

BioEntry W2

설치 가이드

버전 1.28
한국어

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GNU General Public License	22
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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

지시사항을 위반하면 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.

- 제품 고장의 원인이 됩니다.

완전히 노출된 야외에 설치할 경우 외함을 같이 설치하는 것을 권장합니다.

Secure I/O 2, 전기정(전기식 잠금장치), BioEntry W2는 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.

- 제품 고장의 원인이 됩니다.

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

- 지문 인식 성능 저하 및 고장의 원인이 됩니다.

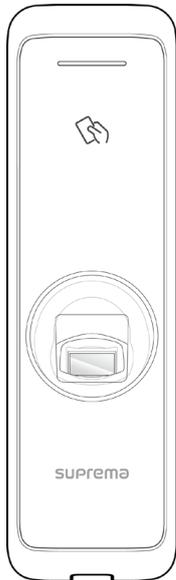
제품 청소 시 물, 벤젠, 알코올 등이 아닌 부드러운 마른 천으로 닦아 주십시오.

- 제품 고장의 원인이 됩니다.

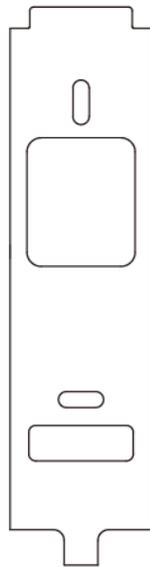
Electronic Access Control Systems, would be invalidated through the use of any add-on, expansion, memory or other module manufactured or supplied by the manufacturer or manufacturer's representative.

시작하기

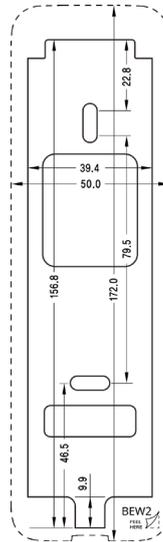
구성품



BioEntry W2



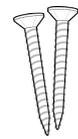
벽걸이용 브래킷



드릴링 템플릿



PVC 앵커
(2 개)



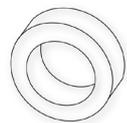
고정용 나사
(2 개)



브래킷 고정용 나사
(별 모양)



120 Ω 저항



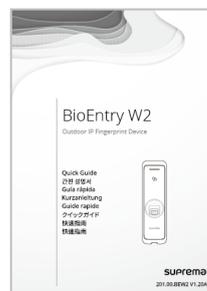
페라이트 코어



다이오드



수축 튜브



퀵 가이드



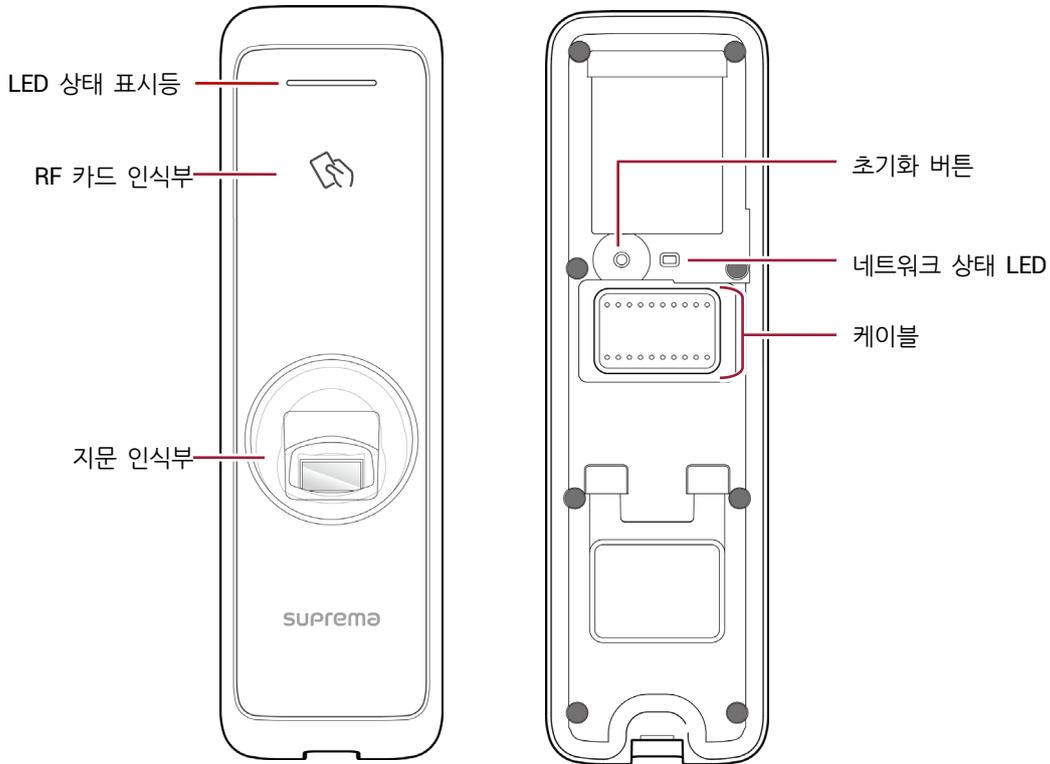
오픈소스라이선스 가이드

알아두기

- 구성품은 설치 환경에 따라 달라질 수 있습니다.

