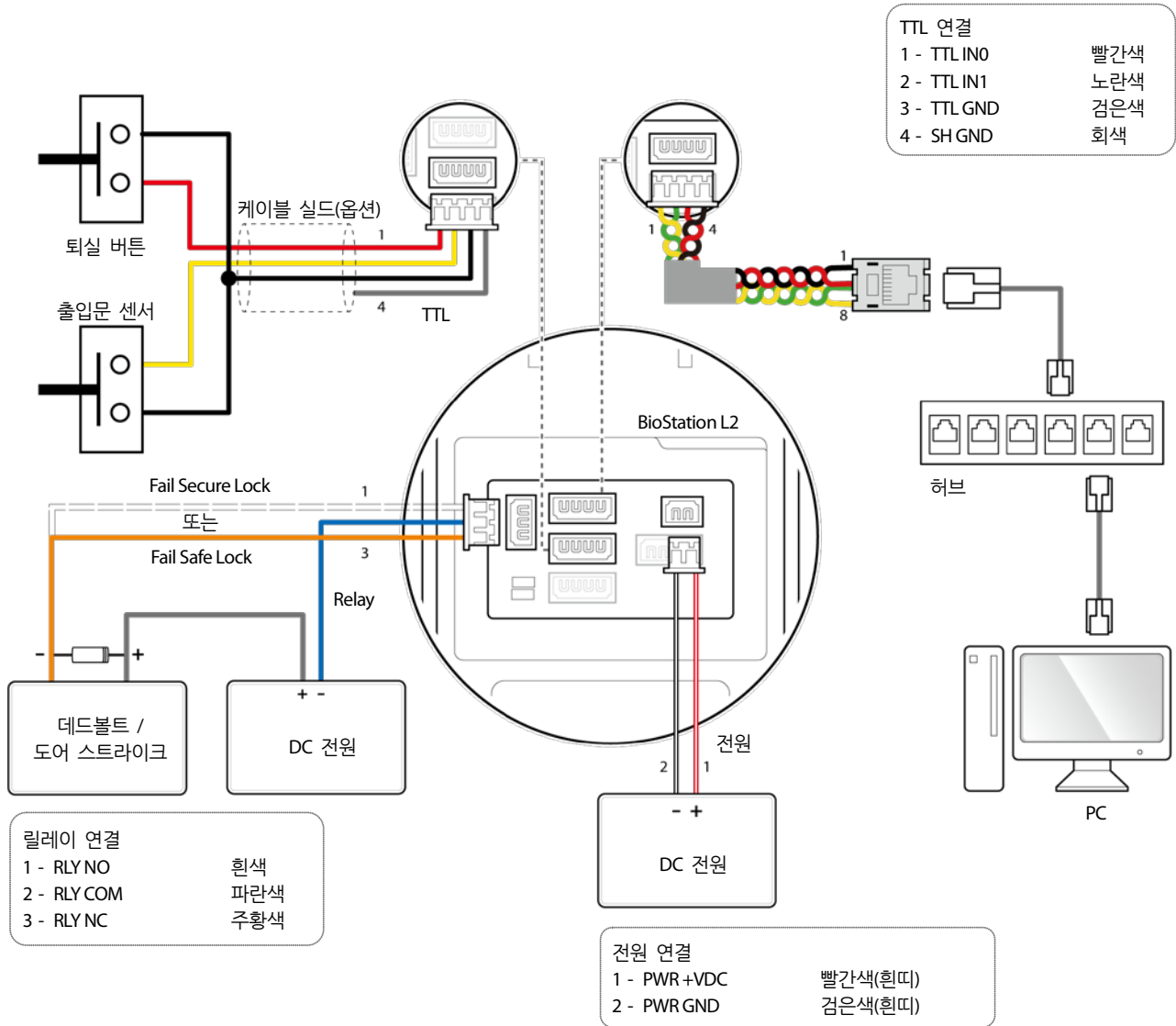
- 출입문 잠금 장치가 작동할 때 발생하는 역전류로부터 릴레이를 보호하기 위해 그림과 같이 출입문 잠금 장치 배선 양쪽에 다이오드를 설치하십시오.
- 다이오드의 설치 방향에 주의하십시오. 다이오드는 출입문 잠금 장치와 가깝게 설치하십시오.
- BioStation L2와 출입문 잠금 장치는 별도의 전원을 사용하십시오.

