

차량용 비디오 레코더

제품 사양 설명서

A급 기기(업무용 방송통신기자재)

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차량용 비디오 레코더

제품 사용 설명서

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- 하드디스크의 손상으로 인한 데이터 손실
- 시스템 운용과 관련 없는 프로그램을 실행하여 시스템이 잘못된 동작을 한 경우
- 바이러스에 감염되어 데이터가 손상된 경우
- 시간 경과에 따른 제품의 변화 또는 사용 중 자연적 마모에 의한 이상
- 품질 및 기능에 영향을 미치지 않는 감각적 현상 (예. 발생음)

❖ 제품의 외관, 사양등은 성능 개선을 위해 예고 없이 변경될 수 있습니다.

❖ 최초 관리자 ID는 “admin”이며, 비밀번호는 최초 로그인 시 설정해야 합니다.

안전하게 개인정보를 보호하고, 개인정보도용 피해를 예방하기 위해 3개월 마다 주기적으로 비밀번호를 변경하세요. 부주의한 비밀번호 관리로 인한 보안 및 기타 문제의 책임은 사용자에게 있으므로 각별히 주의하세요.

개요

안전상의 경고 및 주의

사용자의 안전을 보호하고 재산상의 손해 등을 막기 위한 내용입니다.
반드시 읽고 올바르게 사용해 주세요.

경고/주의의 내용

경고	사람이 사망하거나 중상을 입을 가능성이 있는 내용입니다.	 주의	사람이 부상을 입거나 물적 손해 발생이 예상되는 내용입니다.
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 경 고		
설치하기 전에 반드시 본 기기의 전원 코드를 뽑은 상태에서 설치하세요. 이상 발열 및 화재, 감전의 위험이 있습니다.	제품 위에 물, 커피, 음료수 등과 같은 액체가 담긴 그릇을 올려 놓지 마세요. 액체가 쏟아져 제품 내부로 들어가면 고장 및 화재의 원인이 됩니다.	전원 코드를 무리하게 구부리거나 무거운 물건에 눌러 파손되지 않도록 하세요. 화재의 원인이 됩니다.
본 기기의 내부에 고전압 부위가 있으므로 임의로 뚜껑을 열지 않도록 하고, 절대로 분해, 수리, 개조하지 마세요. 이상 작동으로 인해 화재, 감전, 상해의 위험이 있습니다.	습기, 먼지나 그을음 등이 많은 곳에는 설치하지 마세요. 감전, 화재의 원인이 됩니다.	전원 코드 부분을 무리하게 잡아당겨 빼거나 젖은 손으로 전원 플러그를 꽂거나 빼지 마세요. 화재 및 감전의 위험이 있습니다.
제품을 직사광선이 비치지 않는 서늘한 장소에 두고, 적정 온도를 유지해야 하며, 촛불, 난방 기구 등 열이 나는 곳을 피해주시기 바랍니다. 또한 장비나 도구를 사람들이 왕래하는 장소에서 멀리 떨어지게 두세요. 화재의 위험이 있습니다.	전원 코드 등 각종 외부 입출력 포트 등이 기기의 뒷면에 돌출되어 있어서 벽에 너무 가깝게 설치하면 케이블이 무리하게 구부러지거나 눌러 파손되거나 끊어질 수 있으므로, 제품 뒷면을 벽으로부터 15cm 이상, 옆면은 5cm 이상 거리를 유지하세요. 화재, 감전, 상해의 원인이 됩니다.	본 기기의 작동을 위한 입력 전압은 DC9~36V 범위입니다. 이상 발열 및 화재, 감전의 원인이 됩니다.
데이터를 저장하는 HDD가 수명이 다하면 저장하려는 영상 데이터가 손상되어 복구되지 않을 수 있습니다. 녹화 중에 HDD에 저장되어 있는 데이터를 재생할 경우 화면이 깨지면 HDD의 수명이 다한 것이므로 빨리 구입처나 서비스 센터에 의뢰하여 HDD를 교체하시기 바랍니다. 사용자의 부주의로 인해 손상된 데이터에 대해서는 당사가 책임지지 않습니다.	HDD가 꽉 찼을 때 녹화를 계속할 경우 이전의 저장 데이터가 지워지므로 데이터가 지워져도 좋은지를 한번 더 확인하세요. (부록의 문제 해결에서 녹화에 관련된 증상에 대해 참고하세요.) 사용자의 부주의로 인해 지워진 데이터에 대해서는 당사가 책임지지 않습니다.	컨트롤 박스의 HDD 상태표시 LED가 지속적으로 깜박이는 것으로 시스템이 HDD에 정상적으로 접속하고 있다는 것을 알 수 있습니다. HDD 상태 표시 LED가 지속적으로 깜박이는지 수시로 확인하세요.
최초 관리자 ID는 “admin”이며, 비밀번호는 최초 로그인 시 설정해야 합니다. 안전하게 개인정보를 보호하고, 개인정보도용 피해를 예방하기 위해 3개월 마다 주기적으로 비밀번호를 변경하세요. 부주의한 비밀번호 관리로 인한 보안 및 기타 문제의 책임은 사용자에게 있으므로 각별히 주의하세요.		

 주 의		
강한 자성이나 전파가 있는 곳, 라디오나 TV 등의 무선 기기에 근접한 곳에는 설치를 피하여 주십시오. 자석류나 전파, 심한 진동이 없는 곳에 설치하세요.	주위 온도와 습도는 적절한 곳이 좋습니다. 온도가 낮은 곳(0℃ 이하)에서 사용 시 내부 히터가 동작되어 소모 전력이 증가합니다.	제품 위에 무거운 물건을 올려 놓거나 제품내부로 이물질이 들어가지 않도록 하세요. 고장의 원인이 됩니다.
바람이 잘 통하는 곳이 좋고, 직사광선이나 열기구를 피해 설치하세요.	평평하고 안정된 장소에 설치하고, 수직으로 세우거나 비스듬히 놓고 사용하지 마세요. 동작이 제대로 되지 않거나, 기기가 넘어져 떨어질 수 있어 위험합니다.	강한 충격이나 진동은 기기 고장의 원인이 되므로 사용시 주의하도록 합니다. 심한 진동이 없는 곳에 설치하세요.
이상한 소리가 나거나 냄새가 날 때에는 즉시 전원 플러그를 뽑고 구입처나 서비스 센터로 문의하세요. 화재, 감전의 위험이 있습니다.	시스템 운영실의 공기를 적절히 순환시키고, 본체의 덮개를 절대 열지 마세요. 내부 온도상승으로 인해 고장의 원인이 됩니다. 주변 환경 요소에 의한 고장의 원인이 됩니다.	시스템의 성능을 유지하기 위해서는 서비스 센터에 의뢰하여 정기적으로 점검을 받으시기 바랍니다. 사용자의 부주의로 인한 고장에 대해서는 당사가 책임지지 않습니다.
본 기기를 설치하는 도중이나 설치한 이후에도 기기가 위치하는 장소를 항상 깨끗하게 하여 먼지가 없도록 유지하고, 특히 기기 표면은 깨끗하고 부드러운 마른 헝겊으로 오염 부위를 닦거나 부드러운 마른 헝겊에 물을 적서 물이 흐르지 않도록 꼭 짼 후에 오염 부분을 닦으세요. 알코올, 솔벤트가 함유되거나, 계면활성제가 함유된 세제, 화장품류, 기름 성분등은 기기의 파손 및 변형을 유발할수 있으니 사용하지 마세요.		

개요

사용설명서를 읽기 전에

본 사용설명서는 제품을 사용하는데 필요한 정보를 제공하며 제품에 대한 간략한 소개와 각 부분의 명칭, 기능, 연결방법, 메뉴 설정 등 제품 사용에 필요한 내용을 포함하고 있습니다.
사용설명서를 읽기 전에 아래의 내용을 꼭 확인하세요.

- 본 사용설명서의 저작권은 제조사에 있습니다.
- 본 사용설명서는 무단으로 복제할 수 없습니다.
- 규격품 외 제품을 사용하거나 사용설명서에 언급된 이외의 사용으로 인한 손상에 대해서는 당사에서 책임지지 않으므로 주의하세요.
- 고장 수리를 위해 제품의 케이스를 열고 내부에 손을 대야 하는 경우에는 반드시 제품 구입처에 문의하여 전문가의 도움을 받으세요.
- 본 제품에 HDD를 추가하거나 기타 외장저장장치(USB 메모리, USB HDD 등)를 연결하기 전에, 먼저 본 제품과 호환이 되는지 여부를 확인하세요. 이를 위한 호환성 리스트는 제품 구입처에 문의하세요.

경고

배터리

현재 사용 중인 배터리의 사양은 다음과 같습니다.

- 용량 : 3mAh
- 지속 표준부하 : 0.015mA
- 사용 가능 온도 : -40°C ~ 85°C

! 직사광선이나 난방기구 등 열이 나는 곳에 배터리를 두지 마세요.

시스템 종료

동작 중에 전원을 끄거나 비정상적으로 작동 했을 경우 하드디스크 및 제품에 손상을 줄 수 있습니다.
사용 중 하드디스크 자체의 문제로 인하여 오류가 발생할 수 있습니다.

! 비정상적으로 전원을 차단할 경우 재동작 시 하드디스크 복구를 위해 구동시간이 지연될 수 있습니다.

동작온도

-40°C ~ 70°C (TRM-1610S/1610M), -25°C ~ 55°C (TRM-810S/810M/410S) (산업용 SSD사용 시)
저온에서 장시간 방치한 경우 히터 동작 시간으로 세트 구동 시간이 증가합니다. 하드디스크의 동작 가능 온도는 5°C ~ 55°C 이므로 저온 상태에서 HDD 손상이 발생할 수도 있으므로 제품 사용에 유의하세요.

보안관련

최초 관리자 ID는 “admin”이며, 비밀번호는 최초 로그인 시 설정해야 합니다.
안전하게 개인정보를 보호하고, 개인정보도용 피해를 예방하기 위해 3개월 마다 주기적으로 비밀번호를 변경하세요. 부주의한 비밀번호 관리로 인한 보안 및 기타 문제의 책임은 사용자에게 있으므로 각별히 주의하세요.



한화비전은 지구환경보전을 위하여 제품과 관련된 전 과정에서 환경을 고려하고 있으며, 고객에게 보다 친환경적인 제품을 제공하기 위하여 다양한 활동을 추진하고 있습니다.
에코(Eco)마크는 친 환경제품을 만들기 위한 한화비전의 의지이며, 유럽의 환경규제(RoHS)에 만족하는 제품임을 의미합니다.

기능별 지원하는 NVR 제품

기능	제품 목록
팬	TRM-810S, TRM-810M, TRM-410S
RAID	TRM-1610S, TRM-1610M, TRM-810S, TRM-810M
PoE	TRM-1610S, TRM-1610M, TRM-810S, TRM-810M, TRM-410S
확장 모니터	TRM-1610S, TRM-1610M

개요

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3	안전상의 경고 및 주의
4	사용설명서를 읽기 전에
5	목차
6	제품의 주요기능
7	전면의 명칭 및 기능
8	후면의 명칭 및 기능
9	M12 단자 핀 번호 확인하기
10	DC 전원 연결 단자 배선도
10	알람 입/출력 단자 배선도
10	컨트롤박스 연결 단자 배선도
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13	컨트롤 박스 연결하기
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16	네트워크 연결하기

제품 사양

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18	제품 사양
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외관도

25

25	외관도
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개요

제품의 주요기능

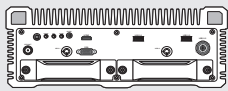
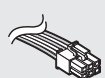
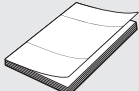
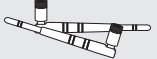
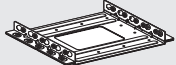
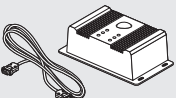
본 제품은 네트워크 카메라의 영상 및 음성을 하드디스크에 녹화 및 재생을 할 수 있습니다.
또한 네트워크를 이용하여 영상 및 음성을 원격지에서 PC를 통해 모니터링 할 수 있는 환경을 제공합니다.

- 편리한 UI 제공
- 4K 카메라 해상도 지원
- HDMI를 이용한 4K 고화질 영상 출력
- 영상 녹화 및 재생
- 음성 녹음 및 재생
- ONVIF Profile S 및 표준 RTP/RTSP 프로토콜 지원
- HDD SMART 기능을 이용한 HDD 정보 및 상태표시
- 하드디스크 덮어쓰기 기능
- USB 2.0, 3.0(TRM-1610S/1610M) 메모리 및 외장 하드디스크를 이용한 백업 기능
- 전체널 동시 재생
- 다양한 검색 모드 (시간, 이벤트, 스마트)
- 다양한 저장 모드 (일반 녹화, 이벤트, 예약녹화, 긴급녹화)
- 알람 입/출력 기능
- 윈도우 네트워크 뷰어를 이용한 원격지 감시 기능 제공
- 네트워크 카메라 라이브 모니터링 지원
- 설치 마법사 기능 (Easy Setup, 빠른 설정)
- 무선 Wi-Fi 백업 기능 지원
- RAID 기능 (TRM-1610S, TRM-1610M, TRM-810S, TRM-810M)

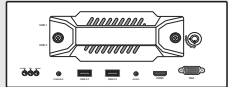
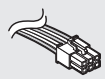
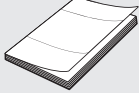
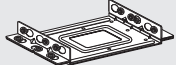
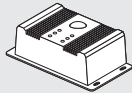
구성품 확인하기

제품 구입 시 먼저 포장을 벗겨낸 후 평평한 바닥이나 설치 장소에 본 기기를 내려 놓으세요.
다음의 구성품이 모두 포함되어 있는지 확인하세요.