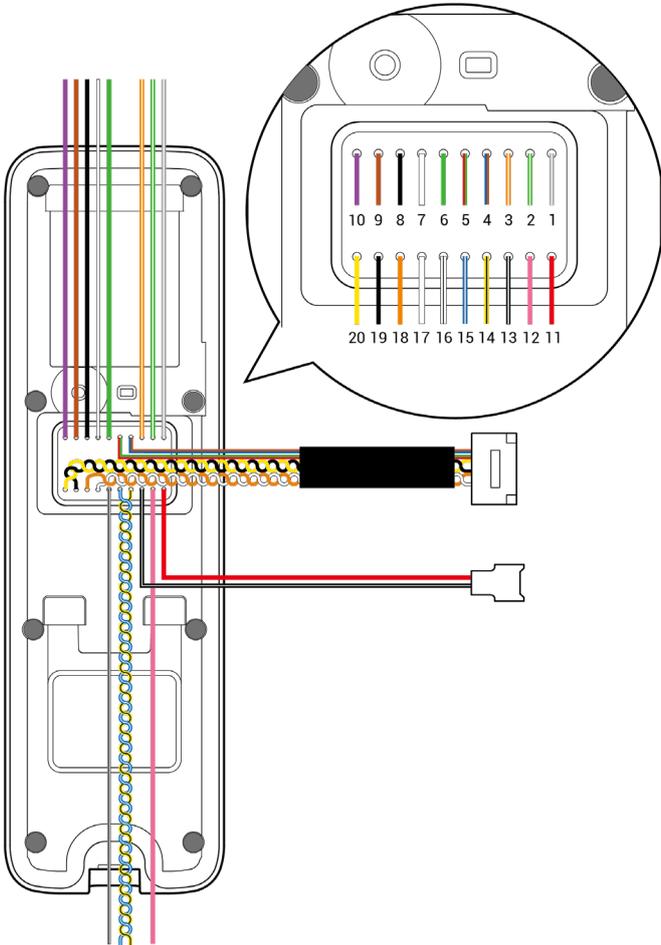
명칭 및 기능

각 부분의 명칭 및 기능



명칭	기능 설명
LED 상태 표시등	LED 상태 표시등의 색상으로 제품 작동 상태가 표시됩니다. <ul style="list-style-type: none"> • 초록색: 인증 성공 • 빨간색: 인증 실패 • 파란색/하늘색 점멸: 정상 동작 상태 • 파란색/초록색 점멸: DHCP를 사용함으로 설정 시 IP 주소를 받지 못한 상태 • 파란색/초록색 점멸: 네트워크 설정 초기화 시 • 초록색 점멸: 입력 대기 상태
RF 카드 인식부	출입을 위해 RF 카드를 인식시키는 부분입니다.
지문 인식부	출입을 위해 손가락을 올려 지문을 인식시키는 부분입니다.
케이블	<ul style="list-style-type: none"> • TTL 입력 케이블 • Wiegand 입력 / 출력 케이블 • 전원 케이블 • RS485 케이블 • 이더넷 커넥터 • 릴레이 출력 케이블
네트워크 상태 LED	네트워크 연결 상태를 표시합니다.
초기화 버튼	<ul style="list-style-type: none"> • 네트워크 설정을 초기화 합니다. 자세한 내용은 네트워크 설정 초기화를 참고하십시오. • 장치에 저장된 모든 정보와 인증서를 삭제하고 설정을 초기화합니다. 자세한 내용은 공장 초기화를 참고하십시오.

케이블 및 커넥터



핀	명칭	색상
1	RLY NO	회색 (흰띠)
2	RLY COM	초록색 (흰띠)
3	RLY NC	주황색 (흰띠)
4	VB2	파란색
		갈색
5	VB1	빨간색
		초록색
6	WG D0	초록색
7	WG D1	흰색
8	WG GND	검은색
9	TTL IN 1	갈색
10	TTL IN 0	보라색
11	PWR +VDC	빨간색
12	Not Connected	분홍색
13	PWR GND	검은색 (흰띠)
14	485 TRXN	노란색 (검은띠)
15	485 TRXP	파란색 (흰띠)
16	485 GND	흰색 (검은띠)
17	ENET TXP	흰색
18	ENET TXN	주황색
19	ENET RXP	검은색
20	ENET RXN	노란색

알아두기

- AWG 26 크기의 도체는 여러 가지가 있으며, 배선할 때 일반적인 피복이나 동등한 재질로 보호되어야 합니다. 또한, 리드선이 18 AWG (0.82 mm²) 보다 큰 도체에 접촉하지 않도록 주의하십시오.

올바른 지문 입력 방법

지문 인식률을 높이기 위해 올바르게 지문을 등록하십시오. BioEntry W2는 사용자의 지문 입력 각도 및 위치가 바뀌더라도 지문을 인식할 수 있습니다. 지문을 등록할 때 다음 사항에 유의하여 등록하면 인식률을 높일 수 있습니다.

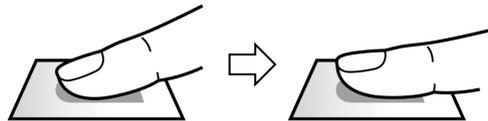
지문 입력을 위한 손가락 선택

- 한 손에 짐을 들거나 손가락에 상처가 있는 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.
- 지문을 입력할 때 검지 또는 중지를 사용할 것을 권장합니다. 다른 손가락은 지문 인식부 중앙에 정확히 위치하기 어려워서 인식률이 떨어질 수 있습니다.



지문 등록 방법

- 1 등록할 손가락을 지문 인식부에 올리고, 살며시 눌러 지문이 잘 인식되도록 하십시오.



- 2 “뵁” 소리가 난 뒤, 등록된 손가락의 지문을 다시 스캔하십시오.
(등록할 손가락의 지문은 두 번 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 지문 인식부에 완전히 접촉되도록 깊이 위치시키십시오.
- 지문의 중심점 부분이 지문 인식부의 중심에 오도록 위치시키십시오.
- 손가락에 상처가 있거나 지문이 흐릴 경우 다른 손가락의 지문을 입력하십시오.
- 지문을 인식하는 중에는 움직이지 마십시오.
- 손가락을 세워 지문 인식부와의 접촉 면적이 작아 지거나 손가락 각도가 틀어진 경우에는 지문 인식이 되지 않을 수 있습니다.



