

BioStation L2

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버전 1.17

한국어

KO 101.00.BSL2 V1.17A

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안전을 위한 주의사항

사용자의 위험이나 재산상의 손해를 막기 위해 제품을 사용하기 전에 이 설명서를 반드시 읽고 제품을 안전하고 올바르게 사용하세요. 이 설명서에서 말하는 제품이란 본체와 함께 제공되는 모든 구성품을 포함합니다.

기호



경고: 제품을 사용할 때 위반할 경우 심각한 상해나 사망에 이를 수 있는 경고 사항을 표기할 때 사용합니다.



주의: 제품을 사용할 때 위반할 경우 경미한 상해나 제품 손상이 발생할 수 있는 주의 사항을 표기할 때 사용합니다.



알아두기: 제품을 사용할 때 참고 사항이나 추가 정보를 제공할 때 사용합니다.



경고

설치

사용자가 임의로 제품을 설치하거나 수리하지 마세요.

- 화재, 감전, 부상의 원인이 됩니다.
- 사용자의 임의 설치나 수리로 인해 제품이 손상된 경우 무상 수리 서비스가 제공되지 않습니다.

제품을 직사광선에 노출된 장소, 습기, 먼지나 그을음이 많은 장소, 가스가 켜 가능성이 있는 장소에 설치하지 마세요.

- 화재 또는 감전의 원인이 됩니다.

제품을 전열기 등으로 인해 열이 발생하는 장소에 설치하지 마세요.

- 과열로 인한 화재 또는 감전의 원인이 됩니다.

물기가 있는 곳에 설치하지 마세요.

- 습기로 인한 감전 또는 제품 손상의 원인이 됩니다.

전자파 장애가 있는 곳에 설치하지 마세요.

- 감전 또는 제품 손상의 원인이 됩니다.

사용

제품 내부에 물, 음료수, 약품 등의 액체가 들어가지 않도록 주의하세요.

- 화재, 감전, 제품 손상의 원인이 됩니다.

손상된 전원 어댑터나 플러그, 헐거운 콘센트는 사용하지 마세요.

- 접촉이 불안정할 경우 화재 또는 감전의 원인이 됩니다.

전원 코드를無理하게 구부리거나 망가뜨리지 마세요.

- 화재 또는 감전의 원인이 됩니다.



주의

설치

제품을 직사광선이나 자외선에 직접 노출된 장소에 설치하지 마세요.

- 제품 손상, 오작동 및 변색, 변형의 원인이 됩니다.

전원 케이블 등을 통행 장소에 방치하지 마세요.

- 신체 상해 또는 제품 손상의 원인이 됩니다.

자석, TV, (CRT) 모니터, 스피커 등 자성이 강한 물체 주변에 설치하지 마세요.

- 고장의 원인이 됩니다.

여러 대의 장치를 설치할 경우 최소 이격 거리를 확인하세요.

- 다른 장치의 RF 및 BLE 성능에 영향을 주어 장치가 오작동할 수 있습니다.

전원 어댑터는 IEC/EN 62368-1 승인을 받은 제품으로 단말기의 소모 전력 이상의 제품을 사용하세요. 슈프리마에서 판매하는 전원 어댑터를 사용할 것을 권장합니다.

- 적합한 전원을 사용하지 않을 경우 장치가 오작동할 수 있습니다.
- 최대 소모전류 규격은 제품 사양의 **전원**을 참고하세요.

제품과 Secure I/O 2, 전기정(전기식 잠금 장치)은 반드시 개별 전원을 사용하세요.

- 장치가 오작동할 수 있습니다.

사용

제품을 떨어뜨리거나 충격을 주지 마세요.

- 고장의 원인이 됩니다.

제품의 펌웨어 업그레이드 진행 중 전원 공급이 중단되지 않도록 주의하세요.

- 고장의 원인이 됩니다.

암호를 타인이 알지 못하도록 관리하고, 주기적으로 변경하세요.

- 불법 침입의 원인이 됩니다.

제품의 버튼(터치패드)을 무리하게 누르거나 날카로운 도구를 사용해 누르지 마세요.

- 고장의 원인이 됩니다.

제품을 -20°C ~50°C 이내에서 사용하고 너무 낮거나 높은 온도에서 보관하지 마세요.

- 고장의 원인이 됩니다.

제품을 청소할 때 주의하세요.

- 제품을 표면을 깨끗한 마른 천으로 부드럽게 닦으세요.
- 제품을 소독해야 할 경우 마른 천에 소독용 알코올을 적당량 묻힌 뒤 제품 표면을 부드럽게 닦으세요. 이소프로필 알코올이 70~75% 함유된 소독용 알코올과 깨끗하고 보풀이 없는 부드러운 천을 사용하세요.
- 소독제를 제품에 직접 분사하지 마세요.

제품을 원래 용도 이외 다른 용도로 사용하지 마세요.

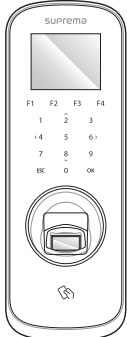
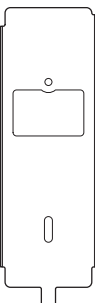
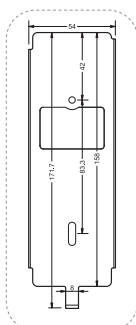
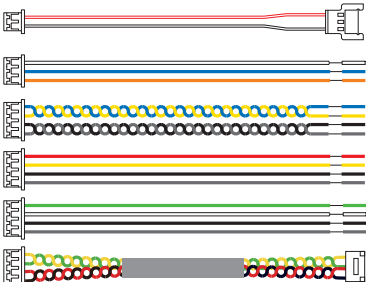


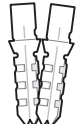


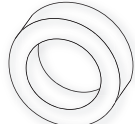
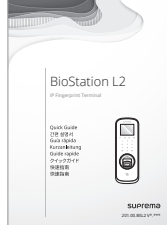

- 고장의 원인이 됩니다.

RTC 배터리

승인되지 않거나 잘못된 종류의 배터리로 교체하면 폭발의 위험이 있습니다. 배터리는 거주 지역 또는 국제 폐기물 규정에 따라 폐기하세요.

