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Quick Installation Guide

ITP-G800SM-8PH24/ITP-G800M-8PHE24

EN50155 IP67 Managed 8 x 10/100/1000Base-TX with 8 PoE+ Ethernet Switch (-10°C~60°C/-40°C~75°C)

ITP-G802SM-8PH24/ITP-G802SM-8PHE24

EN50155 IP67 Managed 8 x 10/100/1000Base-TX + 2 x 100/1000Base-X SFP with 8 PoE+ Ethernet Switch (-10°C~60°C/-40°C~75°C)

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Introduction

ITP-G800M/G802SM-8PH(E)24 Series are managed industrial grade Gigabit Ethernet PoE+ switches with 8 x 10/100/1000Base-T Gigabit Ethernet PoE ports plus 2 x 100/1000Base-X SFP Fiber (For ITP-G802SM Series). ITP-G800M/G802SM-8PH(E)24 switches equipped with PoE (Power over Ethernet) function utilize M12 connectors to ensure tight and robust connections and to guarantee reliable operation against environmental disturbances such as vibration and shock.

Housed in IP67 grade rugged and wall mountable housing, ITP-G800M/G802SM-8PH(E)24 switches are able to protect against dust and water submersion. Besides, these switches comply with EN50155 standard that covers strict demands on operating temperature, power input voltage, surge, ESD, vibration, and shock, thus making them suitable for industrial applications such as vehicle, rolling stock and railway.

Packing List

- ITP-G800M-8PH(E)24 or G802SM-8PH(E)24 Device
- Protective caps for M12 Gigabit Ethernet, console, and alarm ports.
- 2 Sets of Fiber Cable Gland for SFP ports (ITP-G802SM Series only)
- Console cable (M12 to DB9)
- CD-ROM (Manual, SmartConfig, MIB file)
- Quick Installation Guide

Features

- Use M12 & M23 anti-vibration and shock connector
- 24/48VDC redundant dual input power and built-in power booster design up to 55VDC for PoE output
- Regulate PoE output voltage (55VDC) to stabilize PoE device and guarantee delivery PoE power distance to 100meter
- PoE output power budget maximum 180W
- Wide temperature range -40°C~75°C ("**-E**" models only)
- IP67 grade rugged housing against water, dust and oil
- Support many advanced Ethernet L2 functions
- CE, FCC, EN50155 and EN50121-4 certified
- Industrial grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified

Specifications

Interface

- Port 1~8 support 10/100/1000Base-T M12 (8-Pin, A-Code Female)
  Port 9~10 fiber cable glands support 100/1000Base-X SFP slot with DDMI (ITP-G802SM Series only)
- Support Auto MDI/MDI-X
- Support 802.3x Flow Control
- Full/Half Duplex
- Store & Forward Mode

Switch

- MAC Address Table: 8K
- Packet Buffer Size: 256K Bytes
- Jumbo Frame: 9.6KB
- Switching Fabric: 16Gbps (ITP-G800M Series) , 20Gbps (ITP-G802SM Series)

Specifications (cont.)

Power over Ethernet

- 8 x PoE enabled ports, M12 (8-Pin) A-Code Female
- End-Span Alternative A Mode
- Supports IEEE802.3af 15.4watts PoE per port
- Supports IEEE802.3at 30watts PoE+ per port (180W budget)
- Pin Assignments: 4, 6 (Positive Pins); 5, 7 (Negative Pins); 1, 2, 3, 4, 5, 6, 7, 8 (Data)

Power

- Connector Type: 1 x M23 (5-Pin) Male
- Power Supply: Redundant Dual DC 24/48V (20~57VDC) input power
- Reverse Polarity Protection: Yes
- Overload Current Protection: Yes
- Consumption:

Model	Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget	Boost Efficiency
ITP-G800M-8PH(E)24	24VDC	197.6W	8.9W	180W	95.30%
	48VDC	198.3W	10.6W	180W	95.80%
ITP-G802SM-8PH(E)24	24VDC	198.5W	9.8W	180W	95.30%
	48VDC	199.2W	11.5W	180W	95.80%