지문 인식이 잘 되지 않는 경우

BioEntry W2는 계절의 변화나 손가락의 상태 변화에 관계없이 지문을 인식할 수 있습니다. 하지만, 외부 환경이나 지문 입력 방법에 따라 인식률의 차이가 있을 수 있습니다.

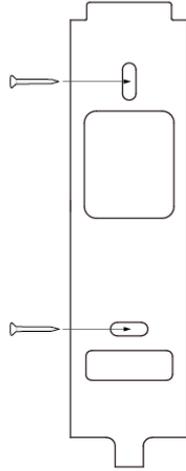
지문이 잘 인식되지 않는 경우 다음의 조치를 취할 것을 권장합니다.

- 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

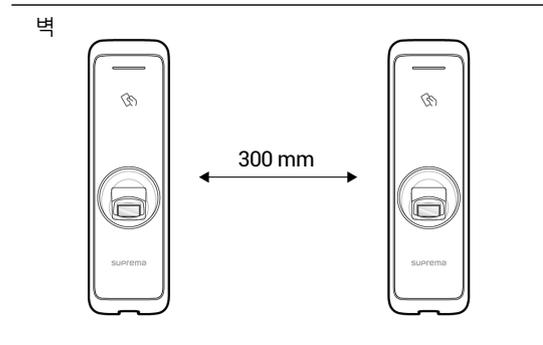
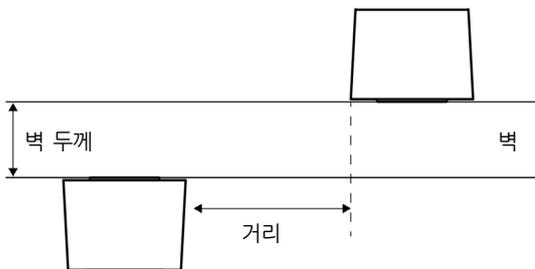
브래킷 및 제품 고정

- 1 제공된 드릴링 템플릿을 이용하여 브래킷을 장착할 위치를 정하십시오. BioEntry W2를 장착할 위치에 고정용 나사를 이용하여 브래킷을 단단히 고정하십시오.



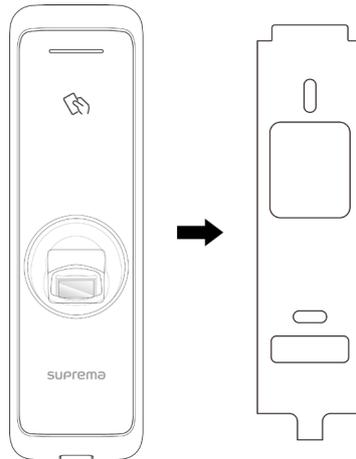
알아두기

- BioEntry W2를 콘크리트 벽에 설치할 경우 드릴로 구멍을 뚫어 PVC 앵커를 끼운 뒤 고정용 나사로 고정하십시오.
- RF 신호 간섭을 피하기 위해 최소 이격 거리를 확인하여 설치하십시오.

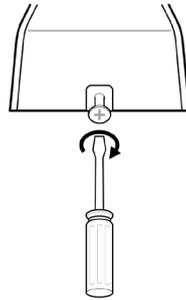


벽 두께	거리
100 mm	270 mm
120 mm	250 mm
150 mm	170 mm

2 고정된 브래킷 위에 BioEntry W2를 장착하십시오.



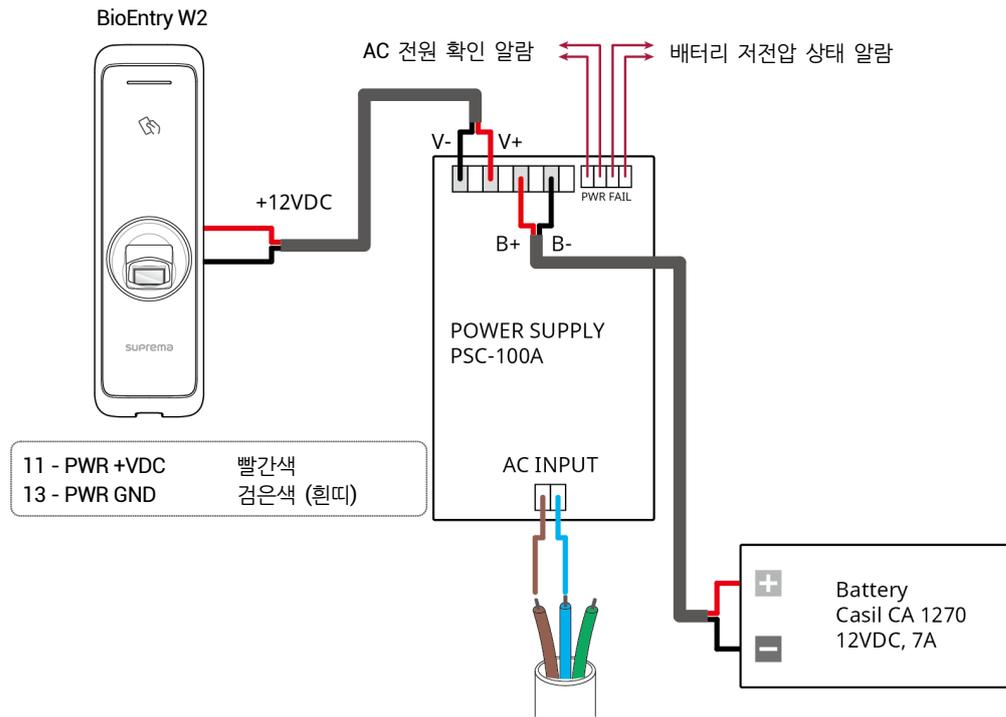
3 BioEntry W2의 제품 고정용 나사를 돌려 BioEntry W2와 브래킷을 조립하십시오.



