IDIS®

DirectIP Gigabit PoE Switch

사용설명서

DH-2328PF-A

Powered by **Direct IP**®

사용설명서를 읽기 전에

본 사용설명서는 ㈜아이디스의 제품인 DirectIP Gigabit PoE Switch의 설치 및 운영을 위한 기본 설명서입니다.

본 기기를 처음 대하는 사용자는 물론, 이전에 동급의 장비를 많이 다루어 본 사용자라도 사용 전에는 반드시 본 사용설명서의 내용을 읽어 본 뒤 설명서 내의 주의 사항에 유의하여 제품을 다루는 것이 좋으며, 안전상의 경고 및 주의 사항은 제품을 올바르게 사용하여 위험이나 재산상의 피해를 막기 위한 내용으로 반드시 지켜주시기 바랍니다.

읽으신 후에는 반드시 언제라도 볼 수 있는 곳에 보관해 주세요.

- 본 사용설명서를 무단으로 복제할 수 없습니다.
- 규격품 이외의 제품을 사용하여 발생된 손상과 사용설명서 사용방법을 지키지 않고 제품을 손상 시켰을 경우에는 당사에 책임지지 않으므로 주의하시기 바랍니다
- DirectIP Gigabit PoE Switch를 처음 사용해 보거나, 사용이 익숙하지 않은 사용자는 설치하거나 사용하는 중에 반드시 구입처로 문의하여 전문 기술자의 도움을 받을 것을 권장합니다.
- 시스템의 기능 확장성이나 고장수리를 위해 시스템을 분해할 경우에는 반드시 구입처로 문의하여 전문가의 도움을 받아야 합니다.
- 본 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

안전을 위한 주의 사항 표기

아이콘	표기	의미
⚠️	경고	지시사항을 위반할 경우 사람이 사망하거나 중상을 입을 가능성이 있는 심각한 내용입니다.
⚠️	주의	지시사항을 위반할 경우 사람이 부상을 입거나 물적 손해 발생이 예상되는 내용입니다.

본문 표기

아이콘	표기	의미
⚠️	주의	기능 동작과 관련된 내용으로 반드시 알아두어야 할 내용입니다.
✓	참고	기능 동작에 도움이 되는 내용입니다.

안전을 위한 주의 사항

제품을 올바르게 사용하여 위험이나 재산상의 피해를 미리 막기 위한 내용이므로 반드시 지켜 주시기 바랍니다.

> ⚠️ **경고** 지시사항을 위반했을 때 심각한 상해가 발생하거나 사망에 이를 가능성이 있는 경우

설치 관련

설치하기 전에 반드시 본 기기의 전원을 끄고 전원 플러그를 동시에 여러 개 꽂아 사용하지 마세요.

● 이상 발열 및 화재, 감전의 위험이 있습니다.

온도가 너무 높은 곳이나 낮은 곳, 습기가 많은 곳에 설치하지 마세요. 또한 물 또는 습기 등의 방수가 되지 않는 곳에 노출시키지 마세요.

● 화재의 원인이 될 수 있습니다.

직사광선이 비치지 않는 서늘한 장소에 설치하고 적정 온도를 유지해 주세요. 촛불, 난방 기구 등 열기구와 가까운 곳에 설치하지 마세요.

● 화재의 위험이 있습니다.

본 기기 내부에 고전압 부위가 있으므로 임의로 뚜껑을 열거나, 분해, 수리, 개조하지 마세요.

● 이상 작동으로 인해 화재, 감전, 상해의 위험이 있습니다.

기기 뒷면은 연결 단자들이 돌출되어 있어 벽에 너무 가깝게 설치하면 케이블이 무리하게 구부러지거나 눌러져 파손될 수 있으므로 벽에서 15cm 이상 거리를 유지하여 설치하세요

● 화재, 감전, 상해의 원인이 됩니다.

습기, 먼지, 그을음 등이 많은 곳에는 설치하지 마세요

● 감전, 화재의 원인이 됩니다.

설치되는 장소는 먼지가 없도록 항상 깨끗하게 유지하세요. 기기를 청소할 때에는 반드시 마른 수건으로 닦아 주고, 물, 신나, 유기 용제를 사용하지 마세요.

● 기기의 표면을 상하게 할 우려가 있고, 고장 및 감전의 위험이 있습니다.

제품을 물이 떨어지거나 튀는 곳에 방치시키지 말고, 꽃병처럼 물이 들어있는 것을 제품 위에 올려 놓지 마세요.