Mechanical

- Housing: IP67 Waterproof Protection
- Fanless Design
- Dimensions: 70 mm (D) x 240 mm (W) x 168 mm (H)
- Mounting: Wall mounting, DIN-Rail mounting (Optional Accessory)
- Weight: 2.055kg (ITP-G800M Series), 2.17kg (ITP-G802SM Series)

Environmental

- Operating Temperature:
  - -10°C~60°C (ITP-G800M-8PH24, ITP-G802SM-8PH24)
  - -40°C~75°C (ITP-G800M-8PHE24, ITP-G802SM-8PHE24)
- Storage Temperature: -40°C~85°C
- Humidity: 5%~95% (Non-condensing)

Certifications

- EMC: CE
- EMI (Electromagnetic Interference): FCC Part 15 Subpart B Class A, CE EN55022 Class A
- Railway Traffic: EN50155, EN50121-4
- Immunity for Heavy Industrial Environment: EN61000-6-2
- Emission for Heavy Industrial Environment: EN61000-6-4
- EMS (Electromagnetic Susceptibility) Protection Level:
  - EN61000-4-2 (ESD) Level 3, Criteria B
  - EN61000-4-3 (RS) Level 3, Criteria A
  - EN61000-4-4 (Burst) Level 3, Criteria A
  - EN61000-4-5 (Surge) Level 3, Criteria B
  - EN61000-4-6 (CS) Level 3, Criteria A
  - EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
- Shock: IEC 61373
- Freefall: IEC 60068-2-32
- Vibration: IEC 61373
- MTBF (MIL-HDBK-217): 197,455 (ITP-G800M Series); 184,205 Hours (ITP-G802SM Series)

ITP-G800M-8PH(E)24 Panels

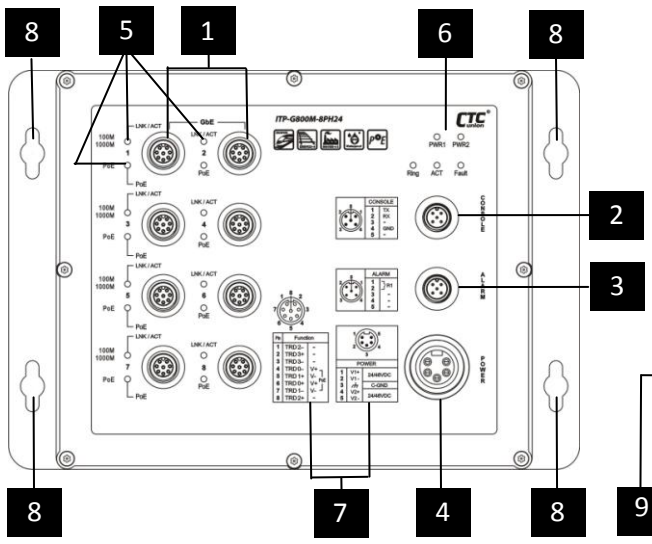


Figure 1: Front panel

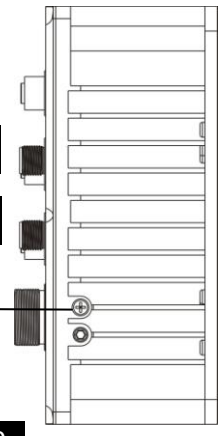


Figure 2: Side panel

Index No.	Description
1	M12 Gigabit Ethernet port 1~8
2	M12 Console port
3	M12 Alarm port
4	M23 Power input port
5	Link/ACT & PoE LEDs for M12 Gigabit Ethernet ports
6	Power, Fault, ACT, Ring LEDs
7	Pin assignment tables
8	Wall mounting holes
9	Earth grounding