알아두기

- 브래킷과 제품을 조립할 때 향상된 보안을 위해 제품 고정용 나사 대신 동봉된 브래킷 고정용 나사(별 모양)를 이용할 수 있습니다.

전원 연결



알아두기

- Listed Class 2 전원 장치 사용을 권장합니다.
- 장치의 전원 장치는 외부 12VDC Listed Class 2 전원 장치 또는 UL 294B PoE 전원 장치를 사용해야 합니다.
- ULC S319를 만족하기 위해 'PSC-100A' 전원 공급 장치 및 'Casil CA 1270' 배터리를 연결해야 합니다.
- 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), BioEntry W2는 반드시 개별 전원을 사용하십시오. 전원을 함께 연결하여 사용하면 장치가 오작동할 수 있습니다.
- 전원 장치(또는 어댑터)와 PoE 전원 장치를 함께 연결하지 마십시오.
- 알람 신호는 릴레이 접점 방식으로 AC OK 및 배터리 저전압 상태 핀을 통해 전송됩니다.

기능	설명	릴레이 상태
AC 전원 확인	AC 전원 켜짐	단락
	AC 전원 꺼짐	단선
배터리 저전압 상태	배터리 전압이 11 V 이하일 때	단락
	배터리 전압이 11 V 이상일 때	단선

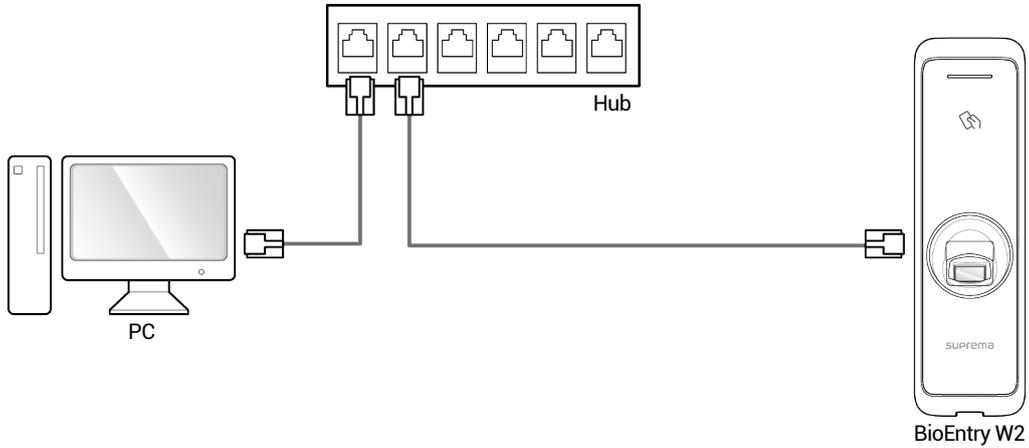
- 알람 신호 기능을 사용하려면 외부 전원 소스가 필요합니다. 최대 인가 전압은 30 V이며, 최대 싱크 전류는 1 A입니다.

네트워크 연결

TCP/IP

LAN 연결 (허브와 연결)

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

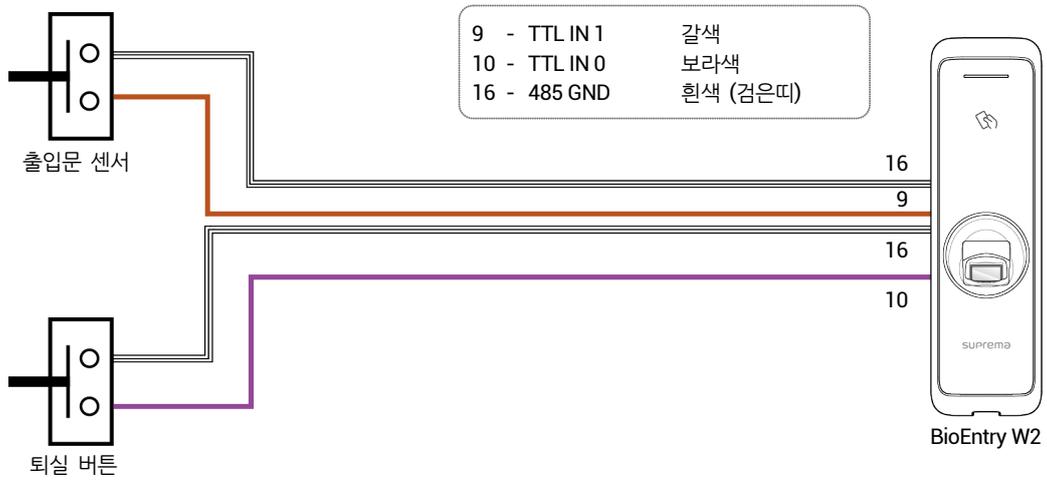


LAN 연결 (PC와 직접 연결)

BioEntry W2는 자동 MDI/MDIX 기능을 가지고 있으므로 크로스 케이블 아닌 일반 타입의 CAT-5 케이블로 PC와 직접 연결할 수 있습니다.