TRM-1610S/1610M

			
NVR	전원 케이블	간단 설명서	Wi-Fi 안테나
			
설치용 브래킷	브래킷 조립용 나사	설치용 나사	HDD 고정용 나사
			
HDD 잠금 키	M12 to USB케이블	GPS 안테나	컨트롤 박스 / 컨트롤 박스 연결 케이블
			
알람 케이블			

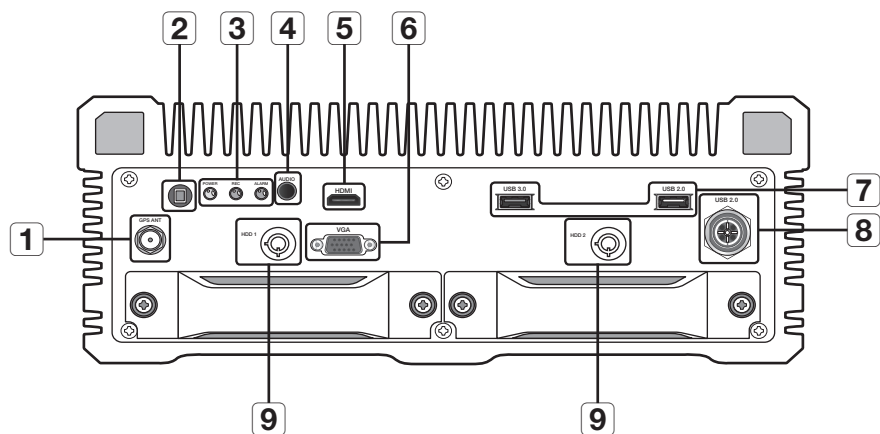
TRM-410S/810S/810M

			
NVR	전원 케이블	간단 설명서	Wi-Fi 안테나
			
설치용 브래킷	브래킷 조립용 나사	설치용 나사	HDD 고정용 나사
			
HDD 잠금 키	GPS 모듈	컨트롤 박스	

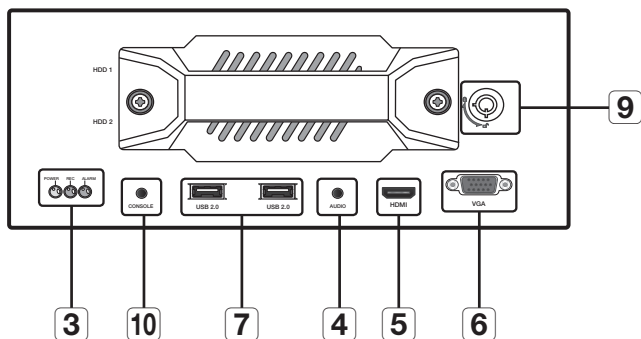
개요

전면의 명칭 및 기능

TRM-1610S/1610M



TRM-410S/810S/810M

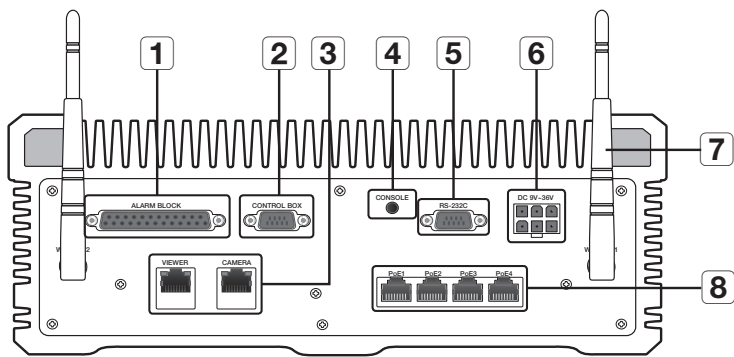


명칭	기능설명
1 GPS ANT	GPS 안테나를 연결합니다.
2 POWER 스위처	푸시 타입으로 꺼져 있는 상태에서 누르면 전원이 켜지고, 켜져 있는 상태에서 5초간 누르고 있으면 시스템을 안정화 시킨 후 자동으로 꺼집니다. (최대 60초) ■ 전원 케이블의 ACC 노란색 선이 전원 또는 자동차 ACC 단자에 연결되지 않으면 전원이 켜지지 않습니다.
3 LED 램프	POWER : 전원 ON/OFF 상태를 표시합니다. REC : 녹화가 진행 중일 때 불이 켜집니다. ALARM : 이벤트 발생 시 불이 켜집니다.
4 AUDIO	음성신호 출력 단자입니다. TRM-1610S/1610M : RCA TRM-410S/810S/810M : 3.5 mm 스테레오 미니 잭
5 HDMI	HDMI 영상 출력 단자입니다.
6 VGA	VGA 영상 출력 단자입니다.
7 USB	USB 타입의 장치를 연결하기 위해 사용합니다. (USB 2.0, USB 3.0)
8 USB 2.0	M12 타입으로 USB 장비를 연결합니다.
9 HDD 잠금장치	하드디스크에 접근을 제한하기 위한 잠금장치입니다. 제품 구입시 함께 제공되는 열쇠를 사용하세요.
10 CONSOLE	사후 A/S를 위한 장치입니다.

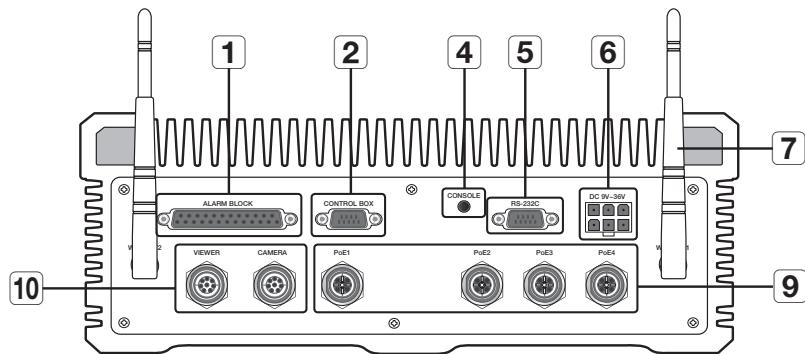
개요

후면의 명칭 및 기능

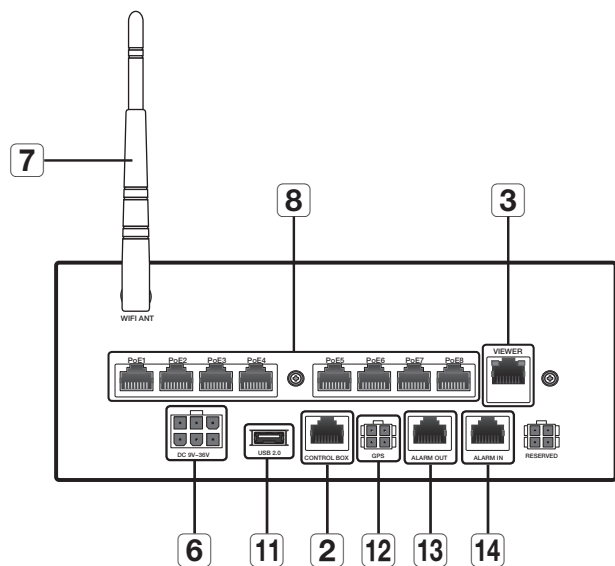
TRM-1610S



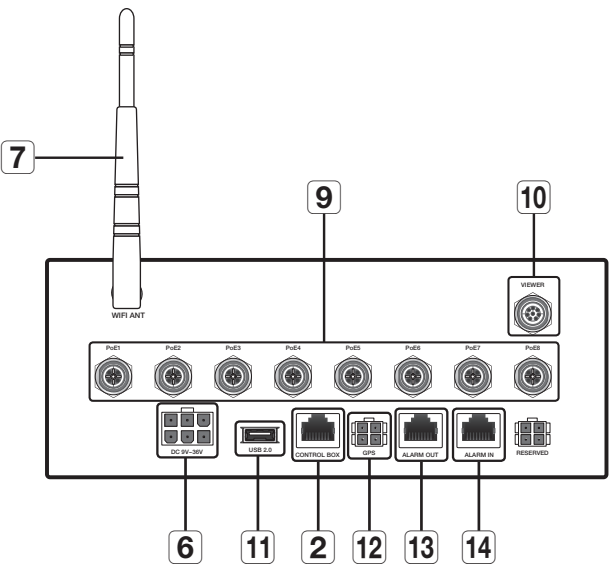
TRM-1610M



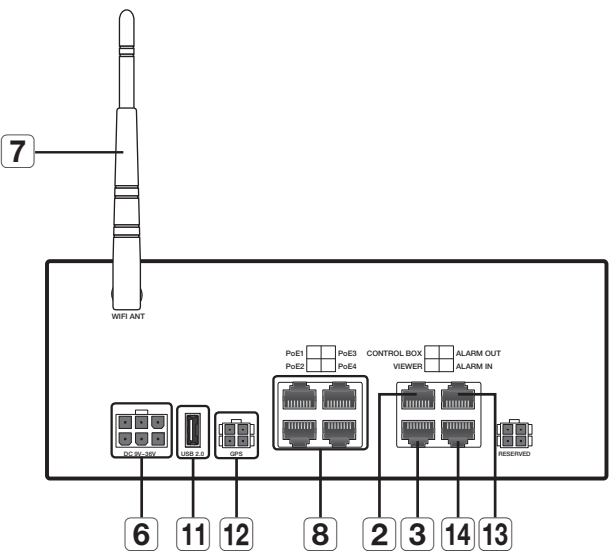
TRM-810S



TRM-810M



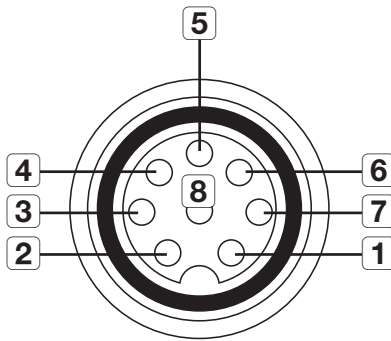
TRM-410S



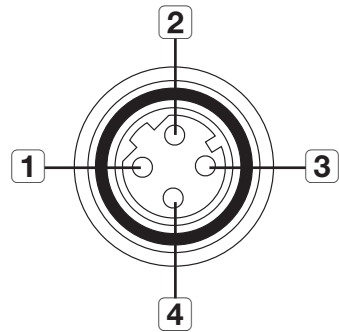
명칭	기능설명
1 ALARM BLOCK	알람 입/출력 단자입니다. Alarm Block은 입력 16개 출력 6개로 구성되어 있고 구성품으로 제공되는 알람 케이블을 통해 외부와 연결됩니다. 각각의 출력은 오픈 콜렉터 회로로 구성되어 있습니다.
2 CONTROL BOX	컨트롤 박스를 연결하는 단자입니다.
3 NETWORK	VIEWER : 네트워크, 웹뷰어와의 접속/연결을 위해 사용하길 권장하는 포트입니다. CAMERA : 카메라 연결을 위해 사용하길 권장하는 포트라서 카메라로부터 영상을 수신 받습니다.
4 CONSOLE	사후 A/S를 위한 장치입니다.
5 RS-232C	시리얼 통신을 위한 케이블 단자입니다.
6 DC 9V~36V	전원을 연결하는 단자입니다. 제품 구입시 함께 제공되는 전원 케이블을 사용하세요.
7 Wi-Fi 안테나	WiFi 사용을 위한 안테나입니다. 제품 구입시 함께 제공되는 안테나를 연결하여 사용하세요.
8 PoE	카메라와의 연결을 위한 전원 공급 포트입니다. - PoE1~4의 최대 공급 전력은 32W입니다. 32W가 넘어가지 않도록 카메라를 연결/설치하세요. 32W가 넘어가게 되면 마지막에 연결된 PoE의 전원이 OFF 됩니다. - 세트에 연결된 카메라들(예:PoE1~4)의 전원 사용량이 24W이상이 되면 전원 OFF된 포트에 PoE 카메라를 연결할 수 있습니다. - TRM-810S/810M의 경우 PoE5~8도 위(PoE1~4)와 동일한 적용을 받습니다.
9 M12 PoE	M12 타입으로 카메라와의 연결을 위한 전원 공급 단자입니다.
10 M12 Network	M12 타입으로 네트워크를 연결하는 단자입니다. CAMERA : 카메라 연결을 위해 사용하길 권장하는 포트라서 카메라로부터 영상을 수신 받습니다. VIEWER : 네트워크, 웹뷰어와의 접속/연결을 위해 사용하길 권장하는 포트입니다.
11 USB 2.0	USB 타입의 장치를 연결하기 위해 사용합니다.
12 GPS	GPS 모듈을 연결하는 단자입니다.
13 ALARM OUT	알람 출력 단자입니다.
14 ALARM IN	알람 입력 단자입니다.