자동문 연결



## 독립형 연결

별도의 I/O 장치를 연결하지 않고 BioStation L2를 직접 출입문 잠금 장치, 출입문 스위치, 출입문 센서 등에 연결할 수 있습니다.



### 알아두기

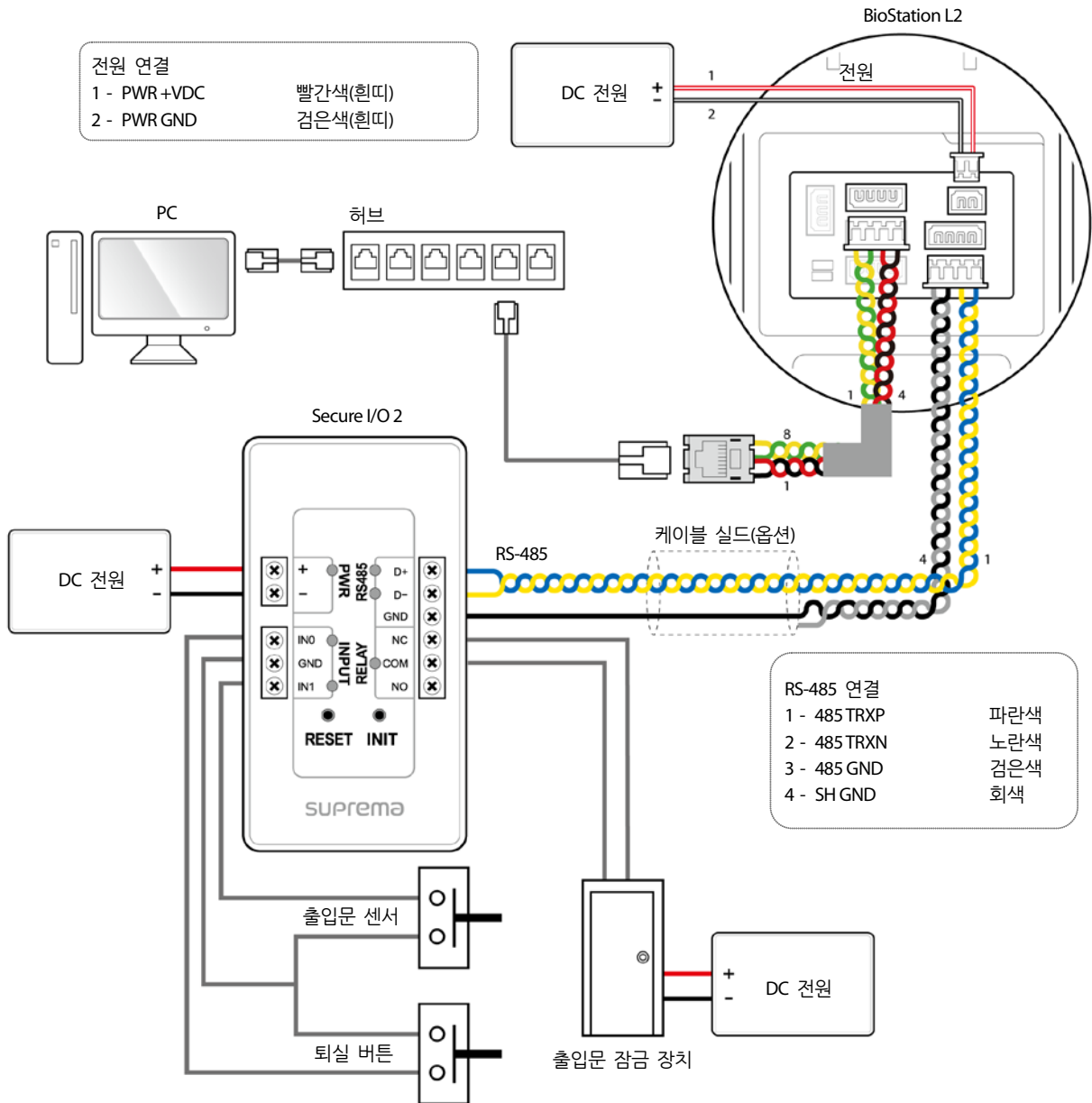
- RS485 케이블로 슬레이브 장치를 연결하여 BioStation L2를 다중 출입문 제어 장치로 사용할 수 있습니다. 슬레이브 장치는 더미 리더로 사용되며 인증은 마스터 장치에서 수행합니다.
- Xpass가 마스터 장치로 연결될 경우 카드 인증만 사용할 수 있습니다.
- 연결할 수 있는 최대 슬레이브 장치 수는 인증 방법, 사용자 수, 장치 수에 따라 달라지며 슬레이브 장치 수는 지문 인증 속도에 영향을 줍니다.
- 마스터 장치는 31개의 슬레이브 장치를 제어할 수 있습니다. RS485 대역폭으로 인해 최대 7대의 지문 인식 장치를 연결할 수 있습니다.
- 더 자세한 내용은 슈프리마 기술 지원팀(support@suprema.co.kr)에 문의하십시오.