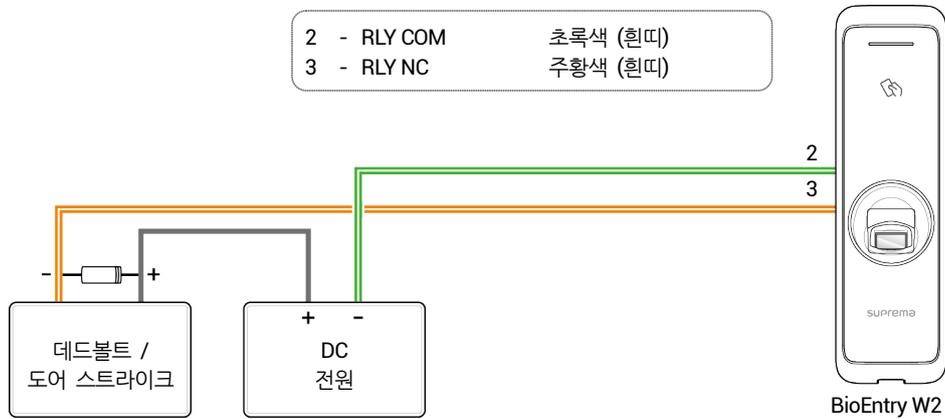
TTL 입력 연결



릴레이 연결

Fail Safe Lock

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

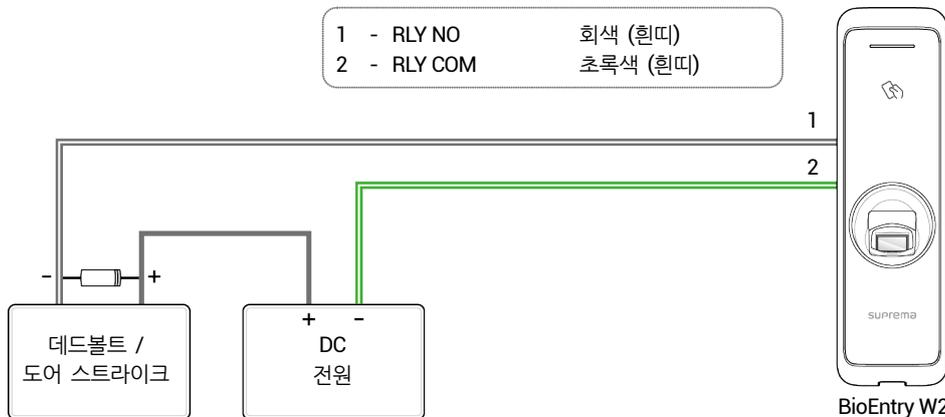


알아두기

- 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.
- BioEntry W2와 출입문 잠금 장치는 별도의 전원을 사용하십시오.
- 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.

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.

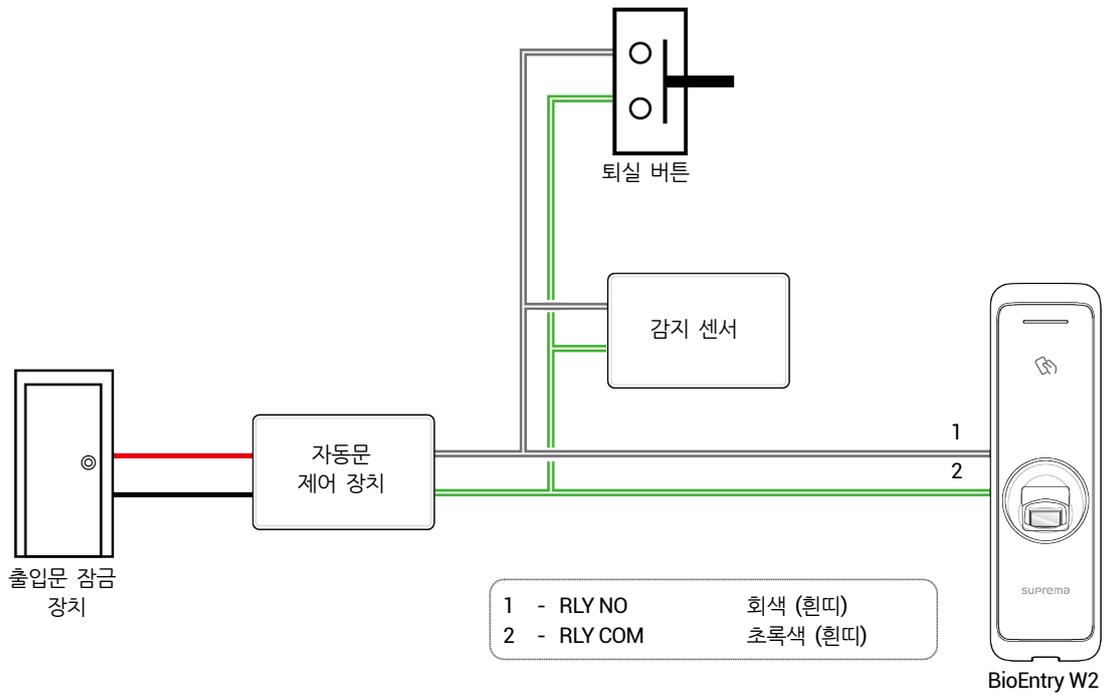


알아두기

- 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.