● 화재, 감전, 상해의 원인이 됩니다.

전원 관련

본 기기의 작동을 위한 압력 전압은 전압 변동 범위가 규정 전압의 10% 이내이어야 하며, 전원 콘센트는 반드시 접지가 되어 있어야 합니다. 전원 케이블을 연결하는 콘센트에는 헤어 드라이기, 다리미, 냉장고 등의 전열 기구를 같이 사용하지 마세요.

● 이상 발열 및 화재, 감전의 원인이 됩니다.

전원 케이블을 무리하게 구부리거나 무거운 물건에 눌려 파손되지 않도록 주의하세요.

● 화재의 원인이 됩니다.

전원 케이블을 당겨 빼거나 젖은 손으로 전원 플러그를 만지지 마세요. 전원 플러그의 구멍이 헐거울 경우 전원 플러그를 꽂지 마세요.

● 화재 및 감전의 위험이 있습니다.

사용 관련

제품 위에 물, 커피, 음료수 등과 같은 액체가 담긴 그릇을 올려 놓지 마세요.

● 액체가 쏟아져 제품 내부로 들어가면 고장 및 화재의 원인이 됩니다.

습기 찬 바닥, 접지되지 않은 전원 확장 케이블, 피복이 벗겨진 전원 케이블, 안전 접지의 결여 등의 위험한 상황에 노출되지 않도록 주의하세요. 문제가 발생할 경우 구입처나 전문가에게 문의하세요.

● 화재 및 감전의 위험이 있습니다.

이상한 소리가 나거나 냄새가 날 때에는 즉시 전원 플러그를 뽑고 구입처나 서비스 센터로 문의하세요.

● 화재, 감전의 위험이 있습니다.

⚠️ **주의** 지시사항을 위반했을 때 경미한 상해나 제품 손상이 발생할 수 있는 가능성이 있는 경우

설치 관련

강한 자성이나 전파가 있는 곳, 충격이 있는 곳, 라디오나 TV 등의 무선 기기에 근접한 곳에는 설치하지 마세요.

● 자석류나 전파, 진동이 없는 곳에 설치하세요.

밀폐되지 않고 바람이 잘 통하는 곳에 설치하고 시스템 운영실의 공기를 적절히 순환시키는 것이 좋습니다

● 주변 환경 요소에 의한 고장의 원인이 됩니다. 뒷면은 15cm 이상, 옆면은 5cm 이상 간격을 두고 설치하세요.

평평하고 안정된 장소에 설치하고 수직으로 세우거나 비스듬히 놓고 사용하지 마세요.

● 기기가 넘어지거나 떨어질 경우, 고장의 원인이 되며 상해의 위험이 있습니다.

사용자가 전원 플러그를 쉽게 조작할 수 있는 곳에 설치하세요.

● 제품에 심각한 이상 및 화재 발생 시 전원 플러그를 제거하여 위험 요소를 쉽게 제거할 수 있도록 하세요.

강한 충격이나 진동이 없는 곳에 설치하세요.

● 고장의 원인이 됩니다.

사용 관련

통풍을 위해서 뚫린 홈에 도전성 물체가 빠지지 않도록 주의하세요.

● 고장의 원인이 됩니다.

제품 위에 무거운 물건을 올려 놓지 마세요.

● 고장의 원인이 됩니다.

제품 구동 중에는 전원 플러그를 뽑지 말고 제품을 움직이거나 이동시키지 마세요.

● 고장의 원인이 됩니다.

광케이블 연결 시 반드시 전원이 꺼진 상태에서 연결하세요.

광케이블을 연결하기 전에 미리 광케이블의 고무 뚜껑을 벗기지 마세요. 뚜껑은 광케이블이 오염 물질에 노출되지 않도록 합니다. 또한 고무 뚜껑은 벗긴 후 다음 사용을 위해 잘 보관하세요.

광케이블 연결 시 광케이블의 끝이나 케이블을 통해 송수신되는 레이저에 직접적으로 눈을 대거나 쳐다보지 마세요.

장비의 동작 상태를 수시로 확인하여 이상이 있을 경우 즉시 구입처나 서비스 센터에 문의하세요.

목차

제1장 - 제품 소개

제품의 특장점

본 제품은 다중 포트에 IEEE 802.3af 및 IEEE 802.3at Power over Ethernet(PoE)를 지원하는 DirectIP 기반의 Gigabit Switch로서 다음과 같은 특징을 가지고 있습니다.