## Secure I/O 2 연결

BioStation L2에 I/O 장치인 Secure I/O 2를 RS-485로 연결할 수 있습니다. BioStation L2와 Secure I/O 2의 연결이 끊기거나 외부 요인에 의해 BioStation L2의 전원이 차단되더라도 보안을 유지할 수 있습니다.

- RS-485 케이블은 AWG24, 꼬임선(Twisted Pair), 최대 길이 1.2 km를 사용하십시오.
- RS-485 데이터 체인으로 연결할 경우 종단 저항(120Ω)을 데이터 체인 연결의 양 끝에 연결하십시오. 중간 선로에 연결할 경우 신호 레벨이 작아져 통신 성능이 떨어지므로 반드시 데이터 체인 연결의 양 끝에 연결하십시오.

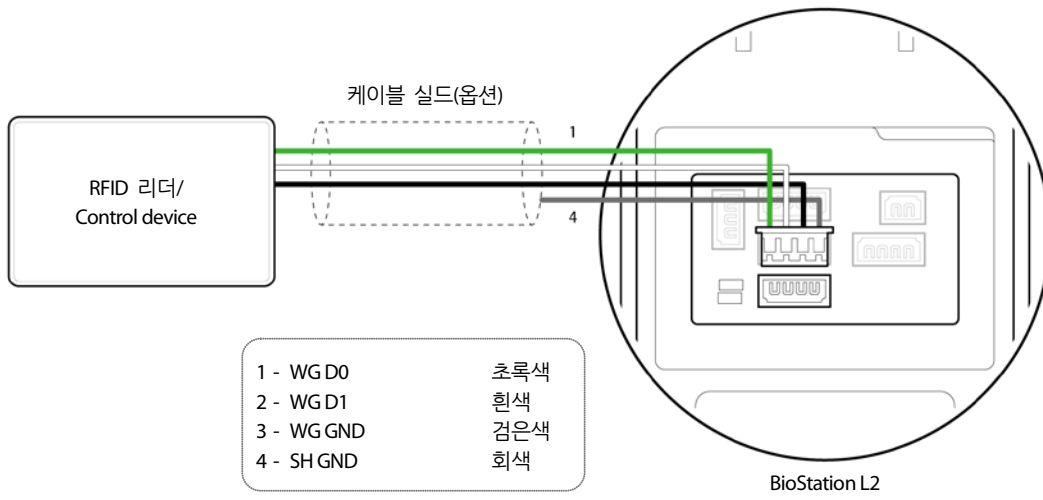


### 알아두기

- RS485 케이블로 슬레이브 장치를 연결하여 BioStation L2를 다중 출입문 제어 장치로 사용할 수 있습니다. 슬레이브 장치는 더미 리더로 사용되며 인증은 마스터 장치에서 수행합니다.