M12 단자 핀 번호 확인하기

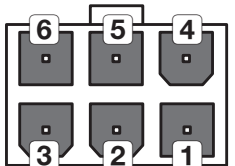
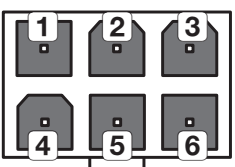
Gigabit Ethernet (M12 8pin A-Code Pinout)

	1	pin - 1	Orange - White	TX_D1+	RJ-45 pin 1
	2	pin - 2	Orange	TX_D1-	RJ-45 pin 2
	3	pin - 3	Green - White	RX_D2+	RJ-45 pin 3
	4	pin - 4	Green	RX_D2-	RJ-45 pin 6
	5	pin - 5	Brown - White	BL_D4+	RJ-45 pin 7
	6	pin - 6	Brown	BL_D4-	RJ-45 pin 8
	7	pin - 7	Blue - White	BL_D3-	RJ-45 pin 5
	8	pin - 8	Blue	BL_D3+	RJ-45 pin 4

PoE (M12 4pin D-Code Pinout)

	1	pin - 1	Orange - White	TX_D+	RJ-45 pin 1
	2	pin - 2	Green - White	RX_D+	RJ-45 pin 3
	3	pin - 3	Orange	TX_D-	RJ-45 pin 2
	4	pin - 4	Green	RX_D-	RJ-45 pin 6

DC 전원 연결 단자 배선도

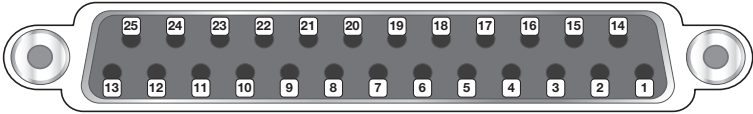
<TRM-410S/810S/810M>  DC 9V~36V	1	GND	세트의 Ground 신호입니다.
	2		
	3		
<TRM-1610S/1610M>  DC 9V~36V	4	PWR (DC_IN)	세트의 전원 신호로 DC 9~36V 입력을 받습니다.
	5		
	6	ACC	자동차 ACC 전원에 연결되기 위한 단자로, ACC 전원이 들어오면 세트가 동작합니다.

! 전원 케이블의 ACC 노란색 선이 전원 또는 자동차 ACC 단자에 연결되지 않으면 전원이 켜지지 않습니다.

알람 입/출력 단자 배선도

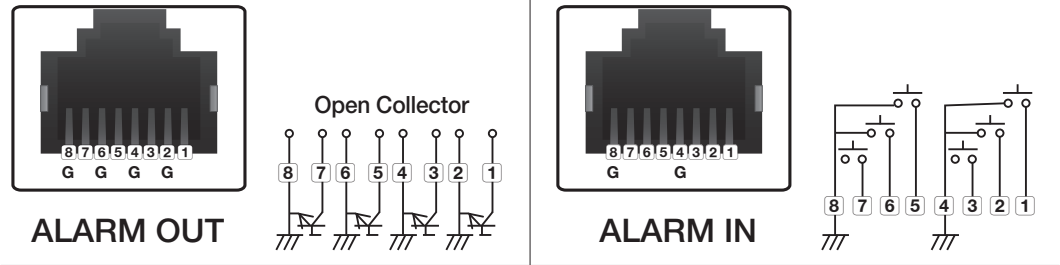
TRM-1610S/1610M

ALARM BLOCK



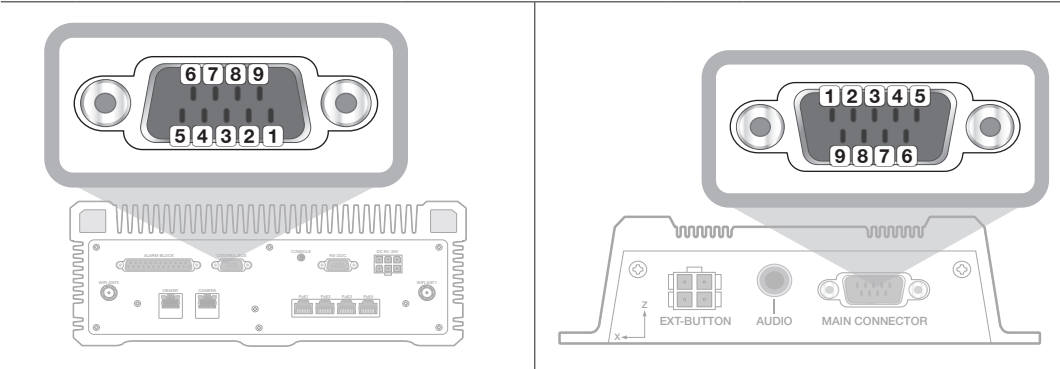
1	Alarm In 1	8	Alarm In 8	15	Alarm In 14	22	Alarm Out 4
2	Alarm In 2	9	Alarm In 9	16	Alarm In 15	23	Alarm Out 5
3	Alarm In 3	10	Alarm In 10	17	Alarm In 16	24	Alarm Out 6
4	Alarm In 4	11	Alarm In 11	18	GND	25	GND
5	Alarm In 5	12	Alarm In 12	19	Alarm Out 1		
6	Alarm In 6	13	Alarm In 13	20	Alarm Out 2		
7	Alarm In 7	14	GND	21	Alarm Out 3		

TRM-410S/810S/810M



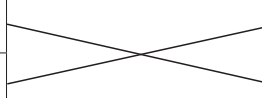
컨트롤박스 연결 단자 배선도

TRM-1610S/1610M



TRM-1610S/1610M
■ TRM-1610S 모델 기준입니다.

컨트롤 박스

D-SUB, 9pin, Male			D-SUB, 9pin, Male		
번호	이름	연결 배선	번호	이름	
1	CABLE DETECT		1	CABLE DETECT	
2	RS-232_RXD		2	RS-232_RXD	
3	RS-232_TXD		3	RS-232_TXD	
4	AUDIO		4	AUDIO	
5	GND		5	GND	
6	GND		6	GND	
7			7		
8	DETECT		8	DETECT	
9	VCC_5V		9	VCC_5V	

TRM-410S/810S/810M

TRM-410S/810S/810M
▪ TRM-810S 모델 기준입니다.

컨트롤 박스

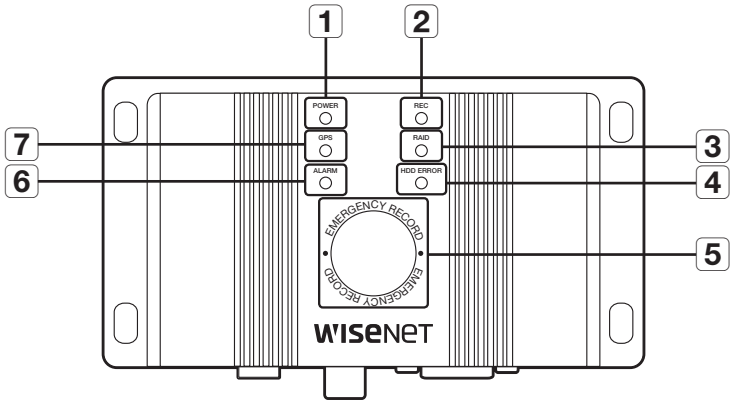
RJ-45, 8pin

D-SUB, 9pin, Male

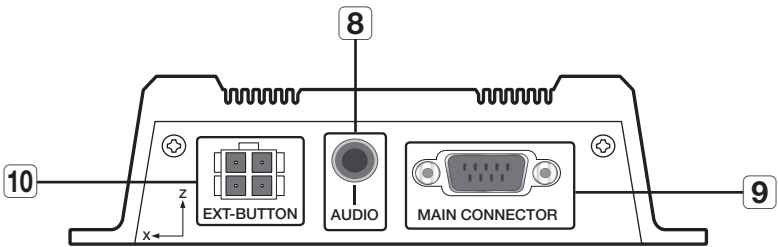
번호	이름	연결 배선	번호	이름
1	VCC_5V		1	CABLE DETECT
2	CABLE DETECT		2	RS-232_RXD
3	DETECT		3	RS-232_TXD
4	RS-232_TXD		4	AUDIO
5	RS-232_RXD		5	GND
6	GND		6	GND
7	AUDIO		7	
8	GND		8	DETECT
			9	VCC_5V

컨트롤박스 명칭 및 기능

전면



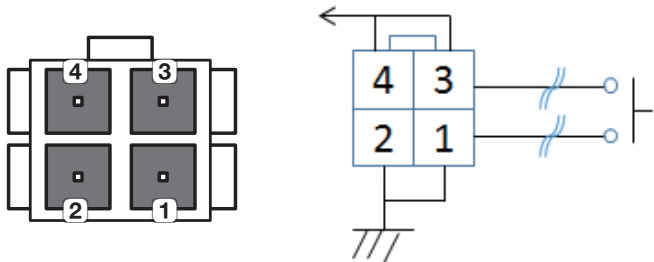
후면



명 칭		기능설명
1	POWER	전원 상태를 표시합니다. ▪ 지연 부팅 상태에서는 시스템이 시작하기 전까지 LED가 깜빡입니다.
2	REC	REC 상태를 표시합니다. ▪ 긴급 녹화 중에는 LED가 깜빡입니다.
3	RAID	RAID 상태를 표시합니다. (RAID 기능 제공 모델에 한함) ▪ RAID가 정상인 경우 LED가 켜집니다. RAID Degraded나 Rebuilding 상태 일 경우 LED가 깜빡입니다. RAID 미사용 또는 RAID Fail일 경우 LED가 꺼집니다.
4	HDD ERROR	HDD 에러를 표시합니다. ▪ HDD 점검, 교체 상태이거나, RAID Fail 일 경우 LED가 켜집니다.

명 칭		기능설명
5	EMERGENCY	긴급 녹화를 실행합니다. ▪ 녹화 상태인 경우 REC LED가 깜빡입니다. 긴급 녹화가 설정/해제되었음을 알리는 알람 발생을 설정 가능합니다. 긴급 녹화 부저 설정은 제품 사용 설명서의 "설정정보관리하기"를 참고하세요.
6	ALARM	알람 상태를 표시합니다.
7	GPS	GPS 수신 상태를 표시합니다. ▪ GPS 수신 동작 전에는 LED가 꺼져있습니다. GPS 수신이 양호하면 LED가 켜집니다. GPS 수신이 불량하면 LED가 깜빡입니다.
8	AUDIO	RCA 단자로 오디오를 출력합니다.
9	MAIN CONNECTOR	컨트롤 박스 연결 케이블을 통해 본체와 연결됩니다.
10	EXT-BUTTON	긴급 녹화를 위하여 별도의 외부 스위치를 연결 합니다.

EXT-BUTTON 배선도



설치하기

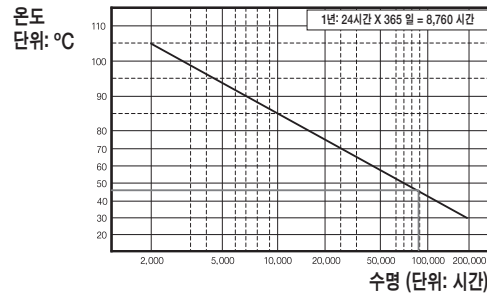
제품을 설치하기 전 다음의 사항들을 주의하여 설치하세요.

- 실내에서만 사용하세요.
- 물이나 액체가 제품의 접속부에 닿지 않게 하세요.
- 무리한 충격이나 힘을 가하지 마세요.
- 전원 코드를 무리하게 잡아 당기지 마세요.
- 임의로 제품을 분해하지 마세요.
- 정격 입출력 범위에서만 사용하세요.
- 승인된 전원 코드만 사용하세요.
- 입력 그라운드가 있는 제품에 대해서는 반드시 그라운드가 있는 전원 플러그와 함께 사용하세요.
- HDD 파손의 원인이 될 수 있으니, 제품 전면의 HDD 브래킷 손잡이를 잡고 제품을 들어 이동하지 마세요.

설치환경 점검하기

본 제품은 첨단 보안 장비로 내부에 고용량 하드디스크와 중요한 회로를 탑재하고 있습니다.

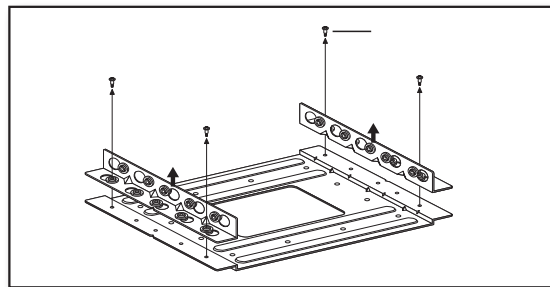
제품 내부 온도가 높을 경우, 수명이 단축되거나 고장이 발생 (우측 그래프를 참고) 할 수 있으므로 설치 전에 아래의 권고 사항들을 참고하세요.



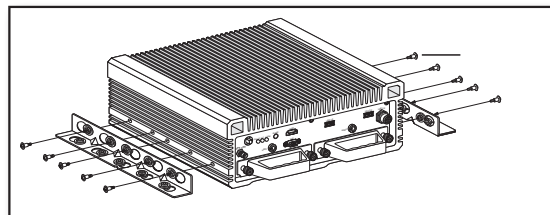
제품 설치하기

☞ 다음의 그림들은 TRM-1610S 모델 기준입니다.

1. 설치 브래킷과 측면 브래킷을 분리하세요.

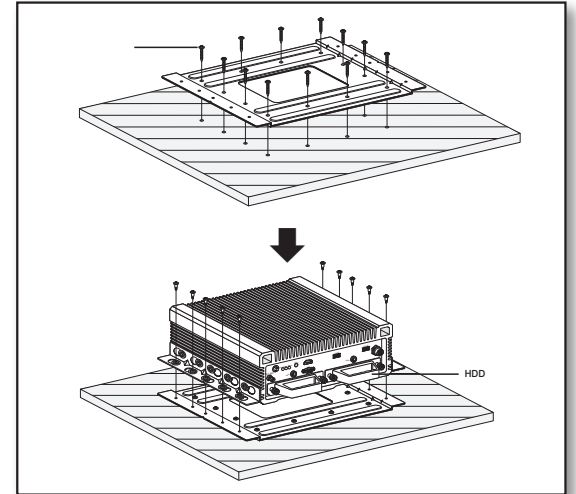


2. 측면 브래킷을 본체와 체결하세요.