- **DirectIP 기능**
  - 자동 네트워크 IP 설정 기능 제공
  - DirectIP NVR(Network Video Recorder)에 각 포트의 정보 제공
- **PoE 기능**
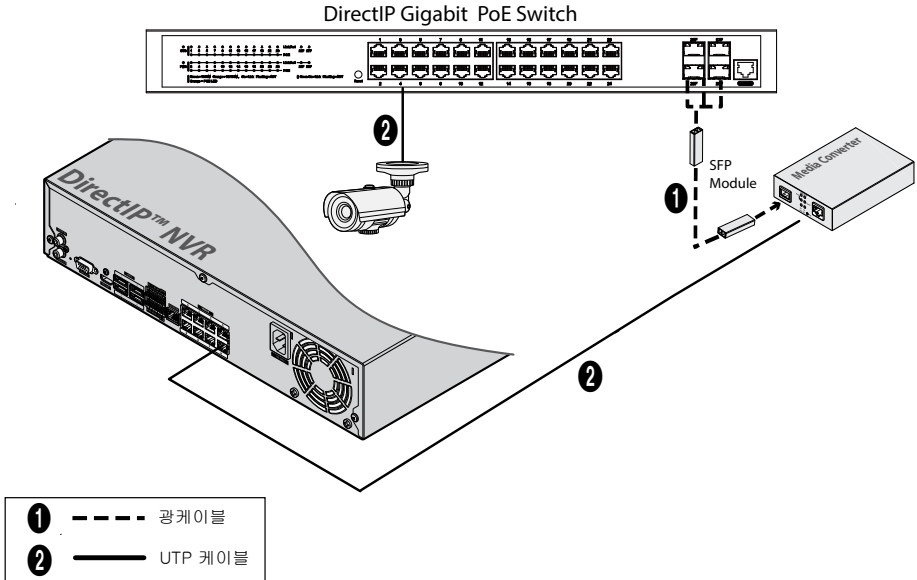 - IEEE 802.3af/at 규격 지원 (IEEE 802.3af/at compliant)
  - 이더넷 케이블들을 통한 전력 공급 가능 (Power to the application over Ethernet cable)
  - 전력 중앙 제어를 통한 네트워크 가용성 증대
  - PoE Alternate A 방식의 전원 공급
- **고성능의 안정화된 인터페이스**
  - RJ-45 포트와 SFP 포트 모두 1Gbps 속도 지원

DirectIP Gigabit PoE Switch를 이용한 제품 연결

DirectIP Gigabit PoE Switch

SFP Module

Media Converter

DirectIP™ NVR

❶ — — — — 광케이블
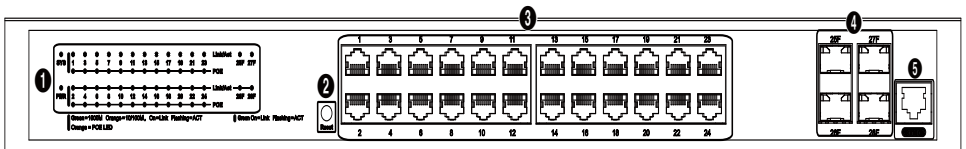❷ ———— UTP 케이블

구성품 확인

제품 구입 후 포장을 벗겨낸 후 다음의 구성품이 모두 포함되어 있는지 확인하세요.

- DH−2328PF−A 본체
- 전원 케이블
- 사용설명서
- 랙 장착용 Bracket 2개
- Bracket 부착용 나사 8개
- 접지 Wire 1개
- 페라이트 코어 1개
- Foot Pad 4개
- SFP 포트 마개 4개

각 부분의 명칭 및 기능

전면 패널

❶	LED 표시등	❷	리셋 버튼(Reset)	❸	10/100/1000 BASE−T 이더넷 포트 (1∼24) (RJ−45 포트)
❹	SFP 포트 (25∼28)	❺	콘솔 포트 (지원 하지 않음)		

제1장-제품소개

❶ LED 표시 및 상태 정보

장애발생, 진단 또는 잠재적인 문제들을 사전에 확인할 수 있습니다.