- Xpass가 마스터 장치로 연결될 경우 카드 인증만 사용할 수 있습니다.
- 연결할 수 있는 최대 슬레이브 장치 수는 인증 방법, 사용자 수, 장치 수에 따라 달라지며 슬레이브 장치 수는 지문 인증 속도에 영향을 줍니다.
- 마스터 장치는 31개의 슬레이브 장치를 제어할 수 있습니다. RS485 대역폭으로 인해 최대 7대의 지문 인식 장치를 연결할 수 있습니다.
- 더 자세한 내용은 슈프리마 기술 지원팀(support@suprema.co.kr)에 문의하십시오.

## Wiegand 연결

Wiegand input/output Device로 사용



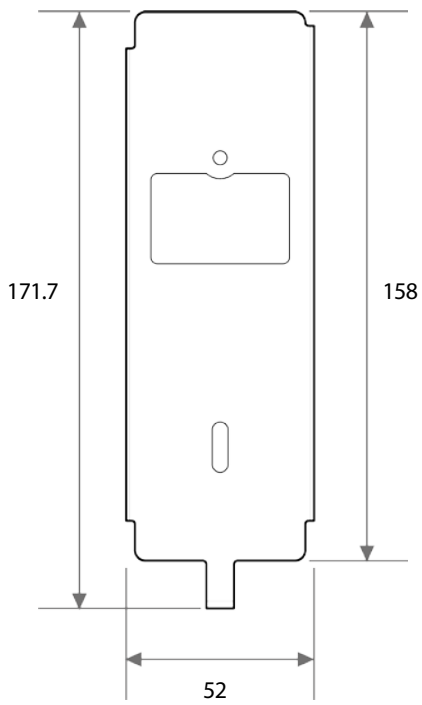
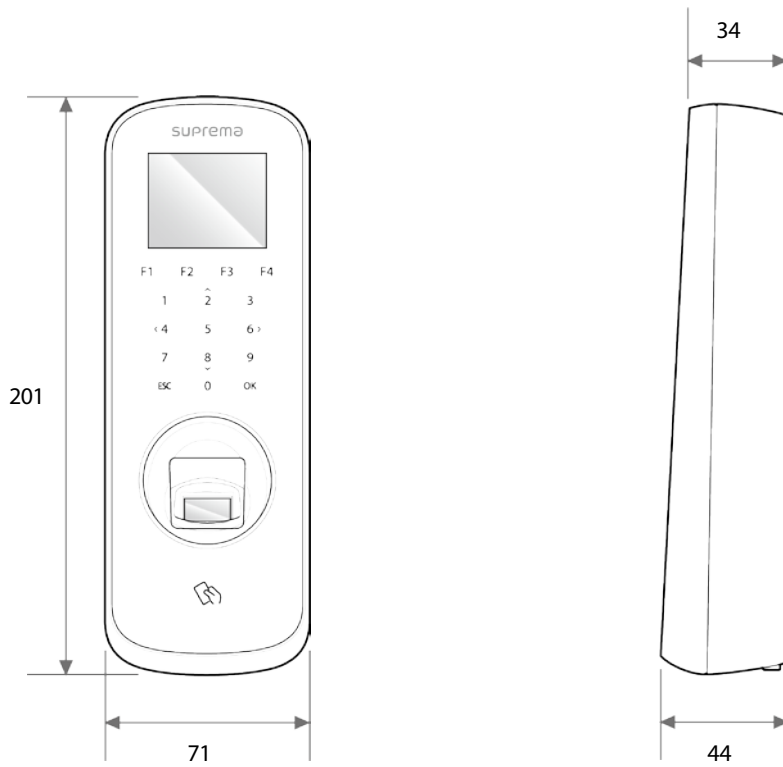
## 제품 사양