시작하기

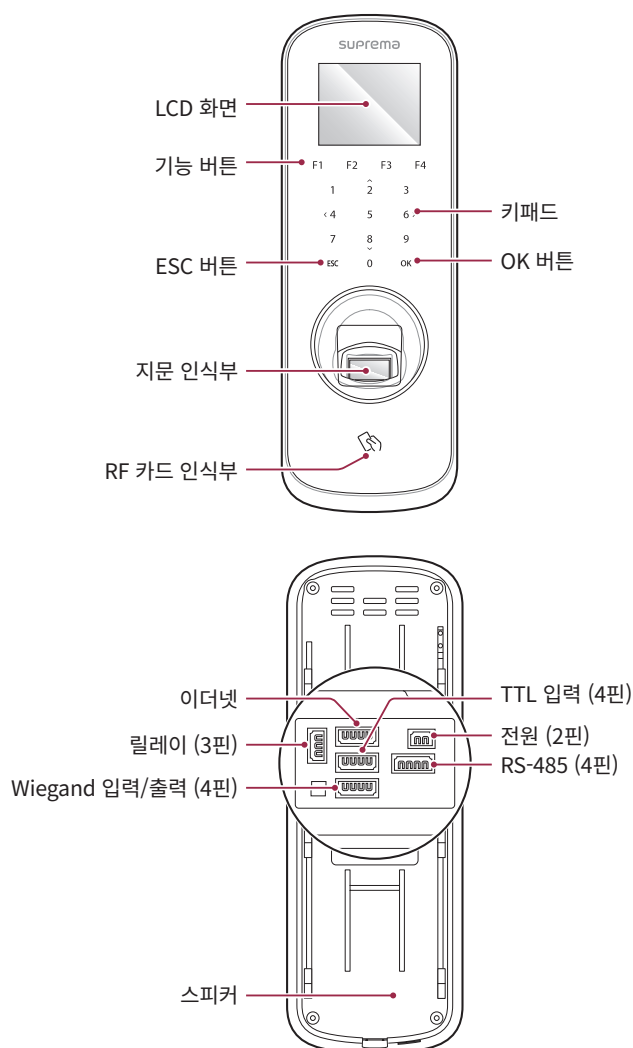
구성품

		
BioStation L2	벽걸이용 브래킷	드릴링 템플릿
		
연결 케이블	다이오드	120 Ω 저항
		
PVC 앵커 x2	고정용 나사 x2	브래킷 고정용 나사 (별 모양)
		
페라이트 코어	퀵 가이드	오픈소스라이선스 가이드



- 구성품은 설치 환경에 따라 달라질 수 있습니다.
- 브래킷과 제품을 조립할 때 향상된 보안을 위해 제품 고정용 나사 대신 동봉된 브래킷 고정용 나사(별 모양)를 이용할 수 있습니다.
- 제품 사용에 대한 내용은 슈프리마 웹 사이트(<https://www.supremainc.com>)에 접속하여 사용자 가이드를 확인하세요.

각 부분의 명칭 및 기능



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

케이블 및 커넥터

전원



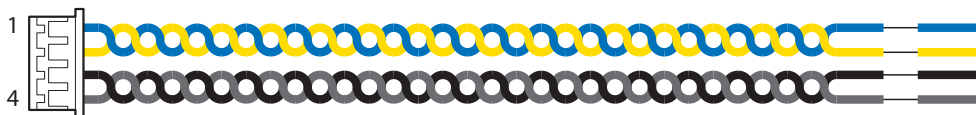
핀	명칭	색상
1	PWR +VDC	빨간색(흰띠)
2	PWR GND	검은색(흰띠)

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 입력/출력



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

이더넷



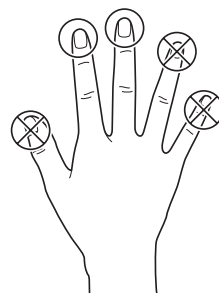
핀	명칭	색상
1	ENET RXN	노란색
2	ENET RXP	초록색
3	ENET TXN	빨간색
4	ENET TXP	검은색

올바른 지문 입력 방법

지문 인식률을 높이기 위해 올바르게 지문을 등록하세요. 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 입력하세요.
- 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 “지문을 입력하세요”라고 표시되면 등록할 손가락을 지문 인식부에 올리고, 살며시 눌러 지문이 잘 인식되도록 하세요.



- 2 “뵉” 소리가 난 뒤 재입력 화면이 나타나면, 등록한 손가락의 지문을 다시 스캔하세요. (등록할 손가락의 지문은 두 번 입력합니다.)



지문 등록 시 주의사항

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

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



지문 인식이 잘 되지 않는 경우

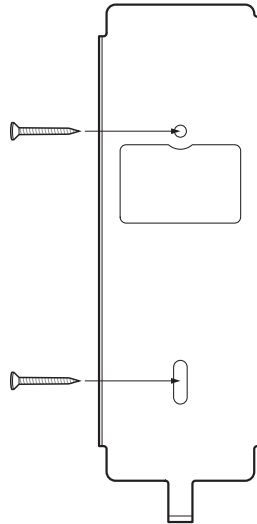
BioStation L2는 계절의 변화나 손가락의 상태 변화에 관계없이 지문을 인식할 수 있습니다. 하지만, 외부 환경이나 지문 입력 방법에 따라 인식률의 차이가 있을 수 있습니다. 지문이 잘 인식되지 않는 경우 다음의 조치를 취할 것을 권장합니다.

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

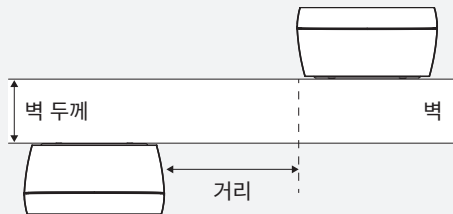
설치

브래킷 및 제품 고정

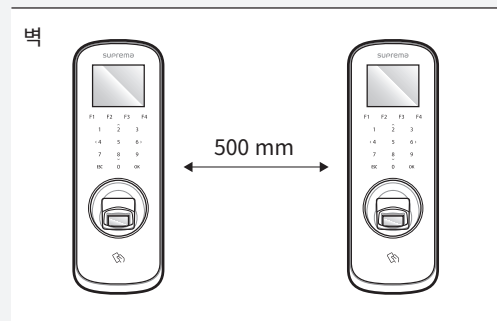
- 1 제공된 드릴링 템플릿을 이용하여 브래킷을 장착할 위치를 정하세요. BioStation L2를 장착할 위치에 브래킷 고정용 나사를 이용하여 브래킷을 단단히 고정하세요.



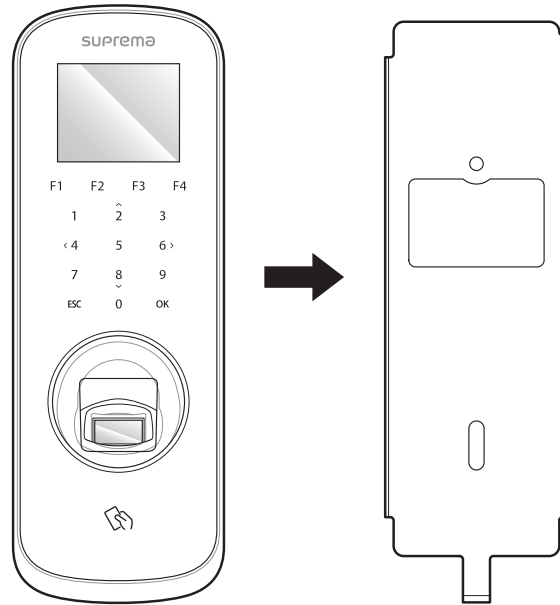
- BioStation L2를 콘크리트 벽에 설치할 경우 드릴로 구멍을 뚫어 PVC 앵커를 끼운 뒤 고정용 나사로 고정하세요.
- RF 신호 간섭을 피하기 위해 최소 이격 거리를 확인하여 설치하세요.