LED	표시 문구	상태	상세 설명
시스템 표시등	SYS	꺼짐	시스템 꺼짐
		녹색 깜빡임	시스템 켜짐
전원 표시등	PWR	꺼짐	전원 꺼짐
		녹색 점등	전원 켜짐
10/100/1000 BASE−T 이더넷 포트 (1~24)	Link/Act/Speed	꺼짐	연결되지 않음
		녹색 점등	연결 상태: 1000Mbps
		주황색 점등	연결 상태: 10/100Mbps
		깜빡임	데이터 송수신 중
SFP 포트 표시등 (25~28)	Link/Act	꺼짐	연결되지 않음
		녹색 점등	연결됨
		깜빡임	데이터 송수신 중
PoE 상태 표시등 (1−24)	PoE	꺼짐	PoE 기기가 아닌 장비가 연결되어 있거나 PoE 포트의 사용 개수가 최대치에 도달함
		주황색 점등	PoE 기기가 연결됨
		깜빡임	PoE 전원회로가 단락 되었거나 과부하 상태임

❷ 리셋 버튼(Reset)

장비 전원이 켜진 상태에서 클립과 같은 핀으로 구멍을 5초 이상 누르고 있으면, 장비가 재부팅 후 공장초기화 상태로 돌아갑니다.

❸ 10/100/1000 BASE-T 이더넷 포트 (1~24) (**RJ-45 포트)**

포트번호 1~24는 PoE 기능을 제공하는 RJ-45 포트이며, 포트마다 10Mbps, 100Mbps, 1000Mbps 상태 확인이 가능한 Link/Act/Speed 및 PoE 표시등이 있습니다. 네트워크 카메라를 이 포트 중 하나에 연결할 수 있습니다.

> • PD 네트워크 카메라는 별도의 외부 전원 입력이 없어도 신호선을 이용하여 전원을 공급받을 수 있습니다.
> • UTP 케이블은 Category 5e 이상의 케이블을 사용하세요.
> • 각 포트는 Auto-MDI/MDI-X 감지 기능을 지원합니다.
> • 네트워크 속도에 따라 다른 모드로 동작합니다. (10/100Mbps: full/half duplex 모드, 1000Mbps: full duplex 모드)

❹ **SFP 포트 (25~28)**

SFP 포트는 광 케이블을 이용하여 장거리에 위치한 장비와 연결할 때 사용하는 포트입니다. 다중의 네트워크 장비를 케스케이딩(cascading) 형태로 연결하는데 유용합니다. 각 SFP 포트에는 Link/Act LED표시등이 있습니다.

> 각 포트들은 Full Duplex 모드로만 동작합니다.

❺ **콘솔 포트(Console)**

콘솔 포트는 지원하지 않습니다.

> 콘솔 포트는 지원하지 않으며, 사용자 임의로 사용하여 문제가 발생한 경우에는 당사에서 책임지지 않으므로 주의하시기 바랍니다

▌ 후면 패널
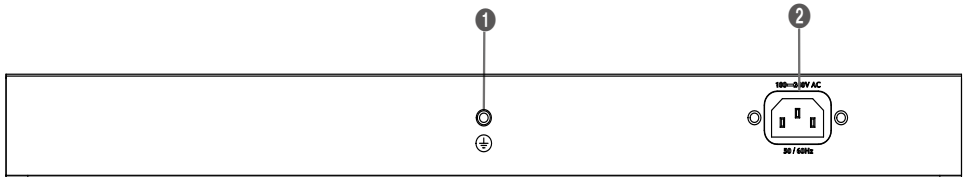
❶	접지 단자	❷	전원 커넥터

① **접지 단자**

접지 단자는 사용자가 제품에 접촉 시 발생할 수 있는 감전 사고를 예방하기 위해 접지선을 연결하는 부분입니다.

접지선 연결 방법은 **제 2장 – 설치**의 **접지** 부분을 참조하세요.

② **전원 커넥터**

전원 케이블을 제품의 전원 커넥터에 연결합니다. 본 제품은 전원 버튼이 없으므로 전원이 연결되자마자 켜집니다.

- 전원 케이블은 잘 배선하여 발에 걸리지 않도록 하고, 케이블이 가구에 의해 벗겨지지 않도록 주의하세요.
- 전원 케이블을 양탄자나 카페트 아래에 설치하지 마세요.
- 전원 케이블은 접지를 가지고 있으나, 만약 콘센트가 접지 코드를 가지고 있지 않다고 해서 플러그를 변형하면 안됩니다.
- 하나의 콘센트에 너무 많은 장치를 끼워 과부하가 생기지 않도록 주의하세요.

제2장 - 설치

접지

사용자는 감전을 예방하기 위해 반드시 접지를 시켜야 합니다. 접지를 하는 방법은 아래 설명을 참조하세요.

연결 방법

1 제품 뒷면 전원 커넥터 옆에 있는 접지선 연결 나사를 해체하세요.