Table 1: Panel reference table

ITP-G802SM-8PH(E)24 Panels

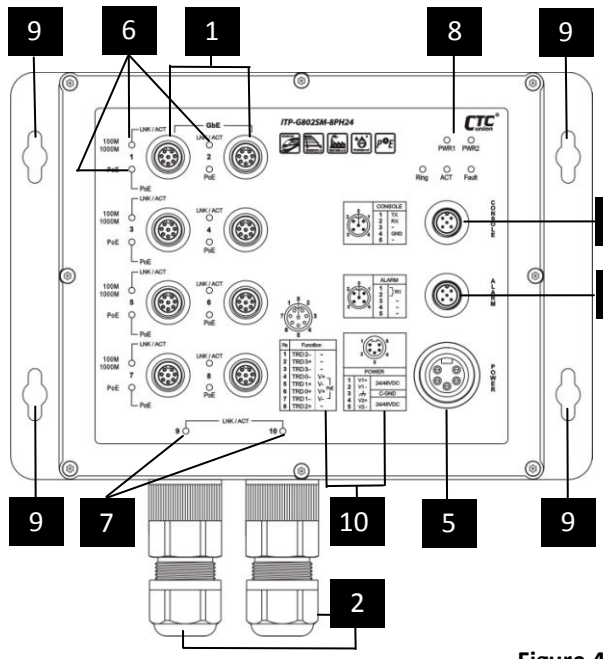


Figure 3: Front panel

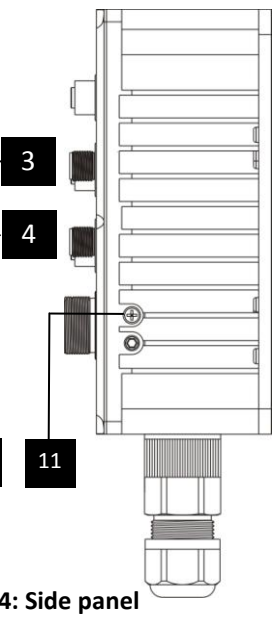


Figure 4: Side panel

Index No.	Description	Index No.	Description
1	M12 Gigabit Ethernet port 1~8	**8**	Power, Fault, ACT, Ring LEDs
2	Gigabit Ethernet SFP slot 9~10	**9**	Wall mounting holes
3	M12 Console port	**10**	Pin assignment tables
4	M12 Alarm port	**11**	Earth grounding
5	M23 Power input port		
6	Link/ACT & PoE LEDs for M12 Gigabit Ethernet port 1~8		
7	Link/ACT LEDs for Gigabit Ethernet SFP slot 9~10		

Table 2: Panel reference table

Earth Ground Connection

An earth ground hole is provided on side panel. Grounding the device can help to release leakage of electricity to the earth safely so as to reduce injuries from electromagnetic interference (EMI).

Prior to connecting to the power, it is important to connect the ground wire to the earth. Follow steps in Page 5 to install ground wire:

Step 1. Prepare one suitable ground screw and one grounding cable.

Step 2. Attach the grounding screw to the ring terminal of the grounding cable. Make sure that the grounding cable is long enough to reach the earth.

Step 3. Use a screwdriver (or other tools) to fasten the grounding screw on the earth ground hole securely.

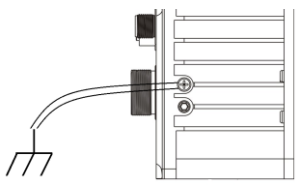


Figure 5: Grounding the device

CLI & Web Basic Operation

ITP-G800M/G802SM-8PH(E)24 Series are managed Gigabit Ethernet PoE+ switches for industrial uses. Initial configuration (assignment of IP address) may be accomplished via the M12 to DB-9 console port and a PC or laptop running terminal emulation software.

First, use the provided console cable to connect the M12 to the "CONSOLE" port and the DB9 to PC COM port. Then, apply power to the switch. Run terminal emulation software and configure the terminal as follows:

115200 speed, 8 data bits, no parity, 1 stop bit, no flow control

At the "Username:" prompt, enter '**admin**' (lower case, no quotes). Just **press Enter when prompted for password**.