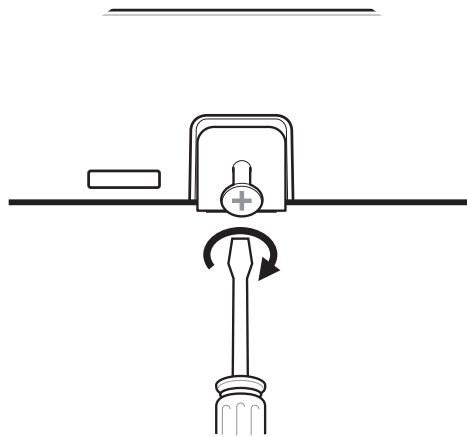
벽 두께	거리
100 mm	470 mm
120 mm	400 mm
150 mm	300 mm



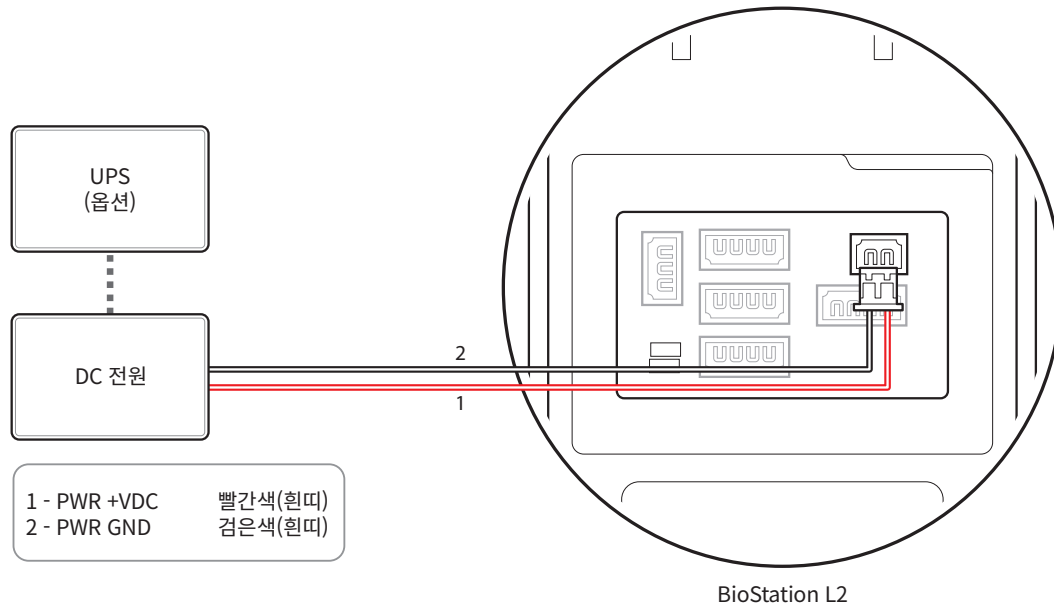
2 케이블 커버를 조립한 뒤 고정된 브래킷 위에 BioStation L2를 장착하세요.



3 BioStation L2의 제품 고정용 나사를 돌려 BioStation L2와 브래킷을 조립하세요.



전원 연결



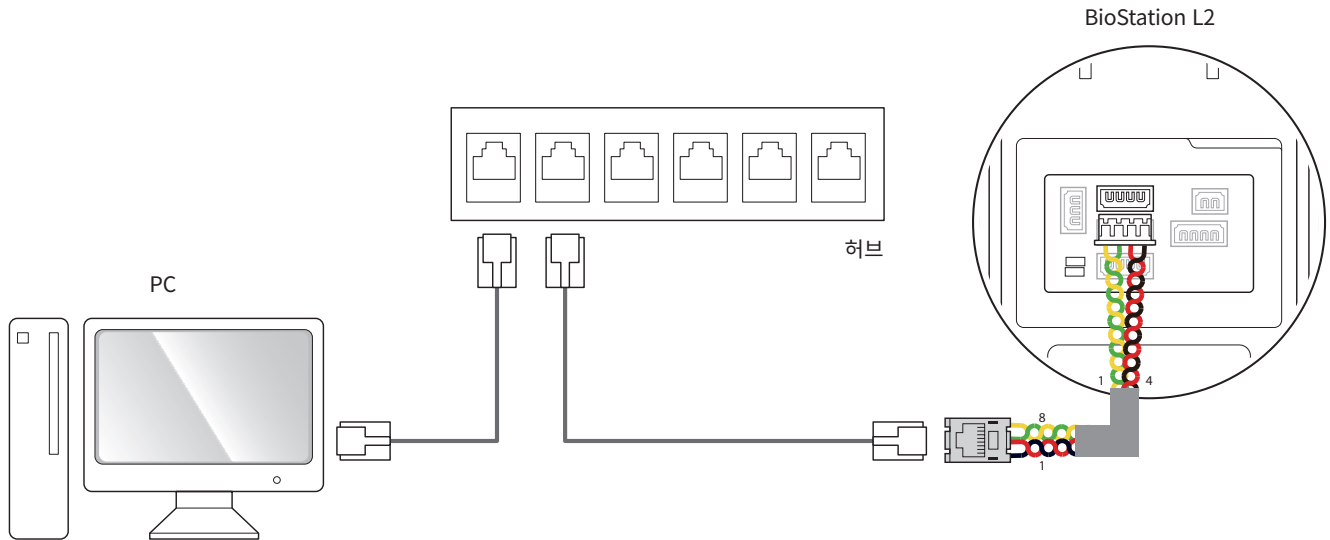
- 전원 어댑터는 IEC/EN 62368-1 승인을 받은 제품으로 단말기의 소모 전력 이상의 제품을 사용하세요. 전원 어댑터에 다른 기기를 연결하여 사용하려면 단말기의 소모 전력과 다른 기기에 필요한 소모 전력을 합한 전류 용량 이상의 어댑터를 사용해야 합니다.
 - 최대 소모전류 규격은 제품 사양의 **전원**을 참고하세요.
- 전원 어댑터를 사용할 경우 전원 케이블의 길이를 임의로 연장하지 마세요.
- Secure I/O 2, 전기정(전기식 잠금장치), 제품은 반드시 개별 전원을 사용하세요. 전원을 함께 연결하여 사용하면 장치가 오작동할 수 있습니다.