2 제공된 접지선을 접지선 연결 부위에 나사로 다시 연결하여 완전히 고정시키세요.

3 제품에 연결한 접지선을 랙 또는 기타 접지 연결부에 연결하세요.

포트 연결

DirectIP NVR 연결

UTP 케이블을 이용하는 경우

1 본 제품 RJ-45 포트를 UTP 케이블을 이용하여 DirectIP 비디오 입력/확장 포트 또는 비디오 입력 포트와 연결하세요.

2 연결한 포트의 LED 상태를 확인하여 연결이 정상적으로 되었는지 확인하세요.

> UTP 케이블은 Category 5e 이상의 케이블을 사용하세요.

광케이블을 이용하여 연결하는 경우

1 본 제품 SFP 포트에 SFP Module을 삽입하고 광케이블을 연결하세요.

2 연결할 DirectIP NVR의 SFP 포트에 장착된 SFP 모듈에 광케이블을 연결하세요.

3 DirectIP NVR의 RJ-45 포트에 연결하는 경우 [1] Media Converter를 통해 연결할 수 있습니다.

4 연결한 포트의 LED 상태를 확인하여 연결이 정상적으로 되었는지 확인하세요.

> [1] 10/100/1000BASE-T 를 Gigabit Fiber Media 로 Converting 하기위한 제품입니다.

> 자세한 제품 연결에 관한 사항은 8페이지 〈DirectIP Gigabit PoE Switch를 이용한 제품 연결〉 그림을 참조하세요.

▌ DirectIP 카메라 연결

1 본 제품 RJ–45 포트와 DirectIP 카메라의 RJ–45 포트를 UTP 케이블을 이용하여 연결하세요.

2 연결한 포트의 LED 상태를 확인하여 연결이 정상적으로 되었는지 확인하세요.

> • PoE 카메라는 UTP 케이블을 통해 전원을 공급받을 수 있습니다.
> • UTP 케이블은 Category 5e 이상의 케이블을 사용하세요.

다중 캐스케이딩(Cascading) 연결

UTP 케이블을 이용하는 경우

1 다중 캐스캐이딩 연결을 할 첫번째 본 제품과 두번째 본 제품의 RJ-45 포트를 UTP 케이블을 이용하여 서로 연결하세요.

2 연결한 포트의 LED 상태를 확인하여 두 제품의 연결이 정상적으로 되었는지 확인하세요

DirectIP Gigabit PoE Switch   DirectIP Gigabit PoE Switch
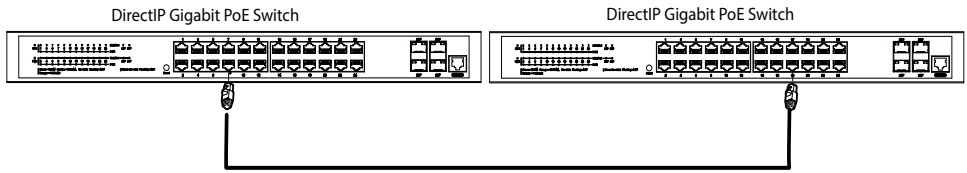
광케이블 이용하여 연결하는 경우

1 다중 캐스캐이딩 연결을 할 첫번째 본 제품과 두번째 본 제품의 SFP 포트에 SFP Module을 삽입하고 광케이블로 서로 연결하세요.

2 연결한 포트의 LED 상태를 확인하여 연결이 정상적으로 되었는지 확인하세요.

DirectIP Gigabit PoE Switch   DirectIP Gigabit PoE Switch
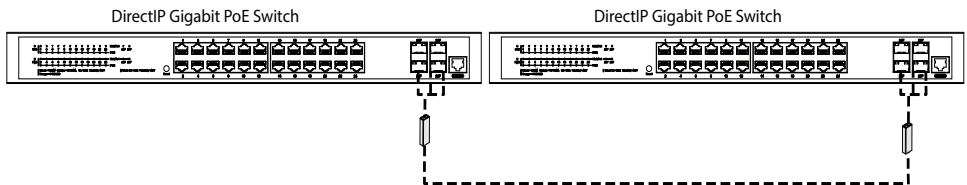
포트 연결 시 주의 및 참고 사항

⚠️
- UTP 케이블의 길이는 100m 이내로 합니다.
- 본 제품은 SFP 업링크 포트와 관련하여 시그널 전달을 위해 레이저를 사용합니다. 이 레이저는 Class 1 레이저 형식 승인에 적합한 것으로 정상적인 작동 중일 경우 눈에 위험은 없습니다. 그러나 안전을 위해 제품 전원이 켜져있을 때는 포트를 직접적으로 쳐다보지 마세요.
- 케이블을 연결하기 전에 미리 광 케이블의 고무 뚜껑을 벗기지 마세요. 뚜껑은 광 케이블이 오염 물질에 노출되지 않도록 하세요.
- Dual-core SFP 모듈을 사용하는 경우 사용자의 RX 포트는 상대 장비의 TX 포트와 연결되고, 사용자의 TX 포트는 상태 장비의 RX 포트와 연결되었는지 확인하세요.