ITP-G800/G802SM-8PH(E)24 switches use a command line interface (CLI) through the serial port. Once the IP address has been configured, a web browser can be used to configure the device through a more easy-to-use GUI (graphical user interface). Please refer to the operation manual on the CDROM for Web management.

To set the IP address and subnet mask, issue the following commands:

```
# config terminal
(config)# interface vlan 1
(config-if-vlan)#  ip address  192.168.0.10 255.255.255.0
(example: sets VID 1 to 192.168.0.10, subnet 255.255.255.0)
```

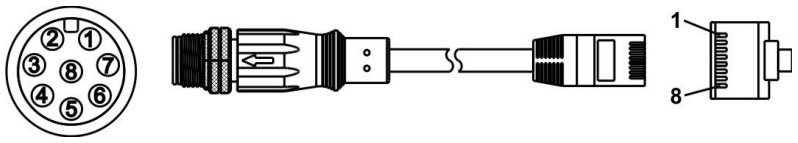
NOTE: The factory default IP address is 10.1.1.1 with mask 255.255.255.0

LED Indicators

LED	Color	Status	Description
PWR1 PWR2	Green	On	Lit if power 1 or power 2 is connected and active.
Fault	Amber	On	Lit when one or more of the programmable alarm conditions is active.
ACT	Green	On	During normal use, this LED will be lit, indicating a healthy condition of the running CPU.
		Blinking	Blinking when firmware is being upgraded.
Ring	Yellow	On	Lit when this unit is the 'master' in a fiber ring and all units are configured for u-Ring or ERPS (Ethernet Ring Protection Switching or G.8032).
100M/1000M LNK/ACT for Port 1~8	Green	On	Lit when the LAN connected speed is 100M.
		Blinking	Blinking when there is Ethernet traffic.
	Amber	On	Lit when the LAN connected speed is 1000M.
		Blinking	Blinking when there is Ethernet traffic.
LNK/ACT for Port 9 & 10 (ITP-G802SM Series only)	Green	On	Lit when the fiber connected speed is 100M
		Blinking	Blinking when there is Ethernet traffic.
	Amber	On	Lit when the fiber connected speed is 1000M
		Blinking	Blinking when there is Ethernet traffic.
PoE	Green	On	Lit when the respective LAN port has successfully negotiated PoE and is supplying output power to the remote connected PD device.

PIN Assignment

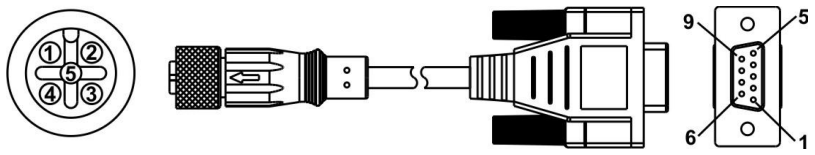
➢ **M12 Gigabit Ethernet Port**



Port 1~8 Gigabit Ethernet			PoE Pinout
M12 Pin No.	Pinout	RJ-45 Pin No.	
1	TDR2-	5	
2	TDR3+	7	
3	TDR3-	8	
4	TDR0-	2	V+
5	TDR1+	3	V-
6	TDR0+	1	V+
7	TDR1-	6	V-
8	TDR2+	4	

Table 3: Gigabit Ethernet cable pin assignment

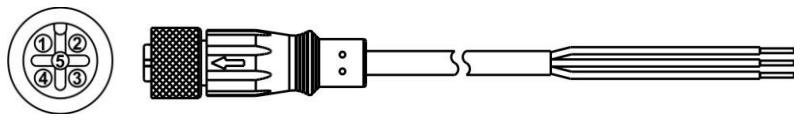
➢ **M12 Console Port**



M12 Pinout		DB-9 (Female) Pinout	
1	TX	2	RX
2	RX	3	TX
3	-	-	-
4	GND	5	GND
5	-	-	-