네트워크 연결

TCP/IP

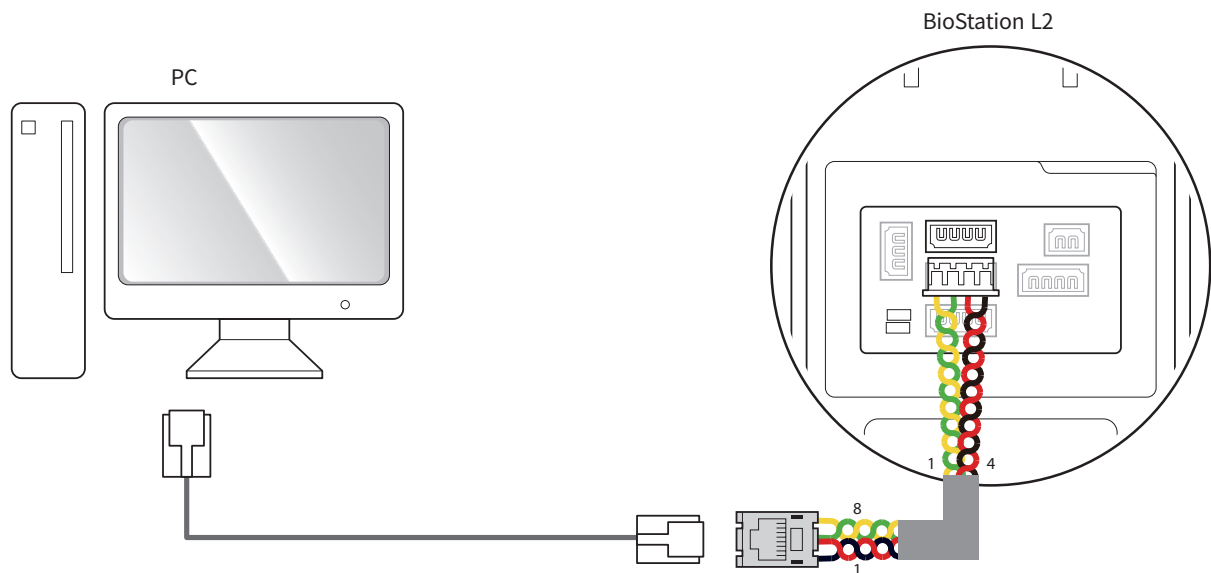
LAN 연결 (허브와 연결)

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

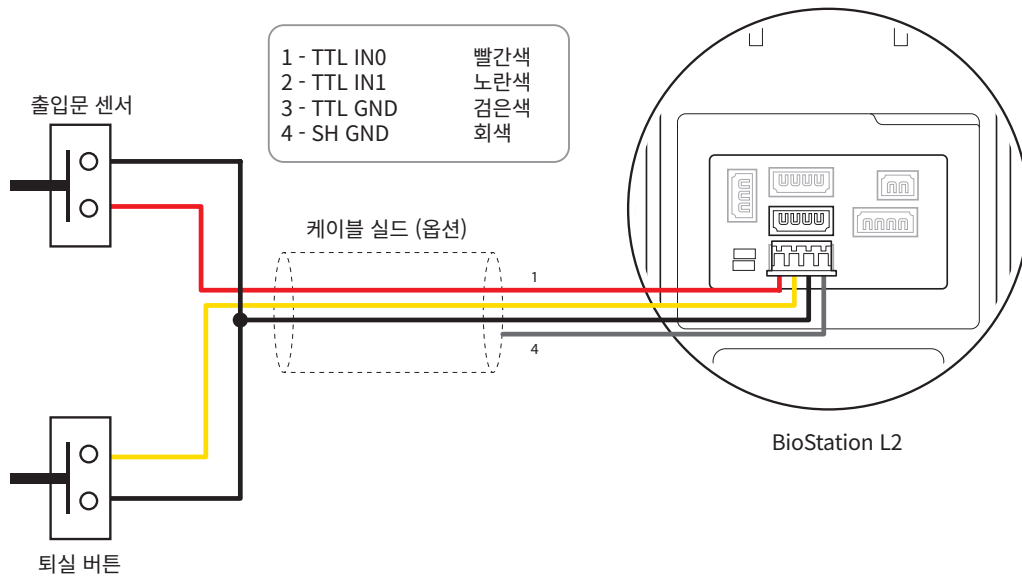


LAN 연결 (PC와 직접 연결)

BioStation L2는 자동 MDI/MDIX 기능을 가지고 있으므로 크로스 케이블이나 일반 스트레이트 타입의 CAT-5 케이블로 PC와 직접 연결할 수 있습니다.



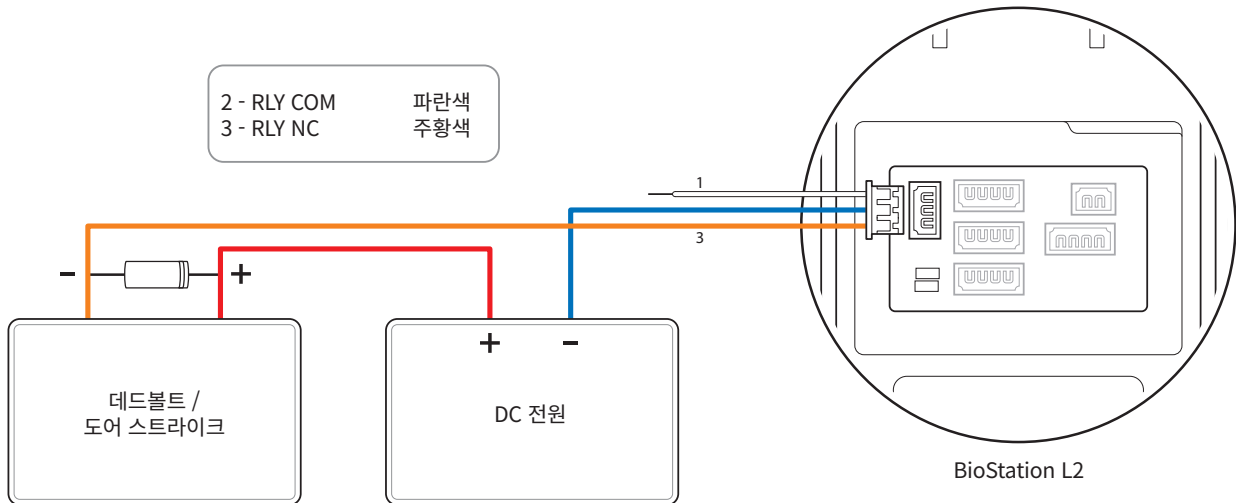
TTL 입력 연결



릴레이 연결

Fail Safe Lock

Fail Safe Lock을 사용하려면 아래 그림과 같이 N/C 릴레이를 연결하세요. 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.