✓
- 본 제품 10/100/1000BASE-T 포트는 RJ-45 커넥터의 Category 5e 이상의 UTP 케이블 사용을 권장합니다. 각 포트는 자동으로 MDI/MDIX 커넥터를 인식하기 때문에 다른 장비의 TX 포트와 연결할 때 Crossover 케이블을 사용할 필요가 없습니다.
- 광케이블을 통해 500m ~ 10Km까지 연결 거리를 연장할 수 있습니다. 거리는 사용 SFP 모듈에 따라 달라질 수 있습니다.
- 제품에 연결할 광케이블은 안전을 위해 최대 작동 온도가 본체의 최대 작동 온도(45℃)보다 높거나 같은 것으로 선택하세요.
- 광케이블이 연결되는 포트가 깨끗한지 확인하세요. 포트가 오염되어 있을 경우 광신호 전송이 제대로 이루어지지 않을 수 있습니다. 포트를 청소할 때는 깨끗한 티슈나 면봉에 약간의 에탄올을 묻혀 부드럽게 닦아주세요.
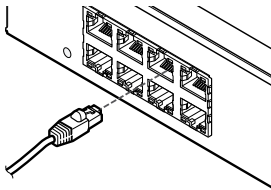
[10/100/1000BASE-T 포트 연결]   [1000BASE-X SFP 포트 연결]
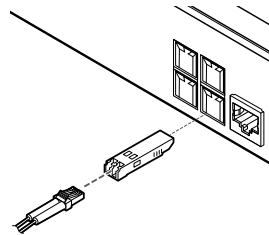
제3장 - 기타 정보

SFP 트랜시버(Transceiver) 모듈 리스트

Standard	지름 (um)	파장 (nm)	거리	모드	커넥터	SFP 모듈
1000BASE-SX	50/125	850	500m	Multi	LC	Finisar FTLF8519P3BNL
	62.5/125	850	300m	Multi	LC	
1000BASE-LX	9/125	1310	10km	Single	LC	Finisar FTLF1318P3BTL

일부 SFP 모듈의 경우 본 제품에 장착 시 정상적으로 동작하지 않을 수 있습니다. 위의 호환표에 있는 SFP 모듈의 사용을 권장합니다.

문제 해결 (Q&A)

증상	확인 사항
전원 LED가 켜지지 않습니다.	● 전원 케이블을 확인하세요. ● 케이블이 꽂혀있는 콘센트의 전원 공급 상태를 확인하세요.
전원을 켜면 잠시 후에 시스템이 종료됩니다.	전원 연결 부분에 누전 현상이 있는지 확인하세요. ● 콘센트가 누전되거나 전류가 불안정한지 확인하세요. ● 스위치 본체의 통풍구와 포트가 깨끗한지 확인하세요. ● 상기 확인 내용에서 이상이 없는 경우 내부 전원 장치에 문제가 있을 수 있으니, 서비스 센터에 문의하세요.
시스템이 제대로 부팅되지 않습니다.	● 제품의 전원 케이블을 제거 후 다시 연결하여 제품을 재구동시킨 다음 부팅 상태를 확인하세요.
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스위칭 용량 (Switching Capacity)	56Gbps
Copper 포트	24 Rj-45 기가비트
Optical 포트	4 SFP 슬롯 (1000BASE-X)
콤보 규격	해당 기능 지원하지 않음
전력 소비량	max 430W
PSE 전력	52V⎓, 600mA, PoE 12 ports, max 370W
PoE 지원규격	IEEE 802.3af 2003 / IEEE 802.3at 2009
PD 장비 연결	최대 24개 IEEE 802.3af 장비
동작 온도	
환경 지수	
동작 습도	10 ~ 90%
보관 온도	
크기(W x H x D)	440mm x 44mm x 208mm
문제 중량	2.97kg (6.54lb)
인증 규격 (Electrical Approvals)	FCC, CE, NRTL, KC

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The implementation was written so as to conform with Netscapes SSL.

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