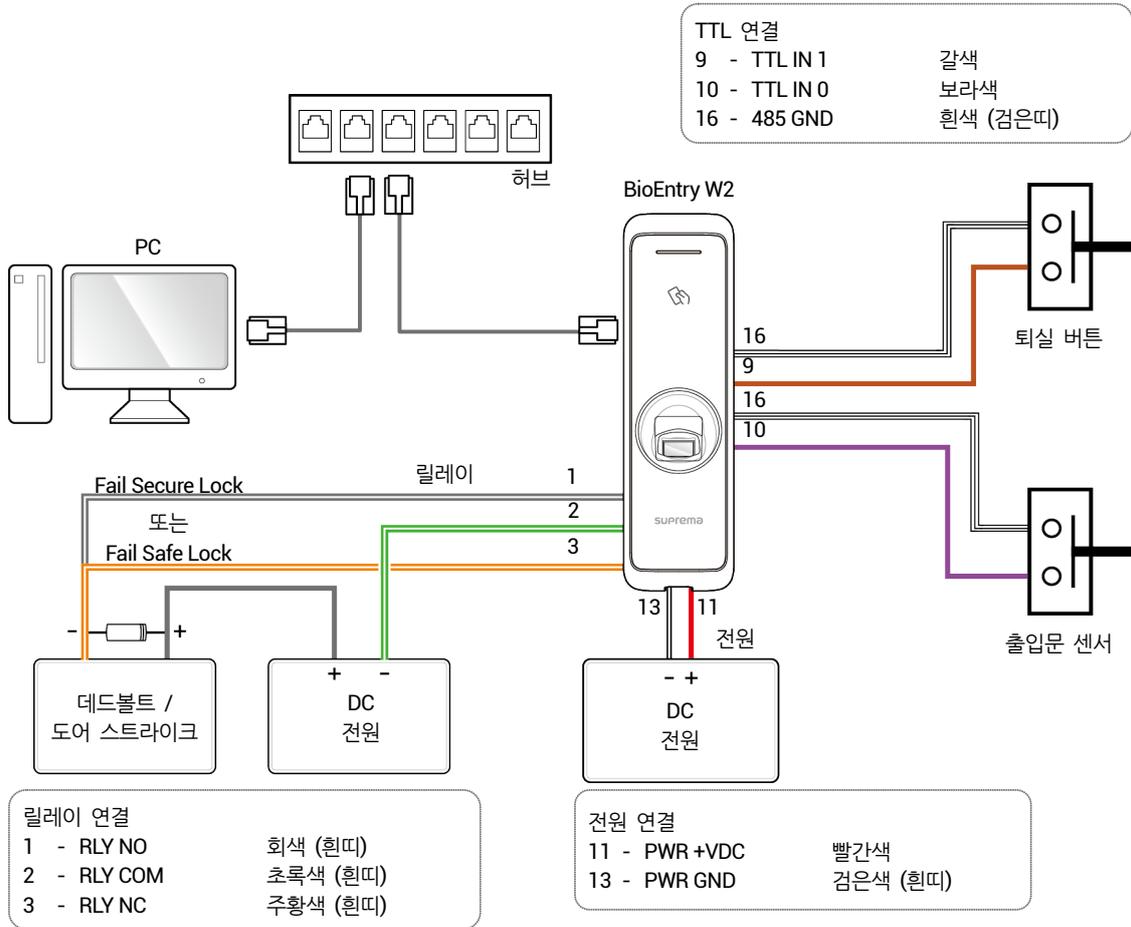
- BioEntry W2와 출입문 잠금 장치는 별도의 전원을 사용하십시오.
- 슈프리마의 지능형 장치에는 편의를 제공하기 위해 별도의 컨트롤러 없이 독립형으로 연결하여 출입문을 직접 열거나 잠글 수 있도록 하는 릴레이가 내장되어 있습니다. 그러나 향상된 보안이 요구되는 출입통제 애플리케이션의 경우 잠재적으로 출입문 잠금 해제를 유발할 수 있는 변조 공격을 방지하기 위해 장치에 내장된 릴레이를 사용하지 않는 것이 좋습니다. 이러한 애플리케이션의 경우 잠금 제어를 위해 출입문 내부의 안전한 위치에 설치된 슈프리마의 Secure I/O 2, DM-20, CoreStation과 같은 별도의 릴레이 장치를 사용할 것을 권장합니다.

자동문 연결



독립형 연결

별도의 I/O 장치를 연결하지 않고 BioEntry W2를 직접 출입문 잠금 장치, 출입문 스위치, 출입문 센서 등에 연결할 수 있습니다.