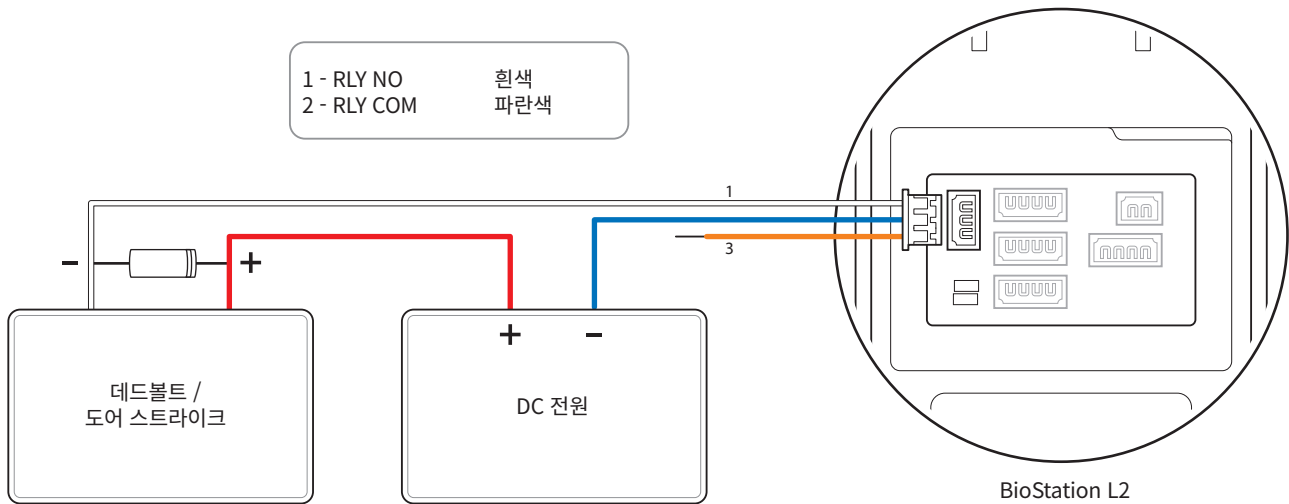
- 출입문 잠금 장치가 작동할 때 발생하는 역전류로부터 릴레이를 보호하기 위해 그림과 같이 출입문 잠금 장치 배선 양쪽에 다이오드를 설치하세요.
- BioStation L2와 출입문 잠금 장치는 별도의 전원을 사용하세요.
- 슈프리마의 지능형 장치에는 편의를 제공하기 위해 별도의 컨트롤러 없이 독립형으로 연결하여 출입문을 직접 열거나 잠글 수 있도록 하는 릴레이가 내장되어 있습니다. 그러나 향상된 보안이 요구되는 출입통제 애플리케이션의 경우 잠재적으로 출입문 잠금 해제를 유발할 수 있는 변조 공격을 방지하기 위해 장치에 내장된 릴레이를 사용하지 않는 것이 좋습니다. 이러한 애플리케이션의 경우 잠금 제어를 위해 출입문 내부의 안전한 위치에 설치된 슈프리마의 Secure I/O 2, DM-20, CoreStation 과 같은 별도의 릴레이 장치를 사용할 것을 권장합니다.



다이오드의 설치 방향에 주의하세요. 다이오드는 출입문 잠금 장치와 가깝게 설치하세요.

Fail Secure Lock

Fail Secure Lock을 사용하려면 아래 그림과 같이 N/O 릴레이를 연결하세요. 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.

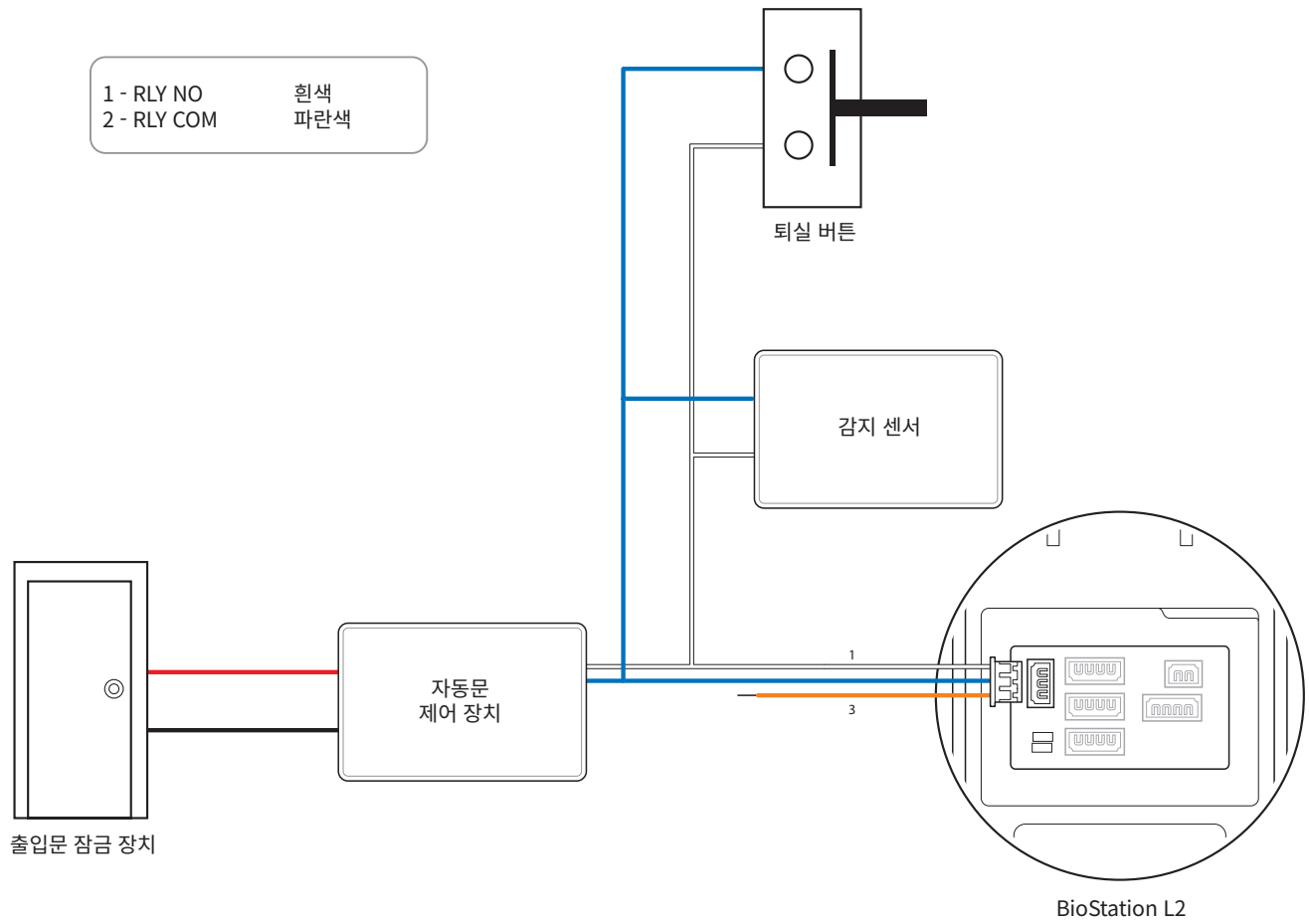


- 출입문 잠금 장치가 작동할 때 발생하는 역전류로부터 릴레이를 보호하기 위해 그림과 같이 출입문 잠금 장치 배선 양쪽에 다이오드를 설치하세요.
- BioStation L2와 출입문 잠금 장치는 별도의 전원을 사용하세요.
- 슈프리마의 지능형 장치에는 편의를 제공하기 위해 별도의 컨트롤러 없이 독립형으로 연결하여 출입문을 직접 열거나 잠글 수 있도록 하는 릴레이가 내장되어 있습니다. 그러나 향상된 보안이 요구되는 출입통제 애플리케이션의 경우 잠재적으로 출입문 잠금 해제를 유발할 수 있는 변조 공격을 방지하기 위해 장치에 내장된 릴레이를 사용하지 않는 것이 좋습니다. 이러한 애플리케이션의 경우 잠금 제어를 위해 출입문 내부의 안전한 위치에 설치된 슈프리마의 Secure I/O 2, DM-20, CoreStation 과 같은 별도의 릴레이 장치를 사용할 것을 권장합니다.