Table 4: Console cable pin assignment

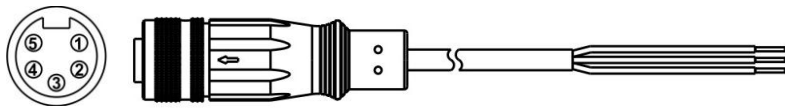
➢ **M12 Alarm Port**



M12 Pin No.	Description	Color of Open Cable
1	R1	Black
2		Blue
3	-	Red
4	-	Orange
5	-	Yellow

Table 5: Alarm cable pin assignment

➢ **M23 Power Input Port**

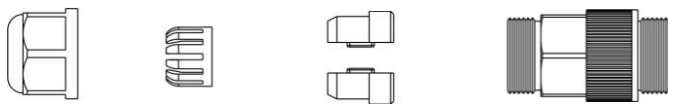


M23 Pin No.	Pinout	Description	Color of Open Cable
1	V1+	24/48VDC	Black
2	V1-		Blue
3	⏚	C-GND	Green
4	V2+	24/48VDC	Brown
5	v2-		White

Table 6: Power cable pin assignment

Fiber Cable Gland Installation for ITP-G802SM Series

ITP-G802SM-8PH(E)24 Series offer two metal fiber cable glands on the bottom panel that provide watertight seals for the cable embedded inside so that fiber transmission loss due to external factors can be reduced to minimum. Before assembling fiber cable glands, make sure your cable gland kit have the following components:



Sealing nut Clip Split seals Body

Assembly Steps:

Step 1. Loosen and remove the protective cap of the fiber port by turning counter-clockwise using a coin.

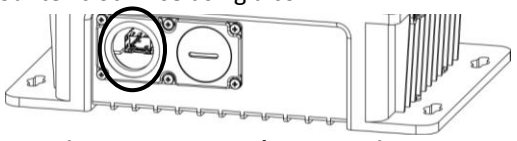


Figure 6: Remove the protective cap

Step 2. Insert the fiber transceiver.

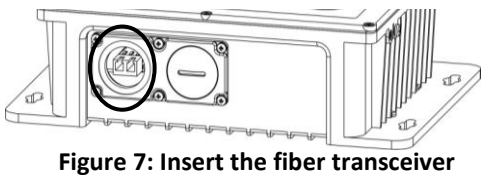


Figure 7: Insert the fiber transceiver

Step3. Thread the components of cable gland over the fiber cable in the order as indicated below and keep them loose in this step.

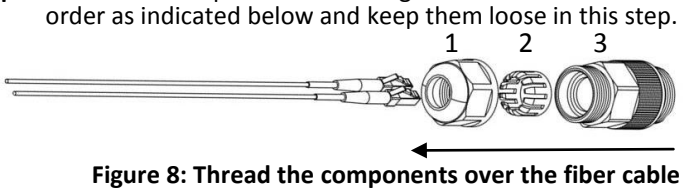


Figure 8: Thread the components over the fiber cable

Step 4. Connect the fiber cable to the fiber transceiver.

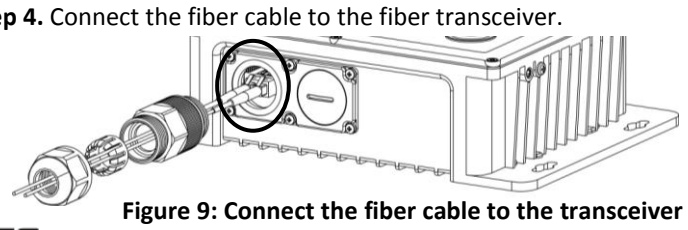


Figure 9: Connect the fiber cable to the transceiver

Step 5. Attach the body of the gland to the device and tighten by turning clockwise.

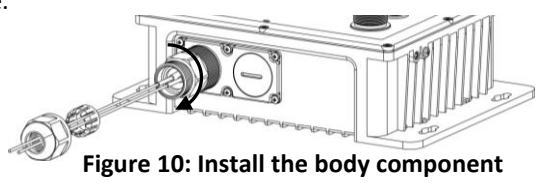


Figure 10: Install the body component

Step 6. Attach the split seals to the cable.