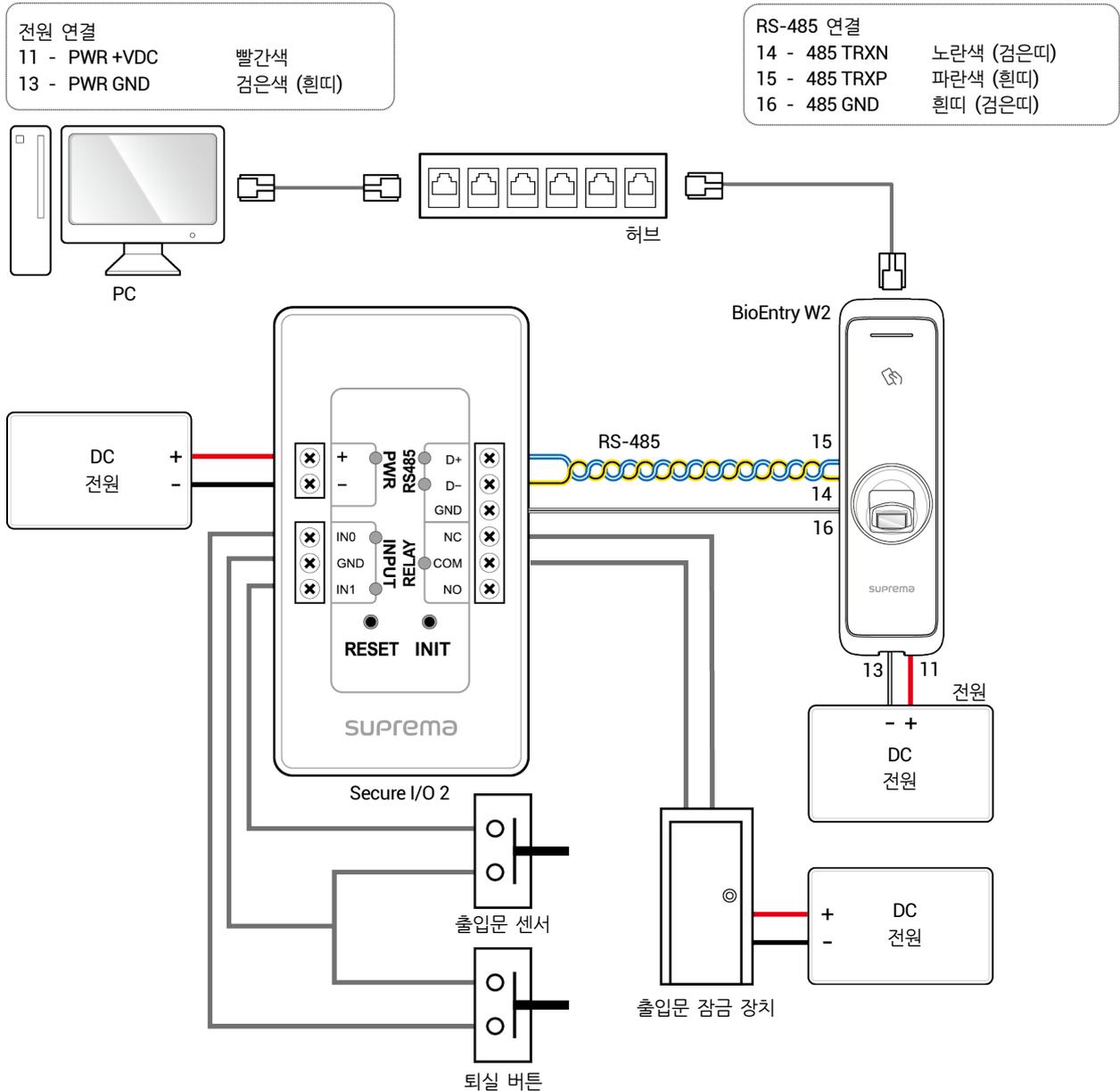
알아두기

- RS485 케이블로 슬레이브 장치를 연결하여 BioEntry W2 를 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.
- 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 번조 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.
- 더 자세한 내용은 슈프리마 기술 지원팀(CS@suprema.co.kr)에 문의하십시오.

Secure I/O 2 연결

BioEntry W2에 I/O 장치인 Secure I/O 2를 RS-485로 연결할 수 있습니다. BioEntry W2와 Secure I/O 2의 연결이 끊기거나 외부 요인에 의해 BioEntry W2의 전원이 차단되더라도 보안을 유지할 수 있습니다.

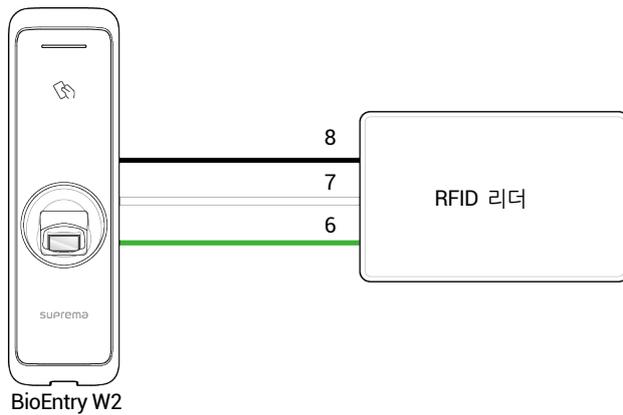
- RS-485 케이블은 AWG24, 꼬임선(Twisted Pair), 최대 길이 1.2 km를 사용하십시오.
- RS-485 데이지 체인으로 연결할 경우 종단 저항(120Ω)을 데이지 체인 연결의 양 끝에 연결하십시오. 중간 선로에 연결할 경우 신호 레벨이 작아져 통신 성능이 떨어지므로 반드시 데이지 체인 연결의 양 끝에 연결하십시오.



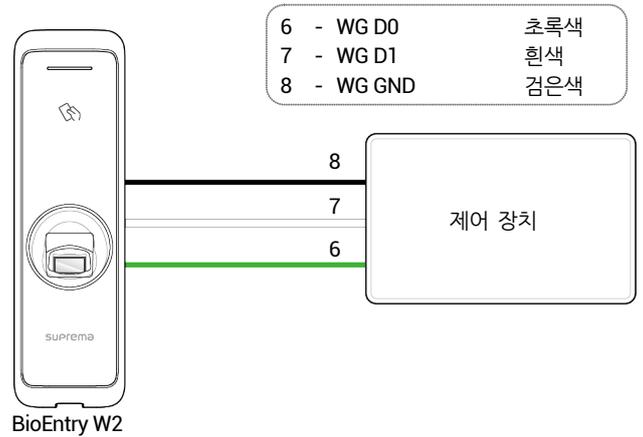
알아두기

- RS485 케이블로 슬레이브 장치를 연결하여 BioEntry W2 를 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.
- 본 Secure I/O 2 연결 방법에 대한 설명은 UL 294 표준에 의해 평가 받지 않은 내용입니다.
- 더 자세한 내용은 슈프리마 기술 지원팀(CS@suprema.co.kr)에 문의하십시오.