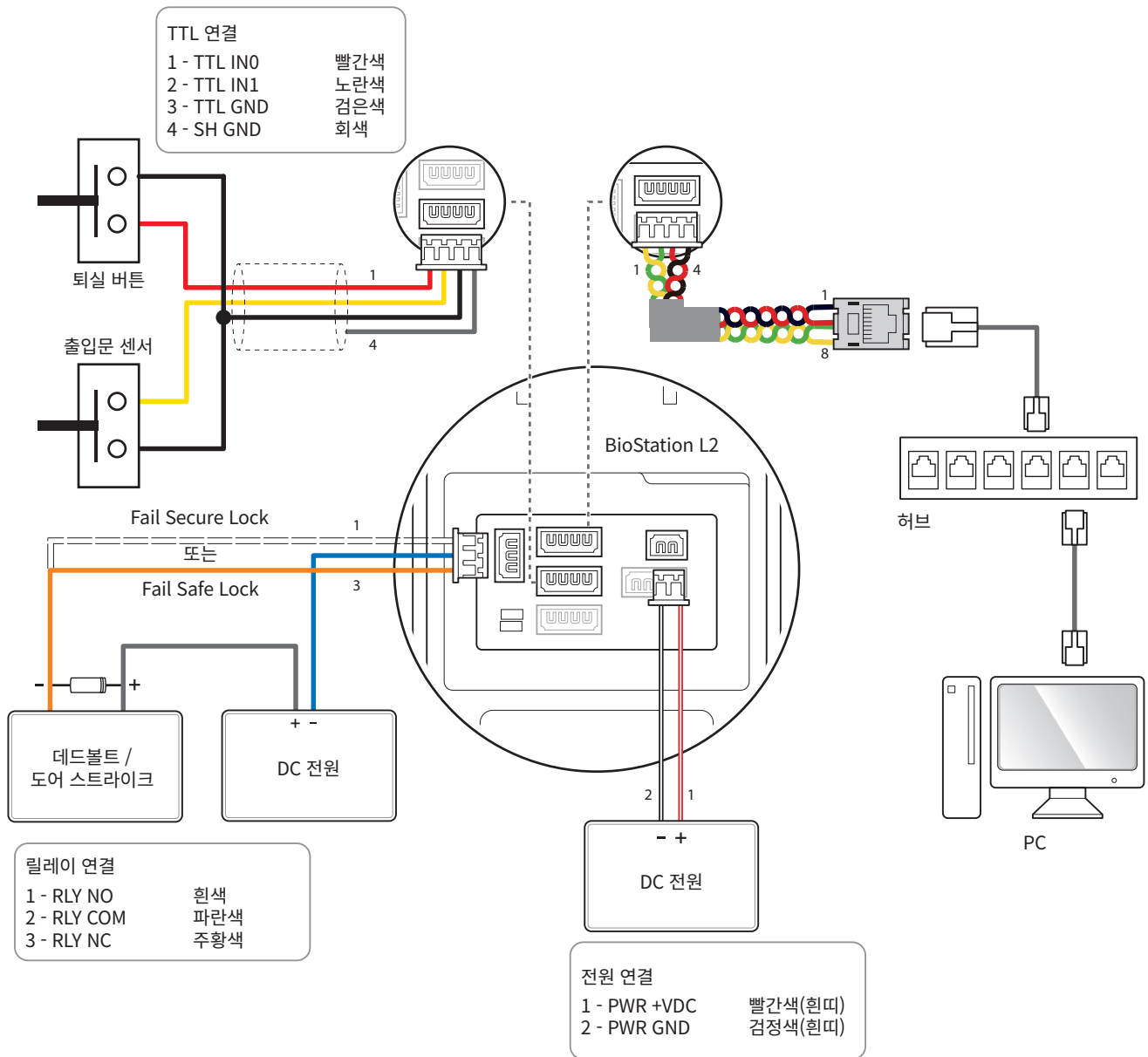
다이오드의 설치 방향에 주의하세요. 다이오드는 출입문 잠금 장치와 가깝게 설치하세요.

자동문 연결



독립형 연결

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



슈프리마의 지능형 장치에는 편의를 제공하기 위해 별도의 컨트롤러 없이 독립형으로 연결하여 출입문을 직접 열거나 잠글 수 있도록 하는 릴레이가 내장되어 있습니다. 그러나 향상된 보안이 요구되는 출입통제 애플리케이션의 경우 잠재적으로 출입문 잠금 해제를 유발할 수 있는 변조 공격을 방지하기 위해 장치에 내장된 릴레이를 사용하지 않는 것이 좋습니다. 이러한 애플리케이션의 경우 잠금 제어를 위해 출입문 내부의 안전한 위치에 설치된 슈프리마의 Secure I/O 2, DM-20, CoreStation과 같은 별도의 릴레이 장치를 사용할 것을 권장합니다.