구분	항목	규격
크리덴셜	바이오인식	지문
	RF 카드	<ul style="list-style-type: none"> <li>BSL2-OE: 125kHz EM</li> <li>BSL2-OM: 13.56Mhz MIFARE, MIFARE Plus, DESFire/EV1, FeliCa, NFC,</li> </ul>
	RF 인식 거리*	MIFARE: 50 mm, DESFire: 50 mm, Felica: 30 mm
일반	CPU	1.2 GHz Quad Core
	메모리	2GB Flash + 256 MB RAM
	LCD 종류	2" color TFT LCD
	LCD 해상도	220 x 176 픽셀
	소리	16-bit Hi-Fi
	동작 온도	-20°C ~ 50°C
	보관 온도	-40°C ~ 70°C
	동작 습도	0% ~ 80%, 비응축
	보관 습도	0% ~ 90%, 비응축
	치수 (W x H x D)	71 mm x 201 mm x 44 mm (하단) / 34 mm (상단)
	무게	장치: 280g 브래킷: 61g (와셔 및 볼트 포함)
	인증	CE, FCC, KC, RoHS, REACH, WEEE
지문	이미지 크기	272 x 320 픽셀
	이미지 비트 심도	8비트, 256 회색조
	해상도	500 dpi
	템플릿	SUPREMA / ISO 19794-2 / ANSI 378
	추출 / 매치	MINEX 인증 및 호환
	LFD	지원
저장 용량	최대 사용자 수 (1:1)	500,000
	최대 사용자 수 (1:N)	100,000
	최대 템플릿 수 (1:1)	1,000,000 (손가락마다 두 개의 템플릿)
	최대 템플릿 수 (1:N)	200,000 (손가락마다 두 개의 템플릿)
	최대 로그 수	1,000,000
인터페이스	이더넷	지원 (10/100 Mbps, 자동 MDI/MDI-X)
	RS-485	1채널 마스터/슬레이브 (선택 가능)
	Wiegand	1채널 입력/출력 (선택가능)
	TTL 입력	입력 2채널
	릴레이	1개
	탐퍼	지원
전기 규격	전원	전압: 12VDC 전류: 최대 600 mA
	스위치 입력 VIH	최소: 4V 최대: 5V
	스위치 입력 VIL	최대: 1V
	스위치 풀업 저항	4.7 kΩ (입력 단자는 4.7 kΩ으로 풀업 되어 있습니다.)
	Wiegand 출력 VOH	최소: 4V 최대: 5V
	Wiegand 출력 VOL	최대 1V
	Wiegand 출력 풀업 저항	1 kΩ으로 내부 풀업
	릴레이	전압: 최대 30VDC 전류: 1A, 최대 2A

\*RF 인식 거리는 설치 환경에 따라 다를 수 있습니다.

제품 치수

(단위: mm)



## FCC 준수 정보

이 기기는 FCC 규제의 Part 15를 준수합니다.

작동은 다음의 두 조건을 따릅니다.

- (1) 이 기기는 해로운 전파 방해를 발생시키지 않습니다.
- (2) 이 기기는 원치 않는 작동을 일으키는 전파 방해를 포함한 어떠한 전파 방해도 수용합니다.