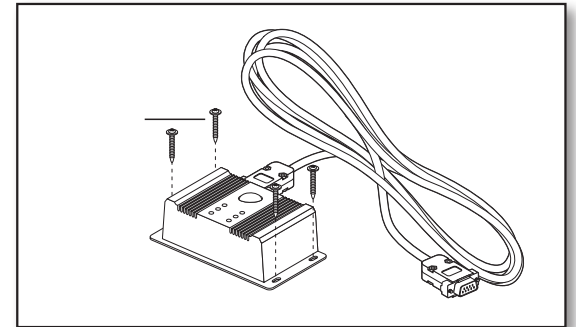
3. 설치용 브래킷을 설치 장소에 설치하세요.
4. 측면 브래킷이 장착된 본체를 3번에서 설치된 브래킷에 설치하세요.

- ! 주의사항
- 제품 설치 시 작업 순서(1~4번)를 반드시 준수하고, 제품 낙하 등에 의한 안전사고에 주의하세요.
 - 세트 이동 시 HDD 손잡이를 잡고 이동하지 마세요.



컨트롤 박스 설치하기

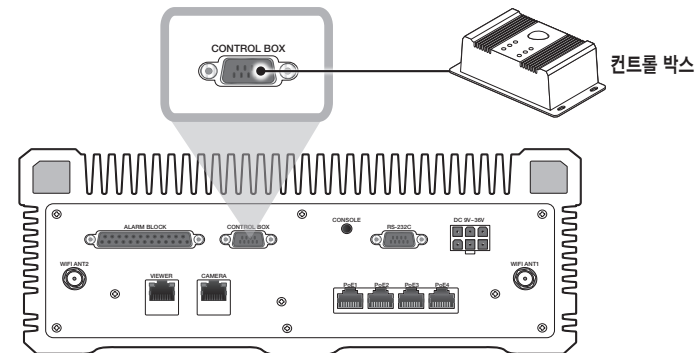
그림과 같이 설치용 나사를 조립하여 벽/바닥/천장 등에 설치하세요.



컨트롤 박스 연결하기

컨트롤 박스 연결 케이블을 통해 본체와 연결하세요.

☞ 다음의 그림들은 TRM-1610S 모델 기준입니다.



설치하기

HDD 장착하기

제품 내부에는 감전이나 사고 및 제품의 고장 등을 발생시킬 요소가 많으므로 전원을 뽑은 후 설치하시기 바랍니다.
설치나 설정방법을 적절하게 적용하지 못한 경우 제품이 작동하지 않을 수도 있으니, HDD 추가 작업은 반드시 제품 구입처에 문의하시기 바랍니다.

- 장착 가능한 HDD 개수 : 최대 2개 장착 가능
- 작업을 진행하기 전 반드시 전원코드를 콘센트에서 빼주세요.



데이터 유실에 관한 주의 사항 (HDD 관리)

HDD의 데이터가 손상되지 않도록 주의하세요.

HDD를 추가할 경우 당사 제품과 호환되는 HDD 제품인지 우선 확인하세요.

HDD는 외부 환경이나 사용 중 충격으로 인하여 불량일 발생할 수 있는 민감한 제품이므로, 충격을 받아 손상되지 않도록 주의하세요.

사용자의 부주의나 외부 환경으로 인해 HDD가 손상된 경우, 제조업체에서는 유무상의 어떠한 책임도 지지 않습니다.

HDD와 데이터가 손상 될 수 있는 경우

HDD 손상으로 인한 피해를 최소화하려면 자주 백업(복제)을 해 두세요.

제품을 분리하거나 설치 작업 중 외부 충격이 가해졌을 경우 데이터가 손상 될 수 있습니다.

HDD 동작 중에 정전이나, 전원을 끄는 등 갑자기 제품이 정지될 경우 HDD가 손상 될 수 있습니다.

HDD 동작 중에 본체를 이동하거나 충격을 가하면 파일이 손상되거나 HDD가 손상 될 수 있습니다.

HDD 장착 작업 시 유의 사항

- 작업 시 HDD에 무리한 힘을 가하여 장착하지 않도록 주의하세요.
- 나사 및 부품을 잃어버리지 않도록 주의하세요.
 - 나사 및 부품을 조립하지 않은 경우, 제품에 고장이 발생하거나 제대로 동작하지 않을 수도 있습니다.
- HDD를 장착하기 전에 지원하는 호환성 리스트의 HDD를 확인하세요.
 - 호환성 리스트는 제품 구입처에 문의하세요.

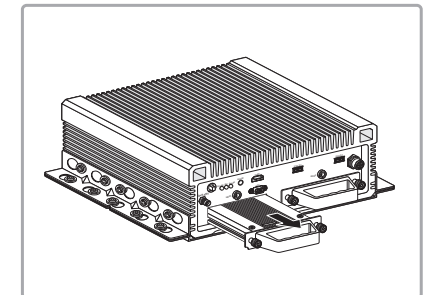
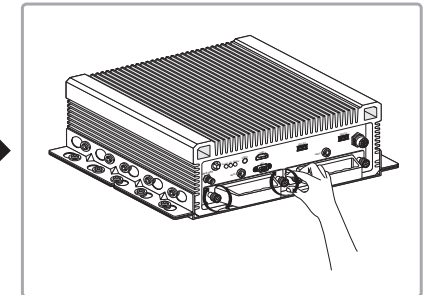
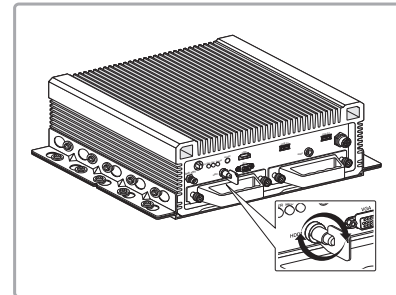
HDD를 장착하기



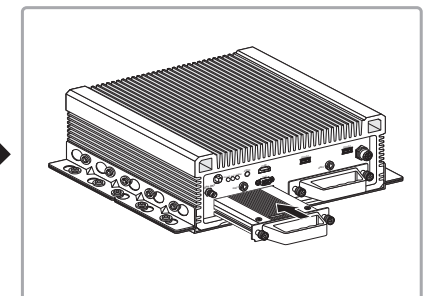
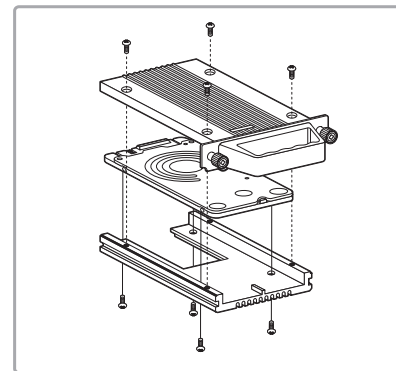
- 초기 설치 외에 새로 추가된 신규 HDD나 다른 제품에서 사용하던 HDD를 본 제품에 장착할 경우 세트에서 수동으로 포맷해서 사용하세요.
포맷방법은 제품 사용 설명서에서 "장치 확인/ 포맷하기"를 참고하세요.

TRM-1610S/1610M에 HDD를 장착할 경우

- 세트 전면의 HDD 브래킷 고정 나사를 풀고 전면으로 당겨 HDD를 분리하세요.
 - 전면의 잠금 장치가 잠겨 있으면 제품 구입 시 제공된 열쇠를 이용해 잠금 장치를 열고 진행하세요.



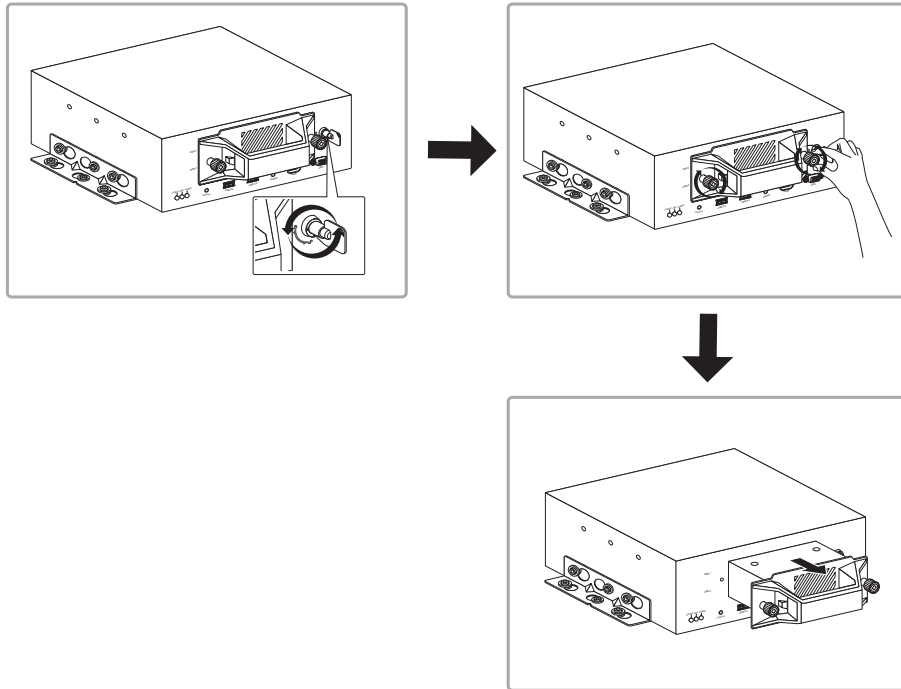
- 브래킷 전/후면의 나사를 풀고 브래킷을 분리하세요.
- HDD를 교체/장착한 후 HDD와 브래킷을 나사로 고정 시키세요.
- HDD가 장착된 브래킷을 본체에 밀어넣고 고정 나사를 돌려 고정시키세요.



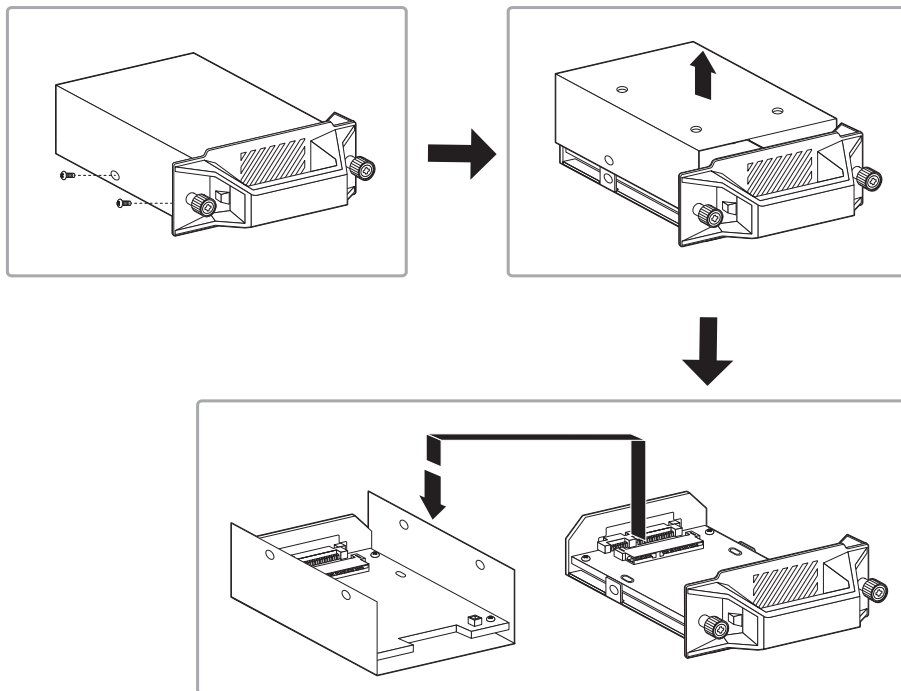
설치하기

TRM-410S/810S/810M에 HDD를 장착할 경우

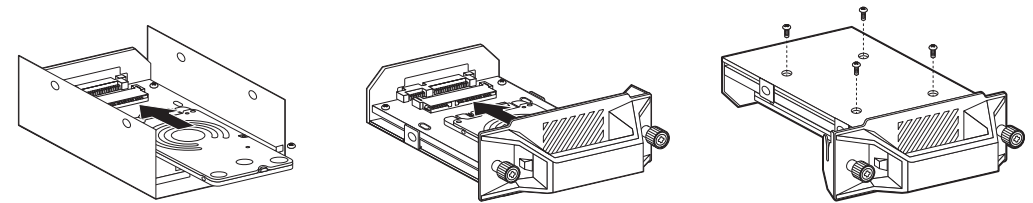
1. 세트 전면의 HDD 브래킷 고정 나사를 풀고 전면으로 당겨 HDD를 분리하세요.
 - 전면의 잠금 장치가 잠겨 있으면 제품 구입 시 제공된 열쇠를 이용해 잠금 장치를 열고 진행하세요.



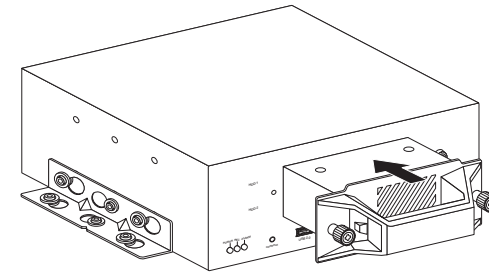
2. 브래킷의 나사를 풀고 브래킷을 분리하세요.