Figure 11: Install the split seals

Step 7. Slide the split seals along the cable and into the body. Press firmly to ensure the split seals are completely seated on the body.

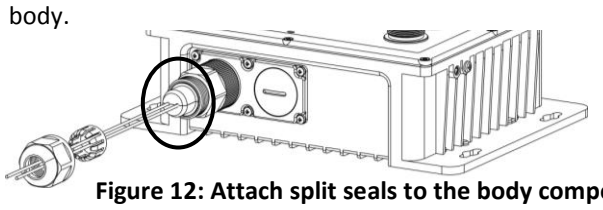


Figure 12: Attach split seals to the body component

Step 8. Slide the clip along the cable and make sure that it is firmly attached to the split seals.

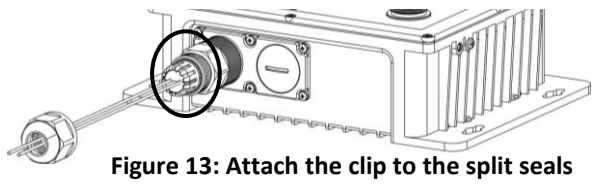


Figure 13: Attach the clip to the split seals

Step 9. Finally, move along the sealing nut and attach it to the body. Firmly attach the sealing nut by turning clockwise.

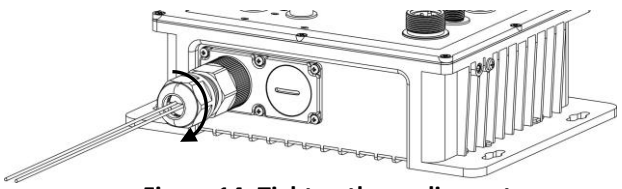
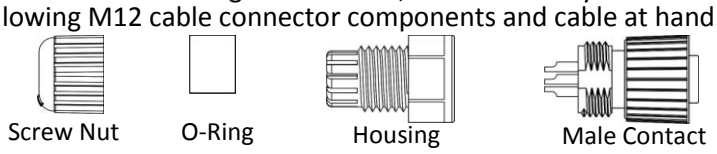


Figure 14: Tighten the sealing nut

M12 Cable Connector Installation

Before assembling M12 cable, make sure you have the following M12 cable connector components and cable at hand.



Assembly Steps:

Step 1. Thread the screw nut, O-ring, and housing over the cable in the order shown below and keep them loose in this step.

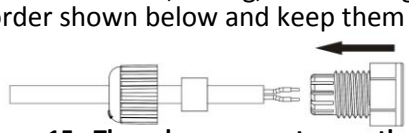


Figure 15: Thread components over the cable

Step 2. Strip the cable and the individual cores to fit the connector. Insert the stripped wires into the opened contact clamps.

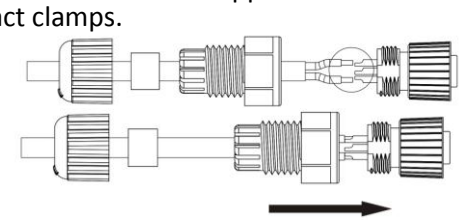


Figure 16: Insert the stripped wires to contact clamps

Step 3. Tighten the connector by turning clockwise, making sure that the wires inside the connector are not twisted as the screwed housing is assembled.

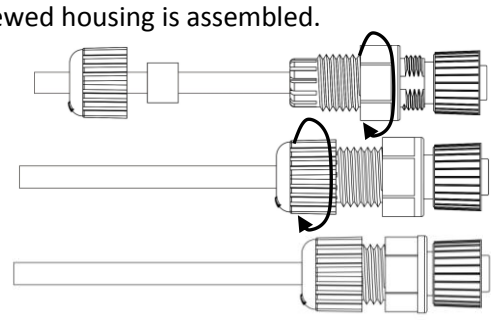


Figure 17: Tighten the connector

Wall-Mounting and DIN Rail

The ITP-G800M/G802SM-8PH(E)24 Series come with both wall mount (standard accessory) and DIN rail hardware brackets (optional accessory). The wall mount bracket has been attached to the device. Therefore, there is no need to install wall mount bracket.