참고: 이 기기는 Class B 디지털 기기에 대한 제한 사항을 준수하여 테스트를 거쳤고 FCC규제의 Part 15에 적합하다는 것을 검증받았습니다. 이러한 제한은 주거 설치에서 해로운 전파방해로부터 적절한 수준의 보호를 제공하기 위해 고안되었습니다. 이 장비는 무선 주파수 에너지를 생성, 사용 및 방사하므로 지침에 따라 설치하여 사용하지 않을 경우 무선 통신에서 유해한 간섭을 일으킬 수 있습니다. 그러나 특정한 설치에서는 전파방해가 발생하지 않는다는 어떠한 보장도 하지 않습니다. 본 장비를 켜거나 끌 때 라디오 또는 TV 수신에 해로운 전파방해를 일으키는 경우, 다음 중 하나 이상의 조치를 수행하여 전파방해를 해결하십시오.

- 수신 안테나의 방향을 조정하거나 재설치합니다.
- 장비와 수신기 사이의 간격을 늘립니다.
- 장비를 수신기가 연결된 회로와 다른 회로의 콘센트에 연결합니다.
- 판매업체나 숙련된 라디오/TV 기술자에게 문의합니다.

제조 업체가 승인하지 않은 제품 변경 또는 개조에 대해서는 FCC 규칙에 따라 제품을 사용할 수 있는 권리가 무효화 됩니다.

이 제품과 제품의 안테나를 다른 안테나 또는 RF 전송 장치와 함께 설치하지 마십시오.  
사용자(또는 근처의 다른 사람)와 제품의 안테나간에 최소 20cm의 거리를 유지하십시오.

## 부록

### 면책 조항

- 이 설명서에 있는 정보는 슈프리마 제품과 관련하여 제공하는 것입니다.
- 슈프리마가 보장하는 판매 합의사항과 조건에 포함된 제품에 한해서만 사용 권리가 인정됩니다. 이 설명서에서 다루고 있는 그 이외의 지적 재산권에 대한 라이선스 권리는 인정되지 않습니다.
- 슈프리마는 슈프리마 제품의 판매 또는 사용과 관련하여, 특정 목적을 위한 제품의 적합성과 상업성, 그리고 특허, 저작권, 기타 지적 재산권의 침해에 대해서는 어떠한 보증이나 책임을 지지 않습니다.
- 의료, 인명 구조, 생명 유지와 관련된 상황이나 제품의 오작동으로 인해 사람이 다치거나 목숨을 잃을 수 있는 상황에서는 슈프리마의 제품을 사용하지 마십시오. 만약 구매자가 앞에 예로 든 상황에서 제품을 사용하다가 사고가 발생한다면, 설사 제품의 설계나 생산 과정에서 부족한 점이 발견되어 이를 중요한 과실로 주장한다 하더라도 슈프리마의 직원, 자회사, 지사, 제휴사, 배포사는 책임을 지지 않으며, 변호사 선임비를 포함하여 이와 관련한 모든 직간접적인 비용이나 지출에 대해서도 변제하지 않습니다.
- 슈프리마는 제품의 안정성, 기능, 디자인을 개선하기 위해 적절한 공지 없이 어느 때이건 제품의 규격과 명세서를 변경할 수도 있습니다. 설계자들은 "구현될 예정"이나 "정의되지 않음"으로 표시된 기능이나 설명은 항상 변동될 수 있다는 점을 염두에 두어야 합니다. 슈프리마는 멀지 않은 미래에 이러한 것들을 구현하거나 정의할 것이며, 호환성의 문제를 포함하여 이로 인해 발생할 수 있는 어떠한 문제점에 대해서도 책임을 지지 않습니다.
- 제품을 주문하기 전에 가장 최신의 규격서를 얻고자 한다면 슈프리마, 슈프리마의 판매 대행사, 지역 배포사에 문의하십시오.

### 저작권 공지

이 문서의 저작권은 슈프리마에게 있습니다. 다른 제품 이름, 상표, 등록된 상표에 대한 권리는 각각 그것을 소유한 개인이나 단체에게 있습니다.

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