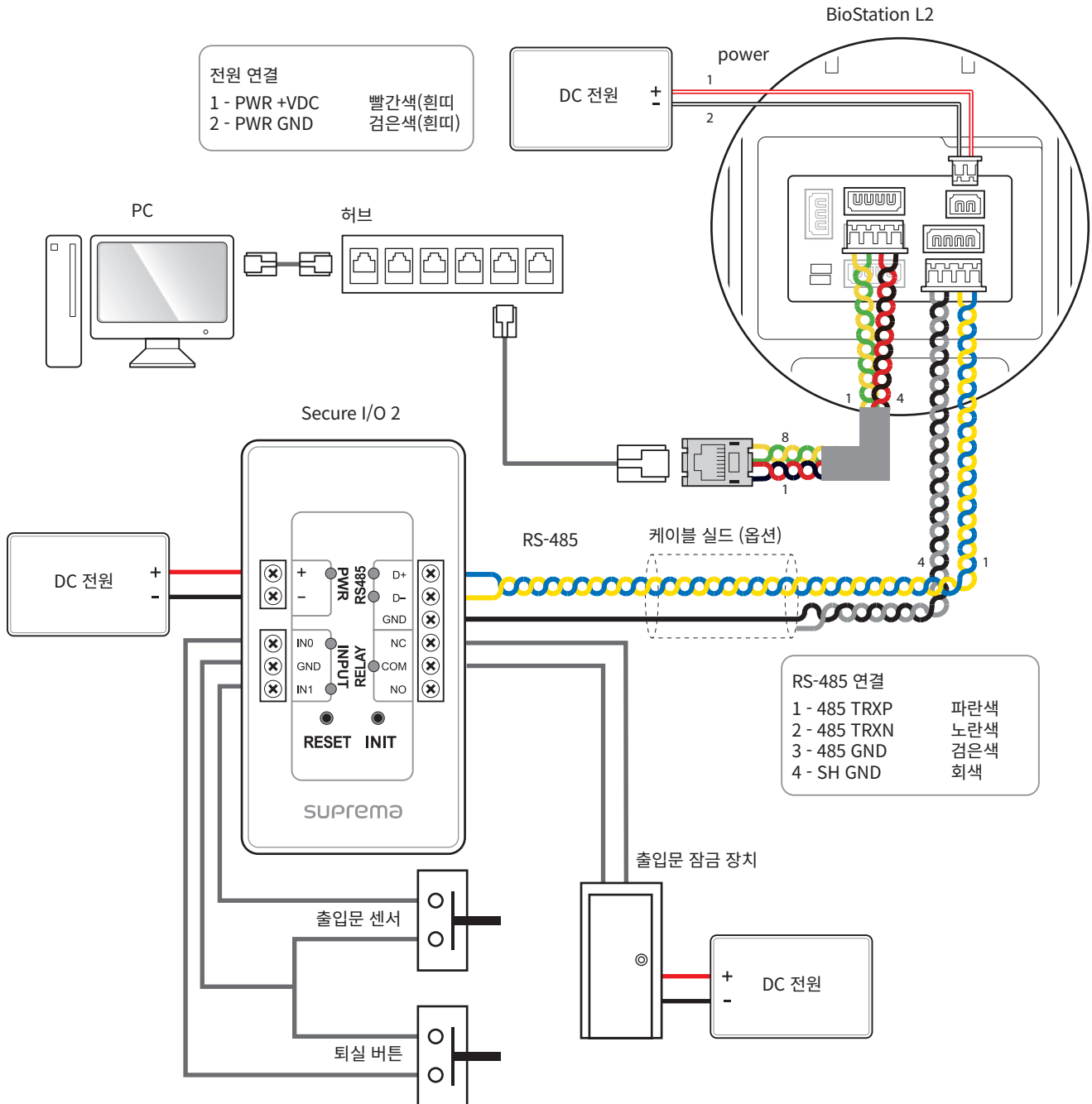


- RS485 케이블로 슬레이브 장치를 연결하여 BioStation L2를 다중 출입문 제어 장치로 사용할 수 있습니다. 슬레이브 장치는 더미 리더로 사용되며 인증은 마스터 장치에서 수행합니다.
- 카드 리더가 마스터 장치로 연결된 경우 카드 인증만 사용할 수 있습니다
- 연결할 수 있는 최대 슬레이브 장치 수는 인증 방법, 사용자 수, 장치 수에 따라 달라지며 슬레이브 장치 수는 지문 인증 속도에 영향을 줍니다.
- 마스터 장치는 31개의 슬레이브 장치를 제어할 수 있습니다. RS-485 대역폭으로 인해 최대 7대의 지문 인식 장치를 연결할 수 있습니다.
- 더 자세한 내용은 슈프리마 기술 지원팀(CS@suprema.co.kr)에 문의하세요.

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.

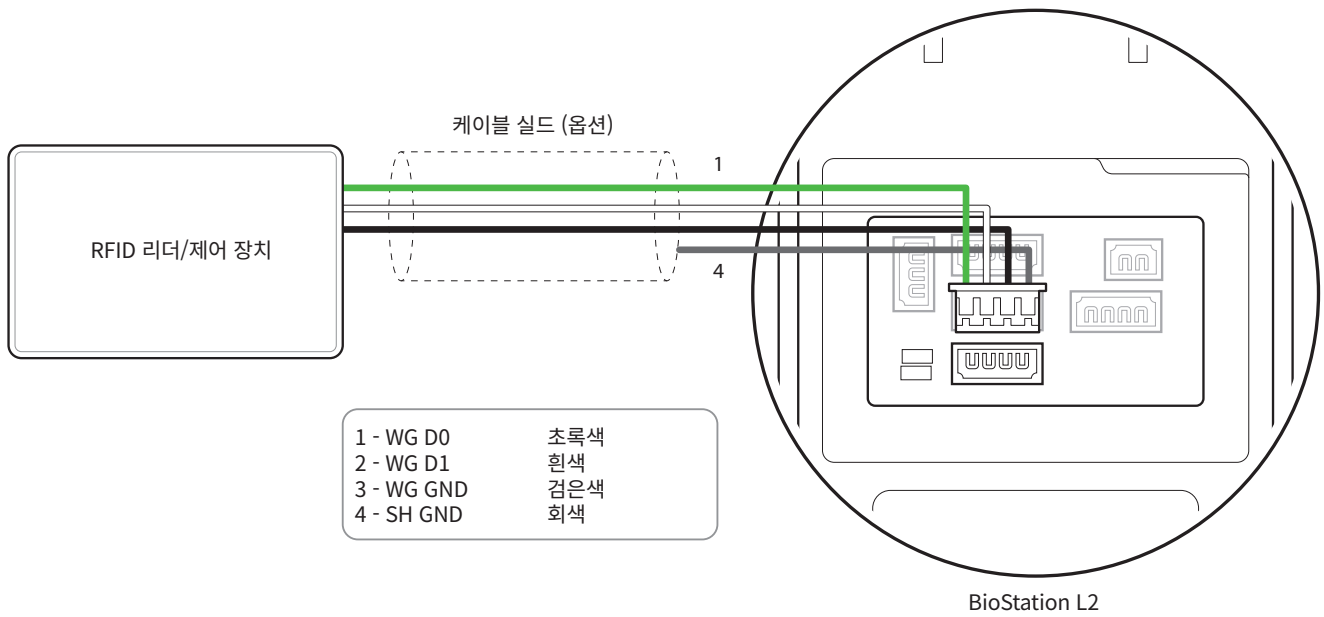
- RS-485 케이블은 AWG24, 꼬임선(Twisted Pair), 길이 1.2 km 이하로 사용하세요.
- RS-485 데이터 체인으로 연결할 경우 종단 저항(120Ω)을 데이터 체인 연결의 양 끝에 연결하세요. 중간 선로에 연결할 경우 신호 레벨이 작아져 통신 성능이 떨어지므로 반드시 데이터 체인 연결의 양 끝에 연결하세요.



- RS485 케이블로 슬레이브 장치를 연결하여 BioStation L2를 다중 출입문 제어 장치로 사용할 수 있습니다. 슬레이브 장치는 더미 리더로 사용되며 인증은 마스터 장치에서 수행합니다.
- 카드 리더가 마스터 장치로 연결된 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. RS-485 대역폭으로 인해 최대 7대의 지문 인식 장치를 연결할 수 있습니다.
- 더 자세한 내용은 슈프리마 기술 지원팀(CS@suprema.co.kr)에 문의하세요.

Wiegand 연결

Wiegand 입력 또는 출력 장치로 사용



제품 사양

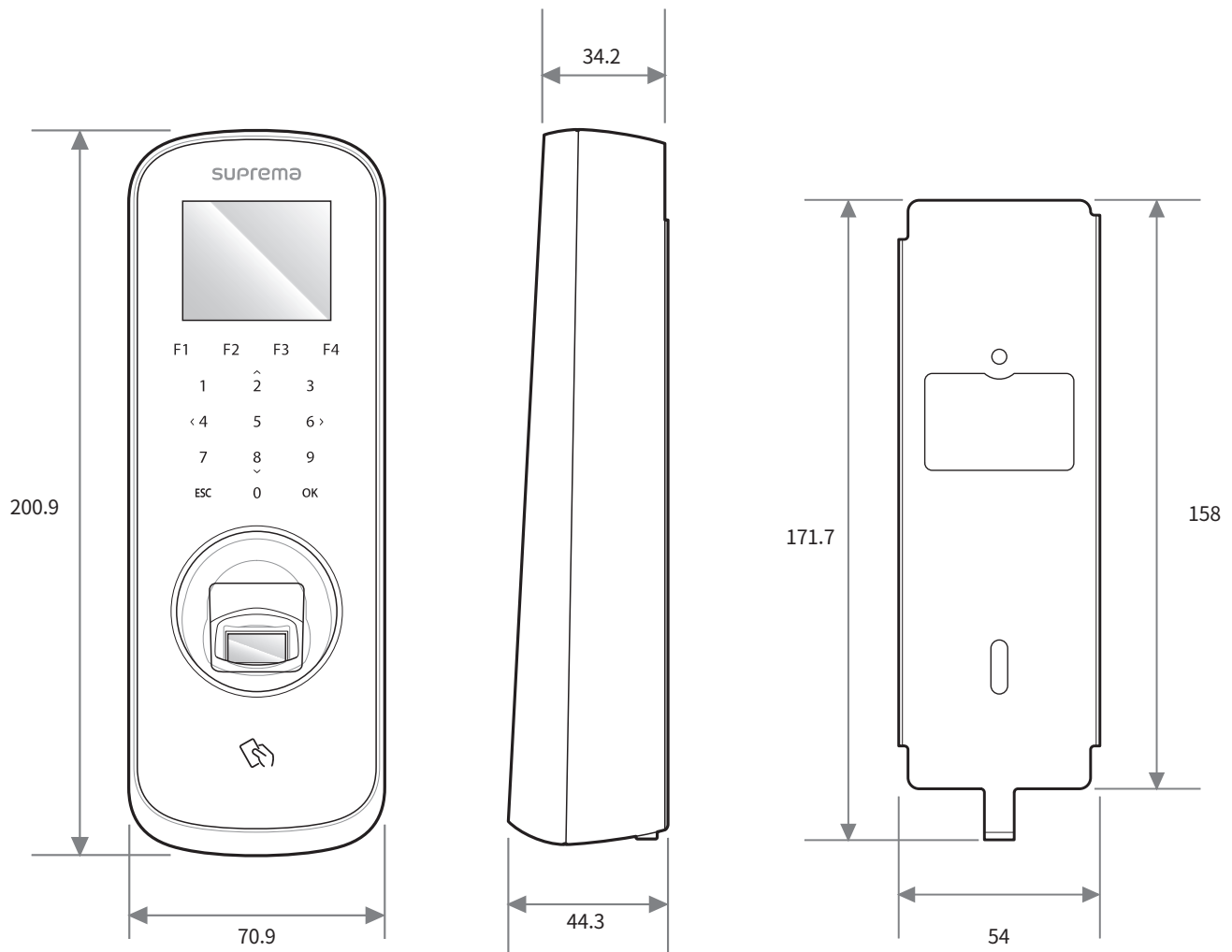
구분	항목	규격
크리덴셜	바이오 인식	지문
	RF 카드	<ul style="list-style-type: none"> • BSL2-OE: 125kHz EM • BSL2-OM: 13.56MHz MIFARE, MIFARE Plus, DESFire, DESFire EV1/EV2/EV3¹⁾, FeliCa
	RF 인식 거리 ²⁾	MIFARE/DESFire: 50 mm, FeliCa: 30 mm
	모바일	NFC (BSL2-OM)
일반	CPU	1.2 GHz Quad Core
	메모리	2 GB Flash + 256 MB RAM
	크립토 칩	지원
	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)	70.9 x 200.9 x 44.3 (하단) / 34.2 (상단) (mm)
	무게	<ul style="list-style-type: none"> • 장치: 280 g • 브래킷: 61 g (와셔 및 볼트 포함)
	인증	CE, UKCA, KC, FCC, BIS, RoHS, REACH, WEEE
지문	이미지 크기	272 x 320 픽셀
	해상도	500 dpi
	템플릿	SUPREMA / ISO19794-2, ANSI-378
	추출 / 매치	MINEX 인증 및 호환
	위조 지문 검출	지원
저장 용량	최대 사용자 수	500,000 ³⁾
	최대 크리덴셜 수(1:N)	지문: 100,000
	최대 크리덴셜 수(1:1)	<ul style="list-style-type: none"> • 지문: 500,000 • 카드: 500,000 • PIN: 500,000
	최대 텍스트 로그 수	1,000,000
	이더넷	지원 (10/100 Mbps, 자동 MDI/MDI-X)
인터페이스	RS-485	1채널 마스터/슬레이브 (선택 가능)
	Wiegand	1채널 입력/출력 (선택 가능)
	TTL 입력	입력 2채널
	릴레이	1개
	탐퍼	지원

구분	항목	규격
전기 규격	전원	<ul style="list-style-type: none"> 전압: 12 Vdc 전류: 최대 0.5 A
	스위치 입력 VIH	<ul style="list-style-type: none"> 최소: 3 V 최대: 5 V
	스위치 입력 VIL	최대: 1 V
	스위치 풀업 저항	4.7 k Ω (입력 단자는 4.7 k Ω 으로 풀업 되어 있습니다.)
	Wiegand 출력 VOH	4.8 V 이상
	Wiegand 출력 VOL	0.2 V 이하
	Wiegand 출력 풀업 저항	1 k Ω 으로 내부 풀업
	릴레이	2 A @ 30 VDC Resistive load 1 A @ 30 VDC Inductive load

- 1) DESFire EV2/EV3 카드는 DESFire EV1 카드와 하위 호환되므로, DESFire EV1 카드의 기능을 포함하여 CSN 및 스마트 카드 기능이 지원됩니다.
- 2) RF 인식 거리는 설치 환경에 따라 다를 수 있습니다.
- 3) 크리덴셜 없이 등록된 사용자 기준입니다.

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.



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웹 사이트: <https://www.supremainc.com>

주소: 경기도 성남시 분당구 정자일로 248 (정자동 6) 파크뷰타워 17층

전화: 1522-4507(영업 문의: 1번, 고객 지원: 2) / 팩스: 031-783-4517

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Version 3, 29 June 2007

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