3. HDD를 교체/장착한 후 HDD와 브래킷을 나사로 고정 시키세요.



4. HDD가 장착된 브래킷을 본체에 밀어넣고 고정 나사를 돌려 고정시키세요.

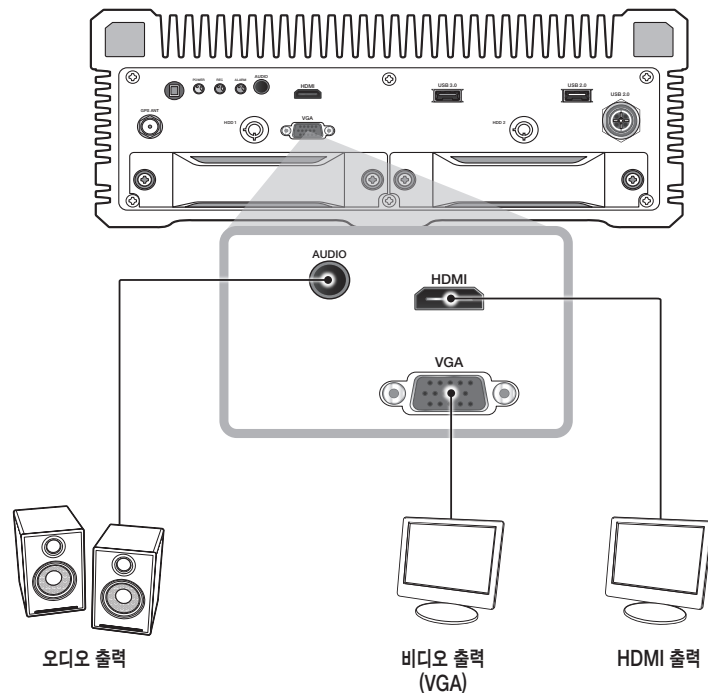


- ! ■ HDD 장착 시 팬 커넥터가 빠지지 않도록 주의하세요.

다른 기기와 연결

외부 장치 연결하기

다음의 그림들은 TRM-1610S 모델 기준입니다.

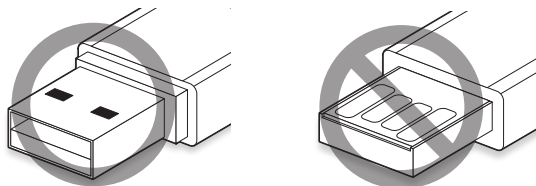


부적절한 전원 전압을 연결 시 시스템에 파손을 초래할 수 있으므로, 시스템에 전원을 연결하기 전에 반드시 정격 전압을 확인하세요.

USB 장치 연결하기

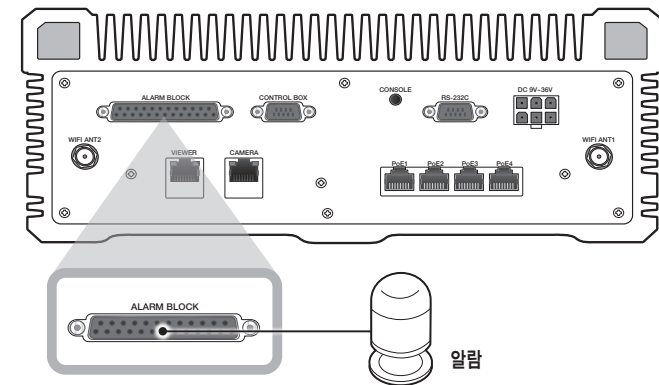
1. 제품의 전면에 USB 연결용 포트가 있습니다.
2. USB HDD 및 USB 메모리나, 마우스를 USB 포트를 통해 연결할 수 있습니다.
3. USB HDD가 시스템에 연결되어 있다면 “메뉴 > 장치 > 저장매체”를 통해 인식과 설정이 가능해집니다.
4. 본 제품은 다른 시스템 동작 중에도 USB 장치의 연결과 제거를 지원하는 HOT PLUG 기능을 제공합니다.

백업 용도의 USB 장치의 경우 NVR에서 포맷되지 않으면 PC에서 FAT32로 포맷하세요.
일부 USB 장치의 경우 호환성 문제로 인해 정상적 동작이 되지 않을 수도 있으니, 사용 전 동작 확인 후 사용하세요.
규격품(메탈 커버 타입) USB 저장 장치 외에는 동작을 보증하지 않습니다.
USB 커넥터 핀 자체 마모로 인하여 USB 신호의 전달이 세트와 원활하지 않을 수 있습니다.



알람 입/출력 연결하기

후면의 알람 IN/OUT 포트는 아래와 같이 구성됩니다.

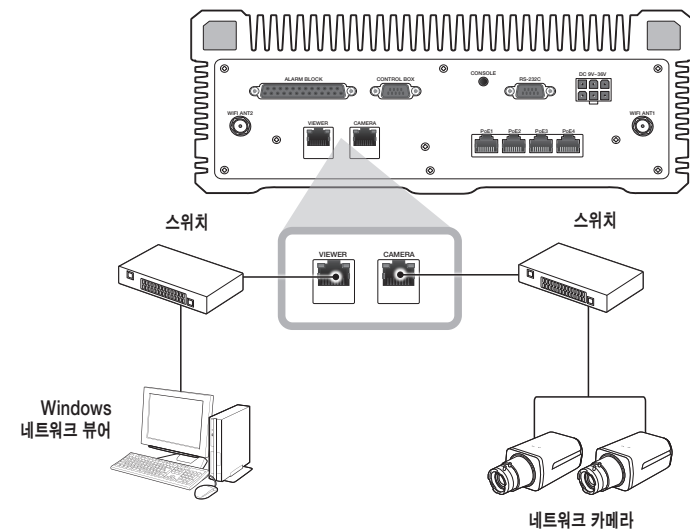


- ALARM IN 1 ~ 16 : 알람 입력 포트
- ALARM OUT 1 ~ 6 : 알람 출력 포트

네트워크 연결하기

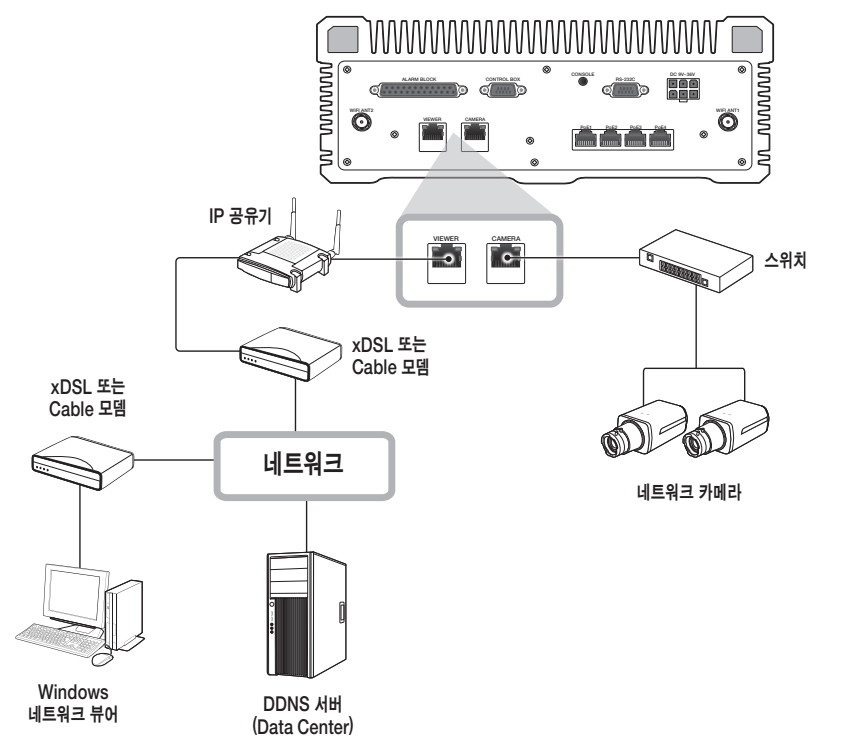
네트워크 연결에 관한 자세한 설명은 제품 사용 설명서에서 “네트워크 설”을 참고하세요.
다음의 그림들은 TRM-1610S 모델 기준입니다.

이더넷 (10/100/1000BaseT)을 통해 네트워크 연결하기

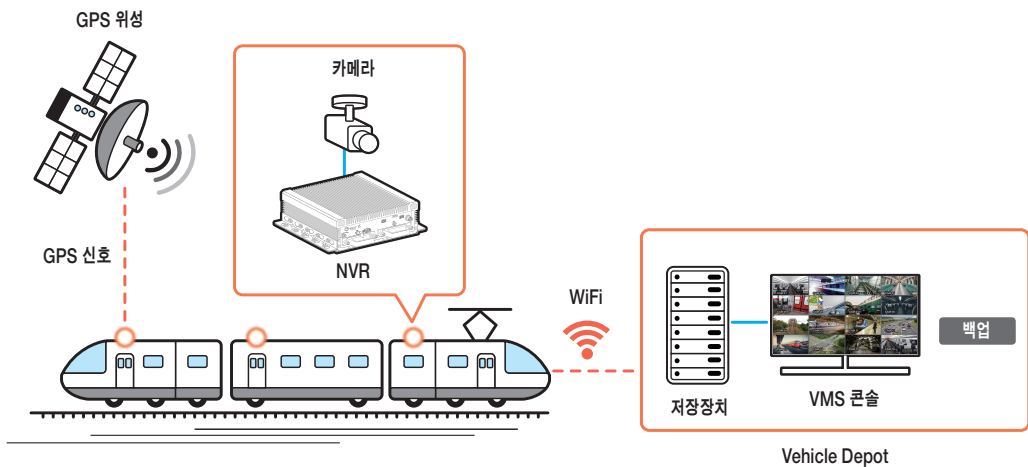


다른 기기와 연결

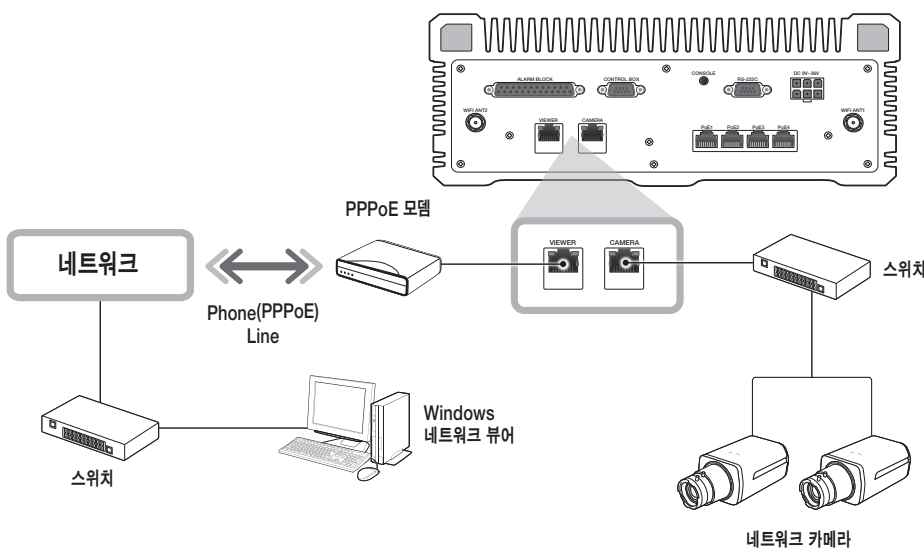
공유기를 통해 네트워크 연결하기



Wi-Fi를 통해 백업하기



PPPoE를 통해 네트워크 연결하기



제품 사양

• TRM-1610S/1610M

항목		세부 설명	
		TRM-1610S	TRM-1610M
디스플레이			
네트워크 카메라	입력	최대 16CH (4 PoE,RJ-45)	최대 16CH (4 PoE, M12)
	해상도	CIF ~ 12MP	
	프로토콜	SUNAPI, ONVIF	
라이브	모니터 출력	HDMI / VGA	
	디스플레이 모드	[모니터] 1 / 2V / 3V / 4 / 6 / 8 / 9 / 13 / 16 / 시퀀스 [웹] 1 / 4 / 9 / 16 / 시퀀스	
	디스플레이 성능	[모니터] - 12M (30fps) - 8.3M(120fps) - 1080p(480fps)	
성능			
운영 체제	임베디드	리눅스	
녹화	압축방식	H.265, H.264, MJPEG, WiseStream(H.265, H.264)	
	대역폭	최대 128Mbps	
	해상도	CIF ~ 12MP	
	녹화 모드	수동, 스케줄(연속/이벤트), 이벤트(프리 / 포스트), 긴급	
	Retention	Retention per channel (1~400 days)	
	이벤트 종류	알람 입력(16), 비디오 로스, 카메라 이벤트(센서, 움직임 감지, 영상 분석, 디 포커스)	
	이벤트 동작	이메일, 알람출력, 부저음, 모니터 출력, vms 전송	

항목		세부 설명	
		TRM-1610S	TRM-1610M
검색/재생	재생 성능	32Mbps(16채널 동시)	
	사용자	최대 4 명 (본체 1, 원격 3)	
	검색 모드	날짜/시간 캘린더 검색, 이벤트 리스트 검색, 스마트 검색(Virtual Line w/direction, Enter/Exit)	
	동시 재생	최대 16 채널(Local Monitor, CMS)	
검색/재생	해상도	CIF ~ 12MP	
	피쉬아이 디와핑	웹 / CMS	
	재생 제어	고속/저속 정/역 배속, 스텝 전/후 재생	
HDD	기본 장착	0TB ~ 4TB (2TB 2개)	
	최대 장착수	2 SATA(Front-Swap) - 최대 2TB(HDD, Non-RAID 모드) - 최대 4TB(SSD, Non-RAID 모드)	
	RAID	RAID-1	
백업	파일 백업	Exe(GUI), JPG/AVI(GPS 정보 제외)(Network)	
	기능	최대 16채널 동시 재생, 날짜-시간/타이틀/GPS 표시	
	타입	자동(Wifi), 수동(HDD)	
	Wi-Fi 백업 성능	최대 150Mbps (IEEE802.11ac)	
센서	입력 / 출력	16/6	
오디오	입력	16 채널(네트워크)	
	압축방식	G.711, G.726, AAC(16/48KHz)	
	양방향	지원	

제품 사양

항목		세부 설명	
		TRM-1610S	TRM-1610M
네트워크			
인터페이스		RJ-45 (Gigabit Ethernet x2)	M12 (Gigabit Ethernet x2)
프로토콜		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)	
DDNS		Hanwha DDNS	
전송 대역폭	유선 (LAN)	최대 256Mbps	
최대 원격 사용자		검색 3 / 라이브 유니캐스트 10 / 멀티캐스트 20	
IP 버전		IPv4	
보안		사용자 접속 로그 기록, IP 주소 필터링, 802.1x 인증방식, 암호화	
무선	Wi-Fi	Internal (802.11 n(2.4G)/ac(5G), Dual antenna(MIMO))	
	4G/3G	Support external 4G/3G router (Ethernet)	
언어		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai	
OS		Window 7, 8, 10, Mac OS X(10.8 이상)	
웹 브라우저		MS IE, Google Chrome, Mac Safari	
뷰어 프로그램	종류	SSM TR, Web viewer, Wisenet mobile viewer	
	지원 방법	Support SDK/CGI(SUNAPI) for integration to 3'rd party VMS(eg. Genetec)	
주요 기능			
카메라 설정	등록	자동, 수동	
	설정 항목	IP address, Add profile edit, Bitrate, Compression, Camera MD setup, Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, IRIS, WDR, D&N, SSNR, Shutter, SDDR, DIS), Fisheye Dewarping Mode, Hallway View Setup, Camera Webpage, Wisestream On/Off	

항목		세부 설명	
		TRM-1610S	TRM-1610M
카메라 제어	PoE Power Control	Monitor PoE/PoE+ power consumption, On/Off control for each PoE/ PoE+ camera, Remote reset for each PoE/PoE+ camera	
	Time Sync.	NVR time protocol for PoE/PoE+ camera (Time sync based on NVR time), GPS time sync	
		GPS time sync	
PTZ	제어	본체, 웹뷰어	
	프리셋	300 프리셋	
스마트폰	지원 OS	Android, iOS	
	프로토콜	RTP, RTSP, HTTP, CGI(SUNAPI)	
	지원 기능	라이브(16채널) : 멀티 프로파일 지원 / 재생(1채널)	
	최대 원격 사용자	검색(3명), 라이브 유니캐스트(10명), 라이브 멀티캐스트(20명)	
제어		마우스, 웹	
Remote Management (SSM-TR, ISV)	Metadata TX	GPS, Speed(GPS) 내부 Metadata : 운수회사, 차종 / 차번호 / 면허번호 / 운전자명	
		Health Check (Status, Rec, Event,..)	
		Support Vehicle ID, Driver Name	
전후면 표시/연결부			
전면	표시부	LED 상태 표시부 (3개) : Power 1, Alarm 1, Record 1	
	전원 스위치	1개	
	HDMI / VGA	2개 (라이브 스크린 지원 최대 16 div. 모드, 복제) HDMI : 최대 4K (3840 x 2160), VGA : 최대 1080p	
	USB	3개 (1x M12, 2x USB-A), LTE모듈 내장 시 M12제외	
	GPS/GNSS	1개 (SMA, F)	
	HDD Key Lock	2개	

제품 사양

항목		세부 설명	
		TRM-1610S	TRM-1610M
연결부	오디오	출력(1개, Line)	
	이더넷	LAN / WAN : 2개 (1Gbps, RJ-45) PoE 카메라 입력 : 4개 (100Mbps, RJ-45)	LAN / WAN : 2개 (1Gbps, M12) PoE 카메라 입력 : 4개 (100Mbps, M12)
	Control I/O	DB15 1개 (External Control Box) (1) Status LED <Power/GPS/Alarm/REC/RAID/HDD ERROR> (2) Impact Sensor (3) Emergency Recording button (4) Power Switch (5) Audio Out	
	알람	DB25 1개 (1) 입력(16개) (2) 출력(6개)	
	시리얼	Reserved	
	Wi-Fi	2개 (RP-SMA)	
	리셋	스위치 (1개, PW Clear)	
	전원코드	6핀 connector 1개	
시스템			
Power Management	Shutdown Delay	0min ~ 72Hrs (User selectable)	
		Support CGI shutdown	
	Startup Delay	0(디폴트) min ~ 10 min (User selectable)	
로그 정보	로그 리스트	최대 20,000 (시스템 로그, 이벤트 로그 각각)	
환경 사양			
동작 온도		TX 규격 만족(-25°C to +55°C, -13°F to +131°F, HDD 사용) TX 규격 만족(-40°C to +70°C, -40°F to +158°F, Industrial SSD 사용)	
동작 습도		20% ~ 85% RH	

항목		세부 설명	
		TRM-1610S	TRM-1610M
전기적 사양			
전원		9 ~ 36V DC	
		Battery Power Detection & Low Power Limit Setup	
소비전력		저온 초기:144W, 저온 사용: 93W, 상온: 67W (최대)	
PoE Budget		최대 32W	
외관			
색상 / 재질		검정 / 알루미늄	
외형치수 (WxHxD)		250mm x 99mm x 303mm	
무게		약 7.5Kg (HDD 제외)	
Standard Approvals	Basic	CE, FCC, cUL, KC	
	EMC	EN-55022	
	Safety	UL-60950-1	
	Shock/Vibration	MIL STD-810F(SSD 사용 조건)	
	Rail(Temp,Humid,shock, vib)	EN-50155	
	Rail(EMC)	EN-50121-3-2	
	Rail(EMI)	EN-50121-4	
	Rail(Shock, vib)	EN-61373	
	Vehicle(EU)	e-Mark	

제품 사양

• TRM-410S/810S/810M

항목		세부 설명	
		TRM-410S	TRM-810S/810M
디스플레이			
네트워크 카메라	입력	최대 4채널 (4 PoE, RJ-45)	최대 8채널 (8 PoE) TRM-810S: 최대 8ch (8 PoE, RJ-45) TRM-810M: 최대 8채널 (8 PoE, M12 D-Code)
	해상도	CIF ~ 8MP	
	프로토콜	Wisenet(SUNAPI), ONVIF	
라이브	모니터 출력	HDMI / VGA	
	디스플레이 모드	[모니터] 1 / 2H / 2V / 3V / 4 / 자동 전환 [웹] 4 / 자동 전환	[모니터] 1 / 2H / 2V / 3V / 4 / 6 / 8 / 9 / 자동 전환 [웹] 1 / 4 / 9 / 1+5 / 1+7 / 2h / 2v / 3v / 6 / 12 / 자동 전환
	디스플레이 성능	[모니터] 8MP(60fps), 5MP(90fps), 3MP(120fps), 2MP(120fps), 720p(120fps), D1(120fps)	
운영 체제	임베디드	리눅스	
녹화	압축방식	H.265, H.264, MJPEG, WiseStream(H.265, H.264)	
	대역폭	최대 50Mbps	최대 80Mbps
	해상도	CIF ~ 8MP	
	녹화 모드	수동, 스케줄(연속/이벤트), 이벤트(프리 / 포스트), 긴급	
	Retention	Retention per channel (1~400 days)	
	이벤트 종류	알람 입력(6), 비디오 로스, 카메라 이벤트(센서, 움직임 감지, 영상 분석, 디포커스), G-센서(3 Axis)	
	이벤트 동작	이메일, 알람출력, 부저음, 모니터 출력	

항목		세부 설명	
		TRM-410S	TRM-810S/810M
검색/재생	재생 성능	32Mbps(4채널 동시)	32Mbps(8채널 동시)
	사용자	최대 4 명 (본체 1, 원격 3)	
	검색 모드	날짜/시간 캘린더 검색, 이벤트 리스트 검색, 스마트 검색	
	동시 재생	최대 4 채널(모니터, CMS)	최대 8 채널(모니터, CMS)
	해상도	CIF ~ 8MP	
	피쉬아이 디와핑	웹 / CMS	
	재생 제어	고속/저속 정/역 배속, 스텝 전/후 재생	
저장	기본 장착	No HDD (Tray당 2 HDD 장착 지원)	
	최대 장착수	2 SATA(Front-Swap) - 최대 2TB(HDD, Non-RAID 모드) - 최대 4TB(SSD, Non-RAID 모드)	
	RAID	N/A	RAID-1
백업	파일 백업	Exe(GUI), JPG/AVI(GPS 정보 제외)(네트워크)	
	기능	최대 4채널 동시 재생, 날짜-시간/타이틀/GPS 표시	최대 8채널 동시 재생, 날짜-시간/타이틀/GPS 표시
	타입	자동(Wifi), 수동(HDD/SSD)	
	Wi-Fi 백업 성능	최대 50Mbps	최대 80Mbps
센서	입력 / 출력	6/4	
오디오	입력	4 채널(네트워크)	8 채널(네트워크)
	압축방식	G.711, G.726, AAC(16/48KHz)	
	양방향	지원	

제품 사양

항목		세부 설명	
		TRM-410S	TRM-810S/810M
네트워크			
인터페이스		RJ-45 (Fast Ethernet x1)	TRM-810S: RJ-45 (Gigabit Ethernet x1) TRM-810M: M12 A-Code (Gigabit Ethernet x1)
프로토콜		TCP/IP, UDP/IP, RTP (UDP), RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, uPnP, HTTPS, SNMP, ONVIF (Profile-S), SUNAPI(Server, Client)	
DDNS		Hanwha DDNS	
전송 대역폭	유선 (LAN)	최대 50Mbps	최대 80Mbps
최대 원격 사용자		검색 3 / 라이브 유니캐스트 10 / 멀티캐스트 20	
IP 버전		IPv4/v6	
보안		사용자 접속 로그 기록, IP 주소 필터링, 802.1x 인증방식, 암호화	
무선	Wi-Fi	Internal (802.11 ac(5G), 1T1R)	
	4G/3G	Support external 4G/3G router (Ethernet)	
언어		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai	
OS		Window 7, 8, 10, Mac OS X(10.8 이상)	
웹 브라우저		MS IE, Google Chrome, Mac Safari	
뷰어 프로그램	종류	SSM Transportation, Web viewer	
	지원 방법	Support SDK/CGI(SUNAPI) for integration to 3'rd party VMS	

항목		세부 설명	
		TRM-410S	TRM-810S/810M
주요 기능			
카메라 설정	등록	자동, 수동	
	설정 항목	IP address, Add profile edit, Bitrate, Compression, Camera MD setup, Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, IRIS, WDR, D&N, SSNR, Shutter, SSDR, DIS), Fisheye Dewarping Mode, Hallway View Setup, Camera Webpage, Wisestream On/Off	
카메라 제어	PoE /PoE+ Power Control	Monitor PoE/PoE+ power consumption, On/Off control for each PoE/ PoE+ camera, Remote reset for each PoE/PoE+ camera	
	Time Sync.	NVR time protocol for PoE/PoE+ camera (Time sync based on NVR time)	
		GPS time sync	
PTZ	제어	본체, 웹뷰어	
	프리셋	300 프리셋	
제어		마우스, 웹	
전후면 표시/연결부			
전면	표시부	LED 상태 표시부 (3개) : Power 1, Alarm 1, Record 1	
	전원 스위치	-	
	오디오	출력(1개, Line)	
	HDMI / VGA	2개 (라이브 스크린 지원 최대 9 div. 모드, 복제) HDMI : 최대 4K (3840 x 2160), VGA : 최대 1080p	
	USB	3 개 (전면 2, 후면 1)	
	GPS/GNSS	4핀 Micro Fit (후면)	
	HDD Key Lock	1개	

제품 사양

항목		세부 설명	
		TRM-410S	TRM-810S/810M
연결부	이더넷	VIEWER : 1개(100Mbps, RJ-45) PoE 카메라 입력 : 4개 (100Mbps, RJ-45)	VIEWER : 1개(1000Mbps, RJ-45) PoE 카메라 입력 : 8개 (100Mbps, RJ-45)
	Control I/O	RJ-45 1ea (External Control Box) (1) Status LED (2) G-Sensor(3 Axis) (3) Emergency Recording button (4) Power Switch (5) Audio Out	
	알람	(1) 입력(6개) (2) 출력(4개)	
	시리얼	1 RS-232C(Reserved)	
	Wi-Fi	1개 (RP-SMA, F)	
	리셋	스위치 (1개, PW Clear)	
	전원코드	6핀 connector 1개	
	시스템		
Power Management	Shutdown Delay	최대 72Hrs (User selectable)	
		Support CGI shutdown	
	Startup Delay	0(Default) sec ~ 10 Min (User selectable)	
로그 정보	로그 리스트	최대 20,000 (시스템 로그, 이벤트 로그 각각)	
환경 사양			
동작 온도		-25 °C to +55 °C(-13 °F to +131 °F) : HDD installed	
동작 습도		20% ~ 85% RH	

항목	세부 설명	
	TRM-410S	TRM-810S/810M
전기적 사양		
전원	9 ~ 36V DC	
	Battery Power Detection & Low Power Limit Setup	
소비전력	DC : 최대 83W	DC : 최대 122W
PoE Budget	최대 32W	최대 64W
외관		
색상 / 재질	검정 / 스틸	
외형치수 (WxHxD)	210mm x 80mm x 250mm	
무게	약 3.4Kg (HDD 제외)	
Standard Approvals		
General	CE, FCC, UL	
Special	EN-50155 (Rail Shock/Vib) EN-50121-3 (Railway EMC) EN-61373 (Railway Safety)	

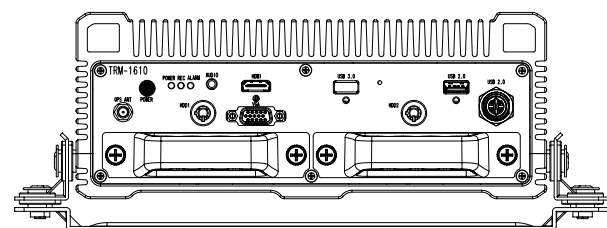
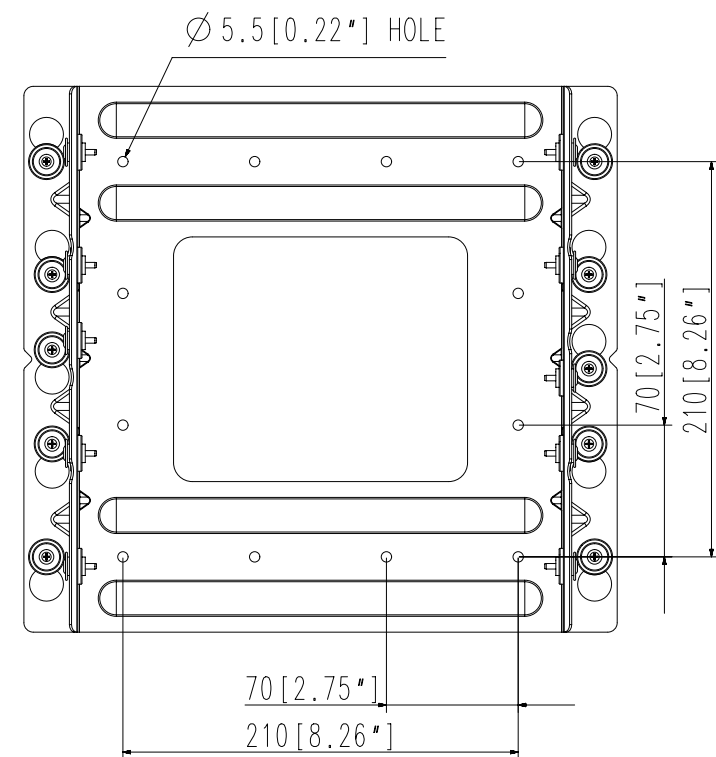
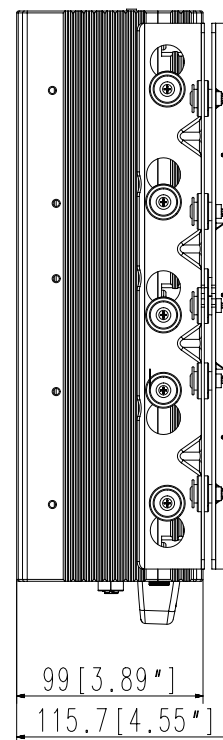
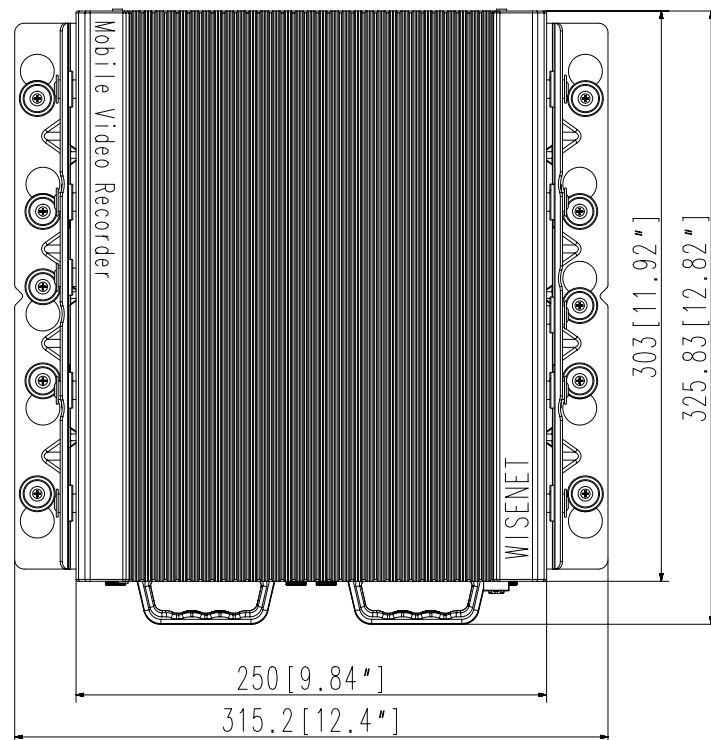
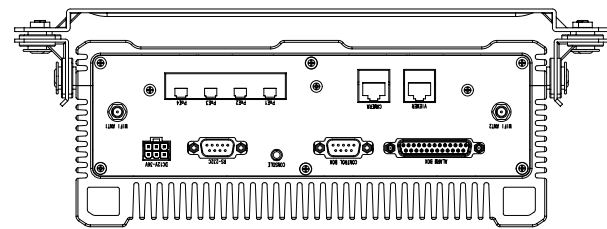
제품 사양

• 컨트롤 박스

항목		세부 설명
전후면 표시/연결부		
전면	표시부	LED 상태 표시부 (6개): POWER, GPS, ALARM, REC, RAID, HDD ERROR
	Emergency Button	1개
연결부	오디오	출력(1개, RCA, Line)
	전원 스위치	-
	EXT Switch Connector	1개 (4pin Micro-Fit)
	Main I/O	1개 (DB9)
외관		
색상 / 재질		검정 / 알루미늄
외형치수 (WxHxD)		약 118 x 29.2 x 70mm (4.64" x 1.15" x 2.75")
무게		약 0.2Kg

- TRM-1610S

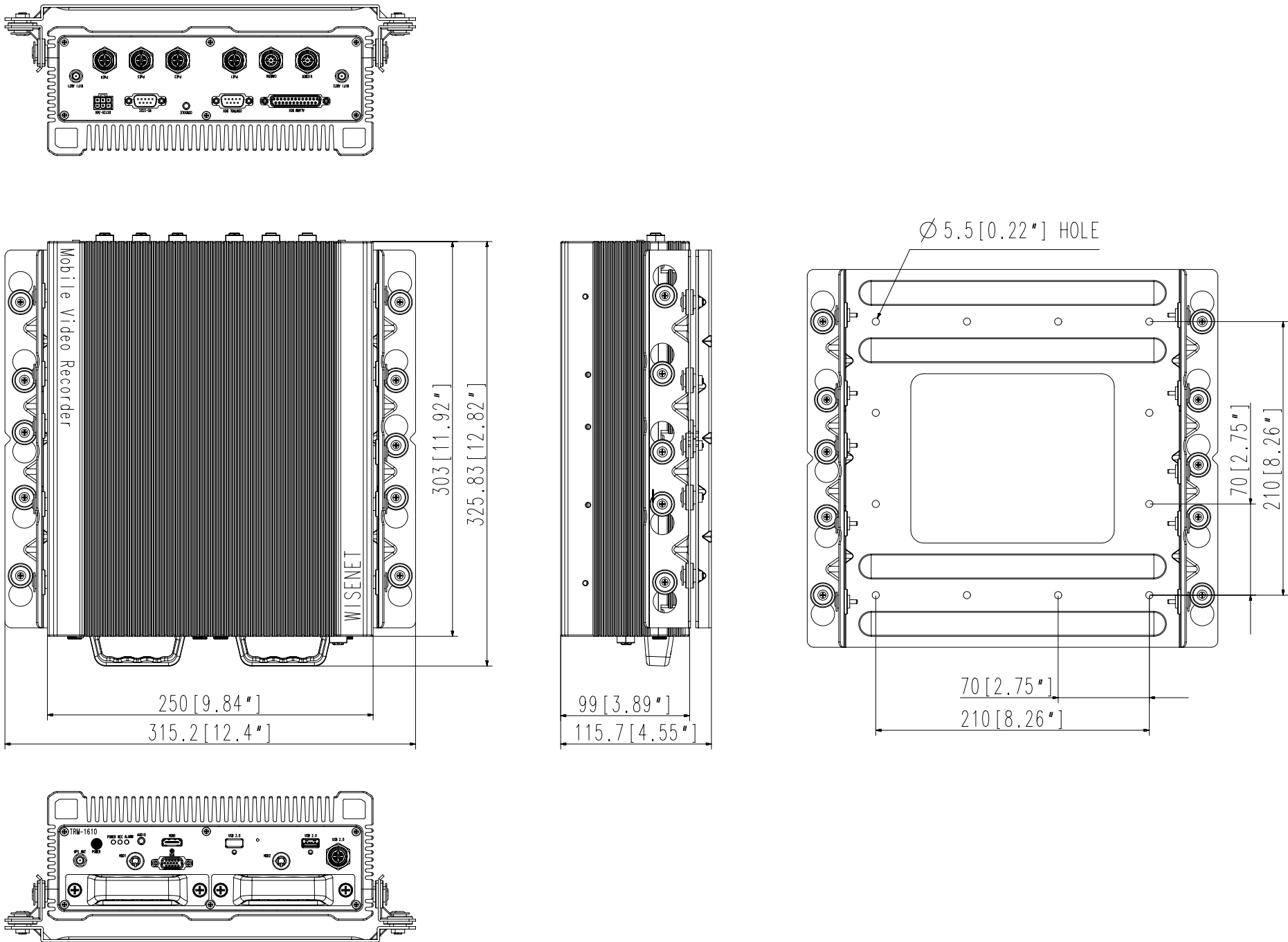
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외관도

• TRM-1610M

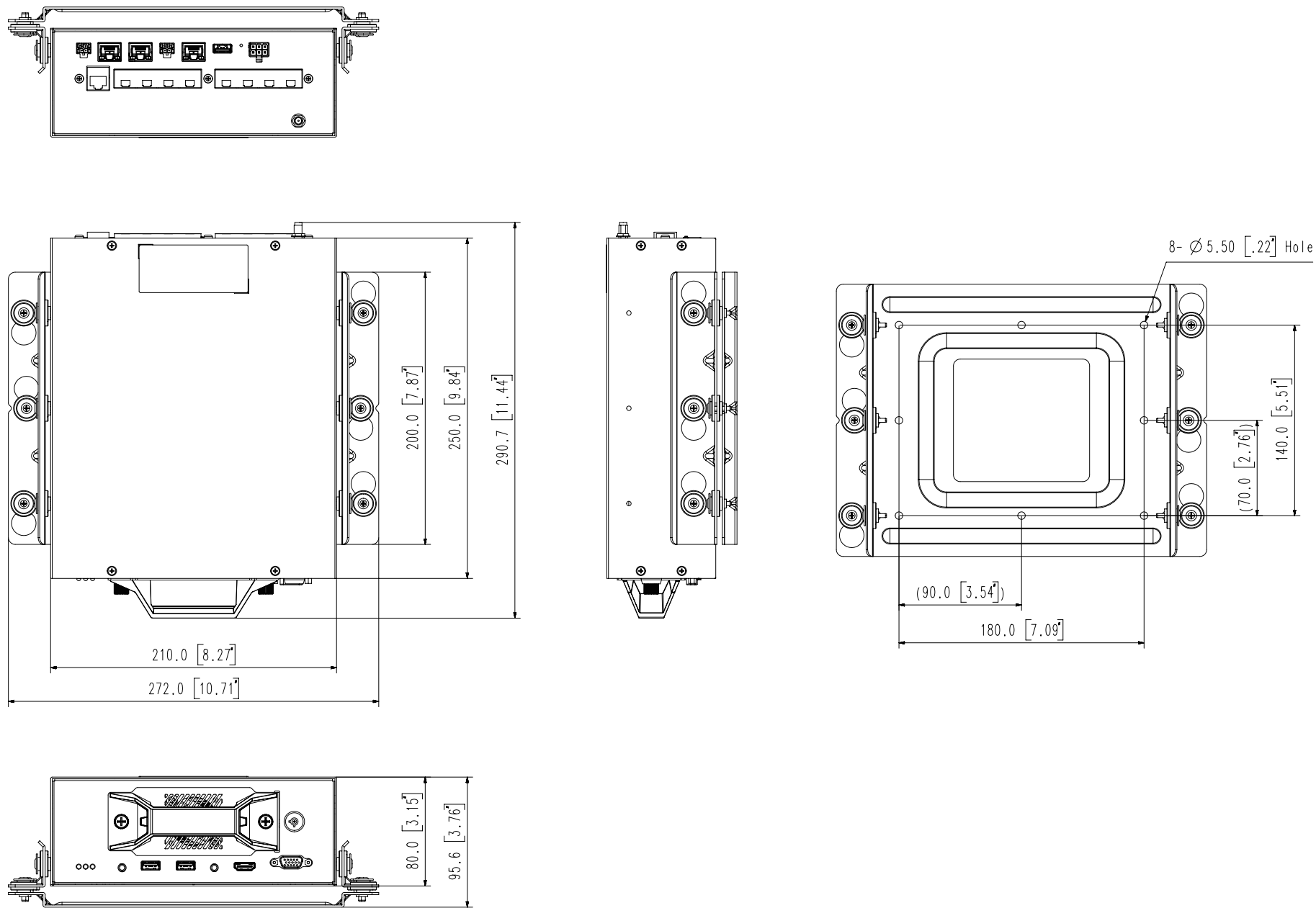
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외관도

• TRM-810S

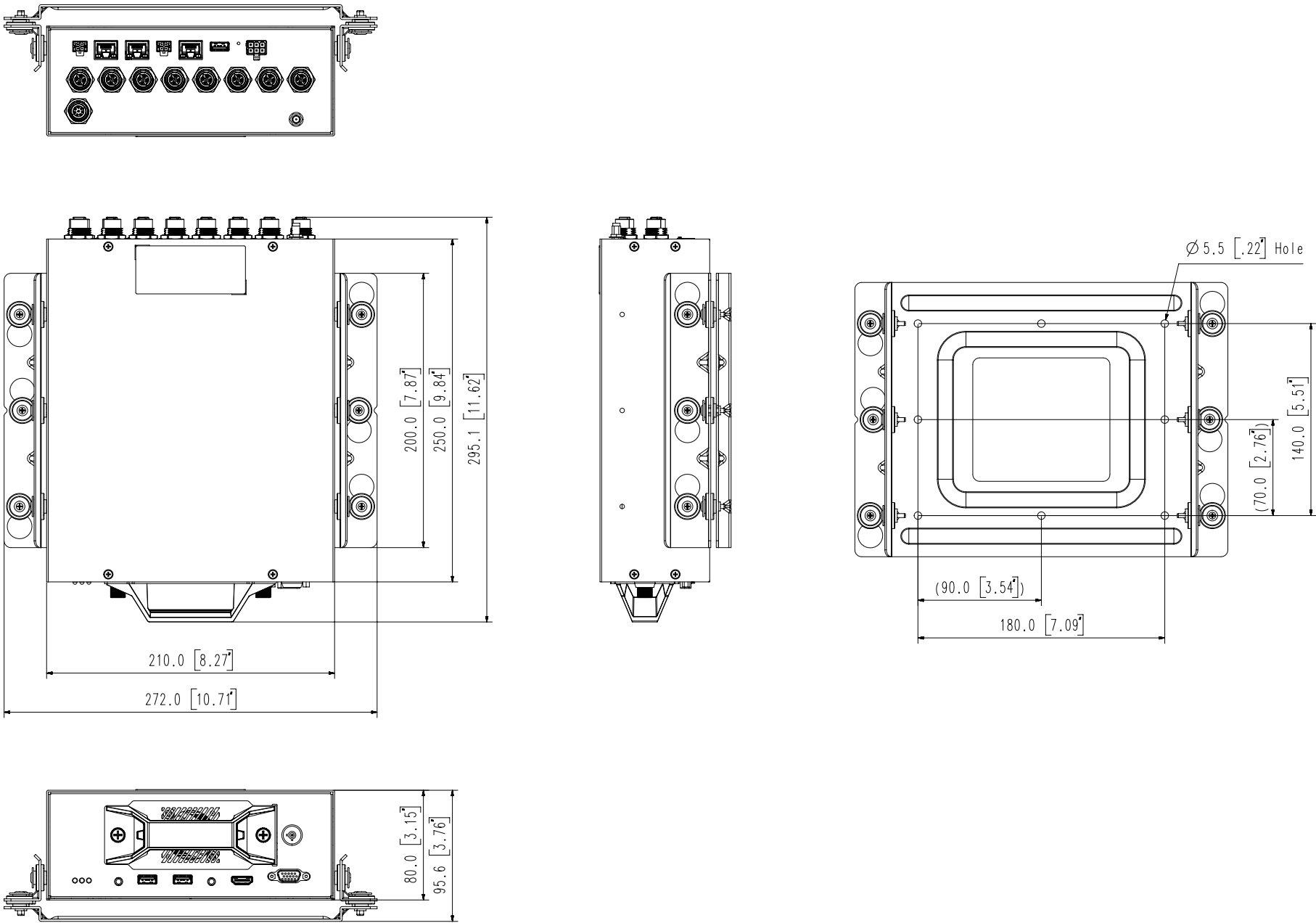
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외관도

• TRM-810M

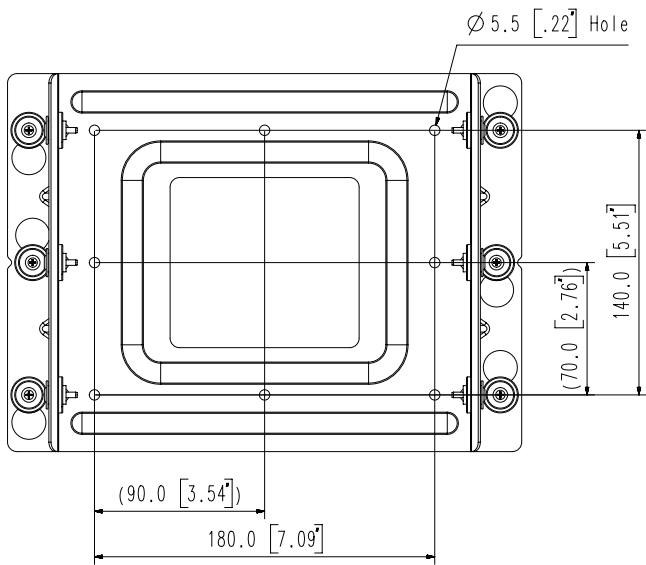
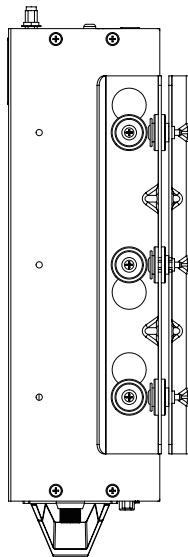
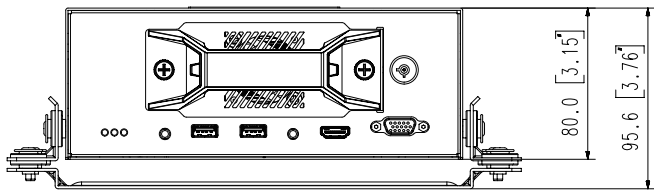
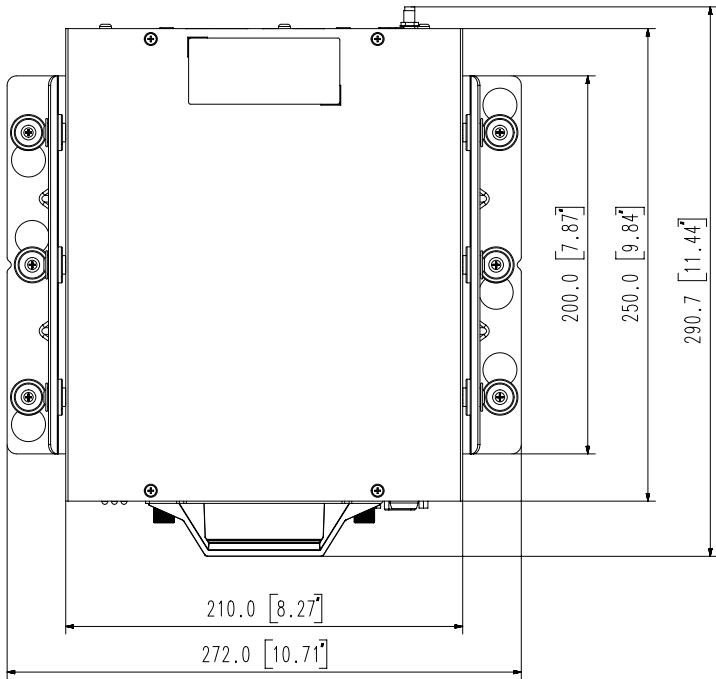
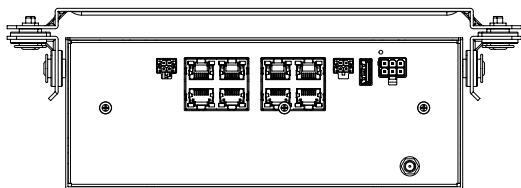
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외관도

• TRM-410S

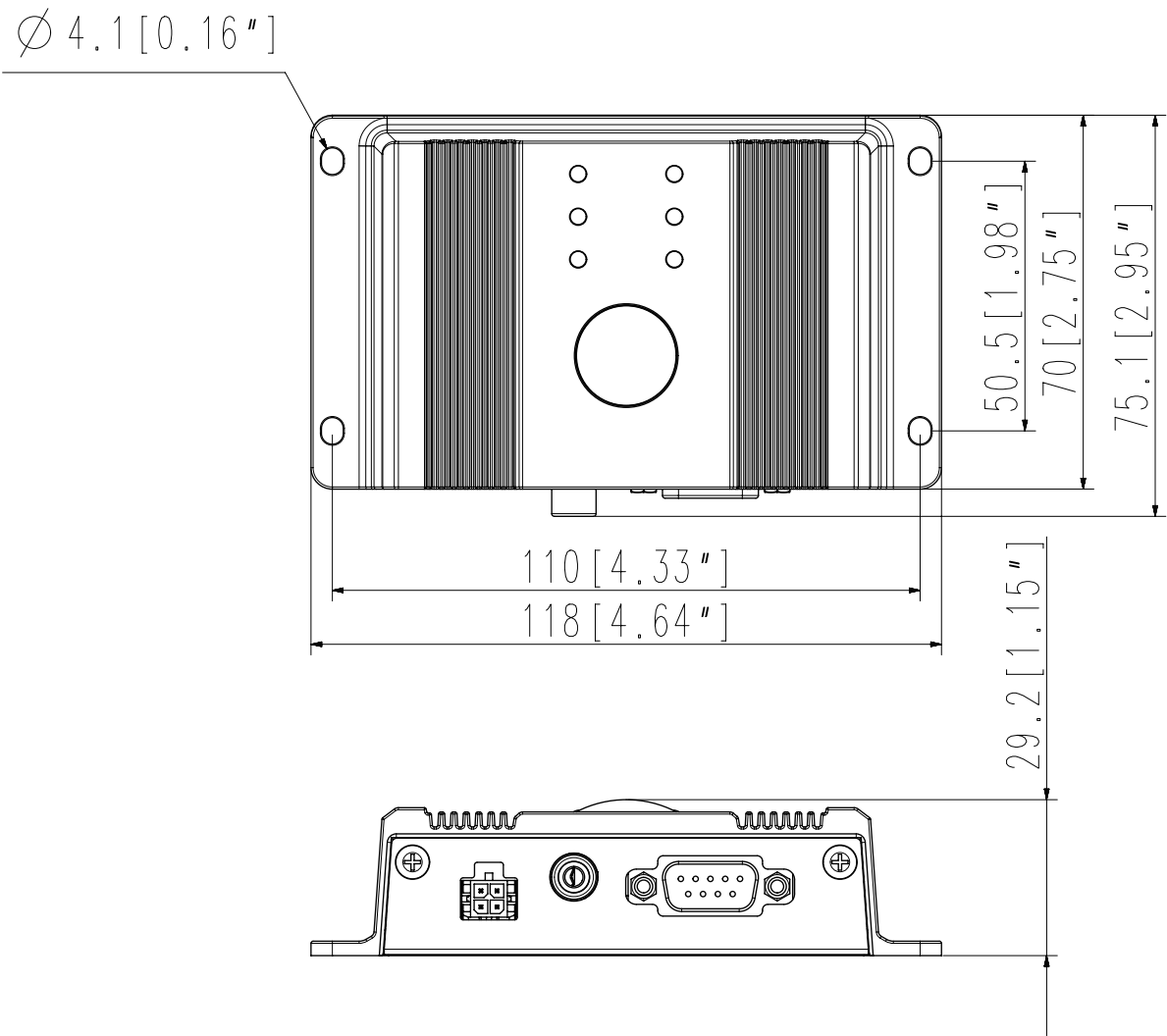
단위 : mm (inches)



외관도

• 컨트롤 박스

단위 : mm (inches)



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27. [30]Louis A. Mamakos <louie@ni.umd.edu> MD5-based authentication
28. [31]Lars H. Mathiesen <thorinn@diku.dk> adaptation of foundation code for Version 3 as specified in RFC-1305
29. [32]David L. Mills <mills@udel.edu> Version 4 foundation: clock discipline, authentication, precision kernel; clock drivers: Spectracom, Austron, Arbiter, Heath, ATOM, ACTS, KSI/Odetics; audio clock drivers: CHU, WWV/H, IIRIG
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38. [42]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules
39. [43]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory
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41. [45]Michael Shields <shields@tembel.org> USNO clock driver
42. [46]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
43. [47]Harlan Stenn <harlan@pfcs.com> GNU automake/ autoconfigure makeover, various other bits (see the ChangeLog)
44. [48]Kenneth Stone <ken@sdd.hp.com> HP-UX port
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47. [51]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver

48. [52]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD

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