Wiegand 연결



Wiegand 입력 장치로 사용



Wiegand 출력 장치로 사용

네트워크 설정 초기화

- 1 전원을 켜십시오.
- 2 장치가 자동으로 재부팅될 때까지 초기화 버튼을 누르십시오.
- 3 초기화된 네트워크 정보를 이용해 장치를 연결하십시오.
 - TCP/IP 주소: DHCP 주소 할당 (DHCP 주소 할당을 실패하면 169.254.x.x로 설정됩니다.)
 - 서버 모드: 사용 해제
 - RS-485: 기본값, 115200 bps
- 4 TCP/IP나 RS-485 정보를 변경하십시오.
- 5 전원을 끄고 켜 뒤 네트워크 정보가 올바르게 설정되었는지 확인하십시오.

공장 초기화

장치에 저장된 모든 정보와 루트 인증서를 삭제하고 설정을 초기화합니다.

- 1 전원을 켜십시오.
- 2 초기화 버튼을 빠르게 세 번 누르십시오.
- 3 장치의 LED가 초록색으로 깜박거릴 때 초기화 버튼을 한 번 더 누르십시오.

알아두기

- 장치에 저장된 루트 인증서가 존재하지 않을 경우 공장 초기화를 진행할 수 없습니다.

제품 사양

구분	항목	규격
크리덴셜	바이오인식	지문
	RF 카드	<ul style="list-style-type: none"> BEW2-OHP. 125kHz EM, HID Prox & 13.56MHz MIFARE, MIFARE Plus, DESFire EV1/EV2, FeliCa, NFC BEW2-ODP. 125kHz EM & 13.56MHz MIFARE, MIFARE Plus, DESFire EV1/EV2, FeliCa, NFC BEW2-OAP. 125kHz EM, HID Prox & 13.56MHz MIFARE, MIFARE Plus, DESFire EV1/EV2, FeliCa, iCLASS SE/SR/Seos, NFC
	RF 인식 거리*	MIFARE/DESFire/EM/HID Prox/iCLASS : 50 mm, FeliCa: 30 mm
일반	CPU	1.2 GHz Quad Core
	메모리	2GB Flash + 256 MB RAM
	LED	다중 색상
	소리	멀티톤 버저
	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)	50 mm x 172 mm x 43.5 mm (하단) / 38.2 mm (상단)
	무게	장차: 251g 브래킷: 43g (와셔 및 볼트 포함)
	IP 등급	IP67
	IK 등급	IK09
	인증	CE, FCC, KC, RoHS, REACH, WEEE, UL294(BEW2-OAP만 적용)
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 (선택 가능)
	TTL 입력	입력 2채널
	릴레이	1개
	PoE	지원 (Power over Ethernet 44 VDC Max 12 W, IEEE 802.3af)
전기 규격	전원	전압: 12 VDC, 전류: 최대 600 mA * 12VDC, 1.5A 사양의 전원을 사용하십시오.
	스위치 입력 VIH	최소 3 V, 최대 5 V
	스위치 입력 VIL	최대 1 V
	스위치 풀업 저항	4.7 kΩ (입력 단자는 4.7 kΩ으로 풀업되어 있습니다.)
	Wiegand 출력 VOH	최소 4.8 V
	Wiegand 출력 VOL	최대 0.2 V
	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.

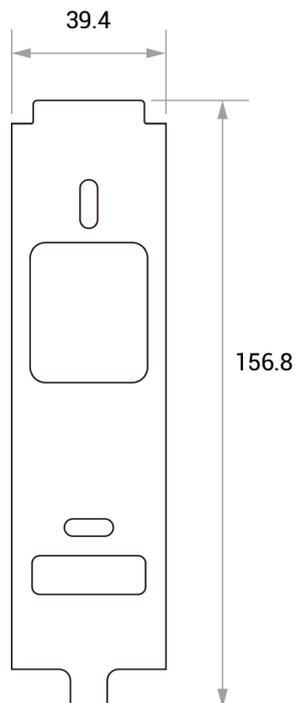
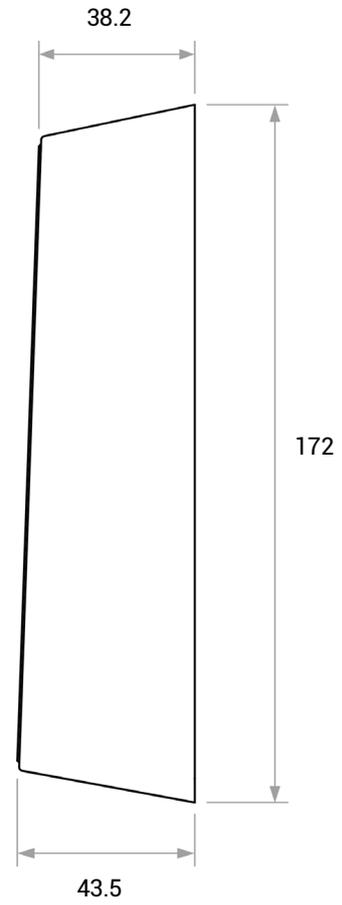
* 출입 통제 기능 (UL294 규격)

파괴 공격 - 레벨 2, 회선 보안 - 레벨 2, 내구성 - 레벨 1, 대기 전원 - 레벨 1

* DESFire EV2 카드는 DESFire EV1 카드와 하위 호환되므로, DESFire EV1 카드의 기능을 포함하여 CSN 및 스마트 카드 기능이 지원됩니다.

제품 크기

(단위: mm)



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- RFID 주파수: 13.56 MHz + 125 kHz

더 자세한 내용은 아래 연락처로 연락하십시오.

(주)슈프리마

웹 사이트: <https://www.supremainc.com>

주소: 경기도 성남시 분당구 경자일로 248 (경자동 6) 파크뷰타워 17층

전화: 031-783-4510 / 팩스: 031-783-4517

부록

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Version 3, 29 June 2007

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