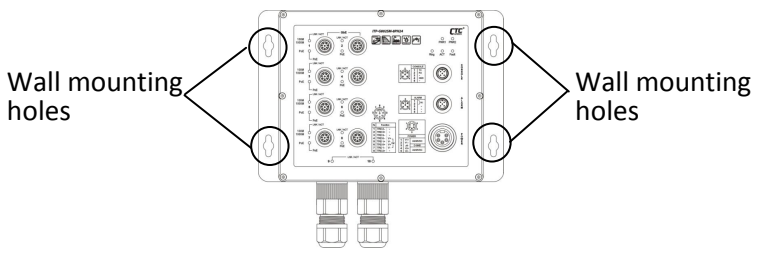


Figure 18: Wall mounting

When installing the DIN rail bracket, be sure to correctly align the orientation pin (Figure 19). The DIN Rail bracket has a steel spring in the upper rail of the bracket. This spring is compressed for mounting and un-mounting by applying downward force.

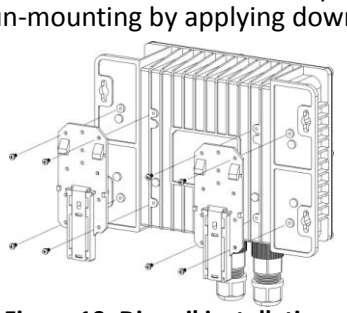


Figure 19: Din rail installation

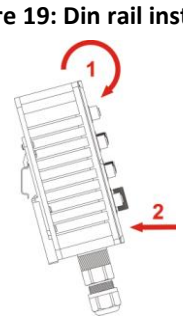
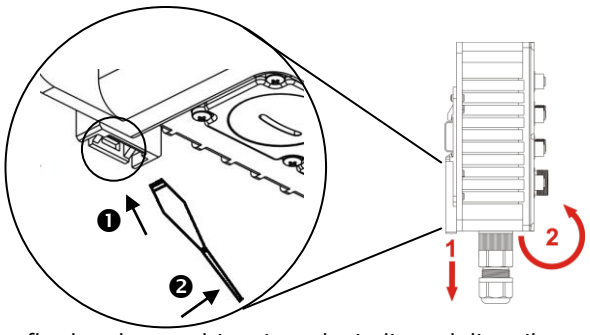


Figure 20: Mounting

Use a flat-head screwdriver to unlock and remove the device from the din rail when un-mounting.



❶ Insert the flat-head screwdriver into the indicated din rail snap level hole.

❷ Push up the flat-head screwdriver to pull the din rail snap level open.

Figure 21: Un-mounting

Application

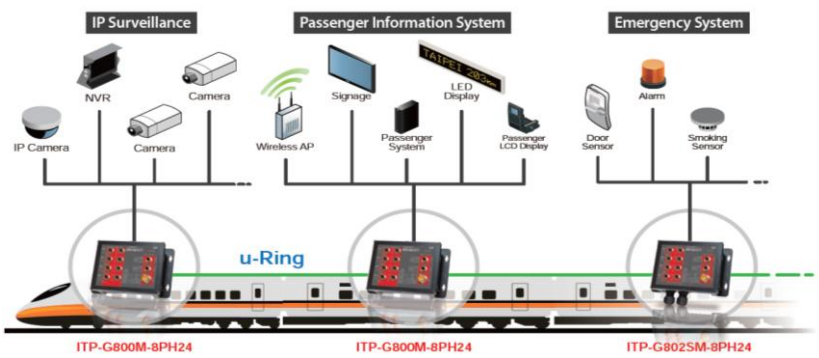


Figure 22: Onboard train application for ITP Series

NOTES: