SUPCON

APL Power Switch

AEP6208-2E2F-S

User Manual

SUPCON TECHNOLOGY CO., LTD.

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Symbol Definition	
	**WARNING:** Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	**RISK OF ELECTRICAL SHOCK:** Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	**ESD HAZARD:** Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	**ATTENTION:** Identifies information that requires special consideration.
	**TIP:** Identifies advice or hints for the user.

Safety& Caution Symbols

The following table lists Safety& Caution symbols used on equipment.

No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chassis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

Table of Contents

APL Power Switch AEP6208-2E2F-S

Section 1 Overview

AEP6208-2E2F-S (hereinafter referred to as "AEP6208") is an APL power switch that connects industrial Ethernet (RJ45/SFP) and APL network. AEP6208 provides two RJ45 ports and two fiber ports that both support redundancy for connecting to the industrial Ethernet. Its 8 APL Trunk ports is used for connecting to APL segments.

AEP6208 acts as an E-Bus node in SUPCON control system or as a common APL power switch.

AEP6208 is powered by redundant 48 VDC and feeds 57.5 W for each APL Trunk port.

AEP6208 can be mounted on a standard 35mm DIN rail. It is designed specifically for industrial e nvironments with harsh conditions and is used in Zone 2 hazardous areas.

Typical Network Diagram

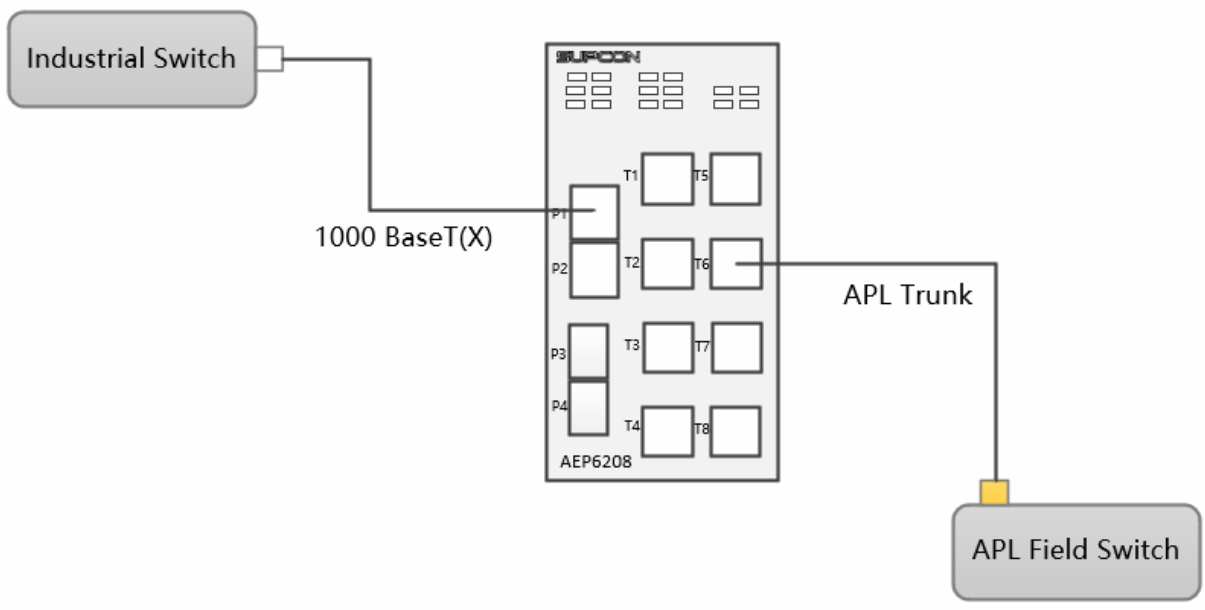


Figure 1-1 Typical network diagram

Section 2 Technical Specifications

Table 2-1 Technical specifications

Item		Description
Ports		8 × APL Trunk 2 × RJ45 2 × SFP[Note 1]
Power supply[Note 2]		48 VDC ± 10% (redundant)
Static power consumption		8 W
APL Trunk	Port class	TP3X (2-wire power source, 48 V/57.5 W)
	Output power capacity	57.5 W/port
	Transfer rate	10 Mbps
	Max. distance	1,000 m (3,280.84 ft)
RJ45 port	Port type	RJ45
	Transfer rate	10/100/1000 Mbps, self-adaptive
	Max. distance	100 m (328.08 ft)
SFP slot	Slot type	SFP
	Transfer rate	100 Mbps
Ambient temperature		–40 to +70 °C
Relative humidity		5%–95%, non-condensing
Anti-corrosion		G3 (ANSI/ISA S71.04)
Ex marking		Ex ec IIC T4 Gc
Mounting		DIN rail
Dimensions (W × H × D)		75 mm × 148 mm × 144 mm (2.95" × 5.83" × 5.67")

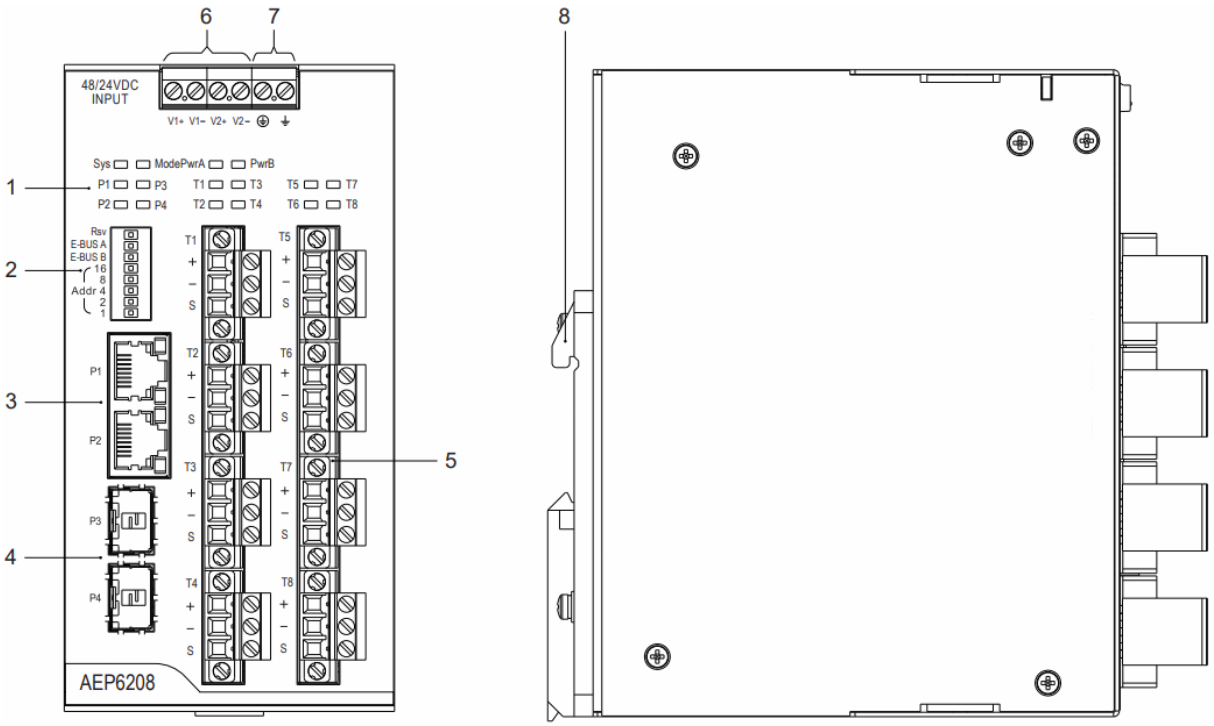
Note 1: SFP module is not included in AEP6208 and should be purchased separately.

Note 2: AEP6208 can also work at a rated voltage of 24 VDC. However, at this time, the maximum distribution power of APL Trunk to external devices is only 28.8W/port, and the number of downstream devices that can be connected will be limited. Therefore, it is recommended to perform accurate power calculations before using 24 VDC power supply and operate with caution.

Section 3 Product Description

3.1 Hardware Structure

The structure of AEP6208 is shown in the figure below



1-LED indicators, 2-DIP switch, 3-RJ45 ports (P1, P2), 4-SFP slots (P3, P4), 5-APL Trunk ports (T1 to T8), 6-Power terminals, 7-Grounding terminals, 8-DIN rail mounting brackets

Figure 3-1 Structure diagram

3.2 DIP Switch

The 8-bit DIP switch is on the front panel of AEP6208 which is used to set the work mode and IP address of AEP6208.

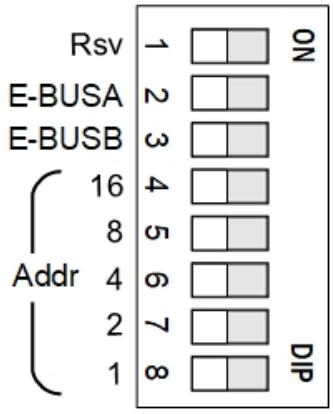


Figure 3-2 DIP switchE-Bus Node Mode

AEP6208 acts as an E-Bus node in SUPCON control system. Set the DIP switch by the following table.

Table 3-1 Configure E-Bus node mode

Mode		DIP-2 (E-BUSA)	DIP-3 (E-BUSB)
E-Bus node mode	E-Bus A	ON	OFF
	E-Bus B	OFF	ON
	Both	ON	ON

3.3 E-Bus node mode

3.3.1 Setting IP Address

In E-Bus node mode, different ports of AEP6208 have different IP addresses.

Table 3-2 IP address of AEP6208 ports in E-Bus node mode

Mode	IP Address		
	T1 to T8	P1/P3	P2/P4
E-Bus A	172.27.(N+4).128 255.255.0.0	172.25.1.2*N 255.255.0.0	
E-Bus B	172.27.(N+4).129 255.255.0.0	172.26.1.(2*N+1) 255.255.0.0	
Both	172.27.(N+4).128 255.255.0.0	172.25.1.2*N 255.255.0.0	172.26.1.2*N 255.255.0.0

In the above table, N is the node address (1 to 31) of AEP6208 on E-Bus network, which can be set by using DIP-4 to DIP-8 (marked by "Addr"). Sum up all the numbers of DIP-4 to DIP-8 that have been switched to ON position. For example, if the DIP-5, -7, and -8 are set to ON, then the E-Bus node address is 11.

3.3.2 Topology

AEP6208 supports star, bus, or ring topology. In a bus or ring topology, one APL Trunk can cascade up to 4 APL field switches whose slot addresses should be set as 0, 1, 2, and 3 respectively.

Star Topology

In a star topology, AEP6208 and APL Trunk are both redundant and the two AEP6208 should connect to E-Bus A and E-Bus B respectively to maximize the reliability.

Attention:

Connect the redundant APL Trunk ports of two AEP6208 with the same APL field switch.

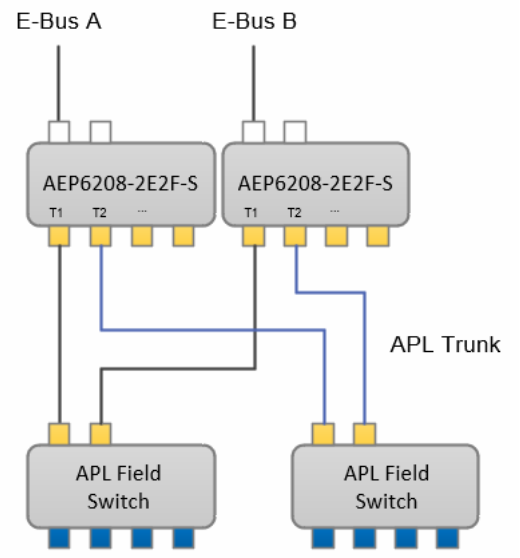


Figure 3-3 Star topology

Ring Topology

In a ring topology, two AEP6208 connect to E-Bus A and E-Bus B respectively as redundant. One APL Trunk can cascade up to 4 APL field switches whose slot addresses should be set as 0, 1, 2, and 3 respectively. All APL field switches share the same redundant APL Trunk, which is a both cost-effective and highly-reliable option.

Attention:

Follow the steps in *AEF6512-2T-S User Manual* to set the jumpers for the cascaded APL field switches.

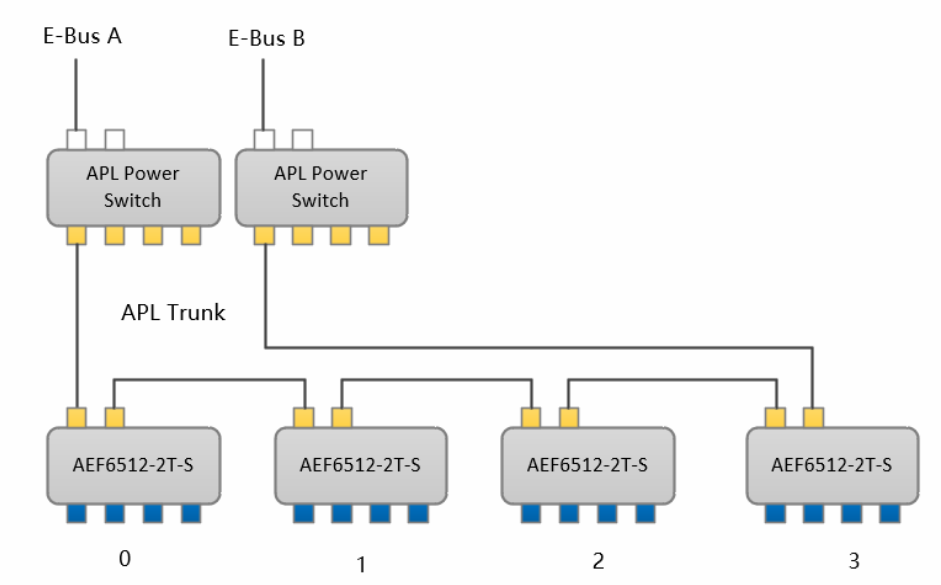


Figure 3-4 Ring topology

Bus Topology

In a bus topology, neither AEP6208 or APL Trunk are redundant. One APL Trunk can cascade up to 4 APL field switches whose slot addresses should be set as 0, 1, 2, and 3 respectively. The AEP6208 connects to E-Bus A and E-Bus B simultaneously, which is a more budget-friendly solution.

Attention:

Follow the steps in *AEF6512-2T-S User Manual* to set the jumpers for the cascaded APL field switches.

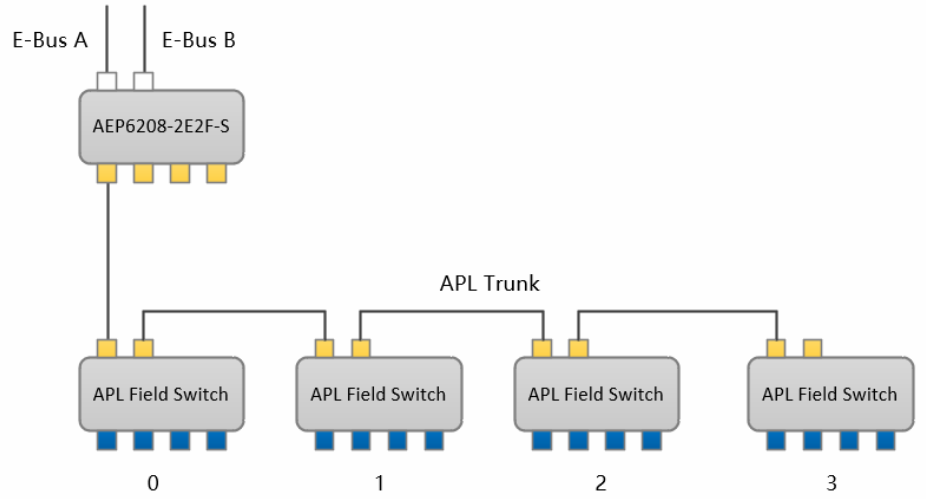


Figure 3-5 Bus topology

3.4 Common Ethernet Switch Mode

In the common Ethernet switch mode, AEF6208 serves as a common switch to communicate among the ports.

Setting DIP Switch

Set the DIP switch by following the table below.

Table 3-3 Configure common Ethernet switch mode

Mode	DIP-2 (E-BUSA)	DIP-3 (E-BUSB)
Common Ethernet switch mode	OFF	OFF

Setting IP Address

In the common Ethernet switch mode, the management IP of AEP6208 is "192.168.1.Y" (Y ranges from 0 to 31 and is set by DIP "Addr").

3.5 Wiring

3.5.1 APL Trunk Terminals

AEP6208 provides 8 terminal blocks (T1–T8) for APL Trunk.

Table 3-1 Terminal wiring

Terminals	Marks	Description
T1-T8	+	APL signal (+)
	-	APL signal (-)
	S	Shield

3.5.2 Power Terminals

Power terminals V1+/- and V2+/- are used to connect redundant 48 VDC.

3.5.3 Grounding

Ground AEP6208 according to the following figure.

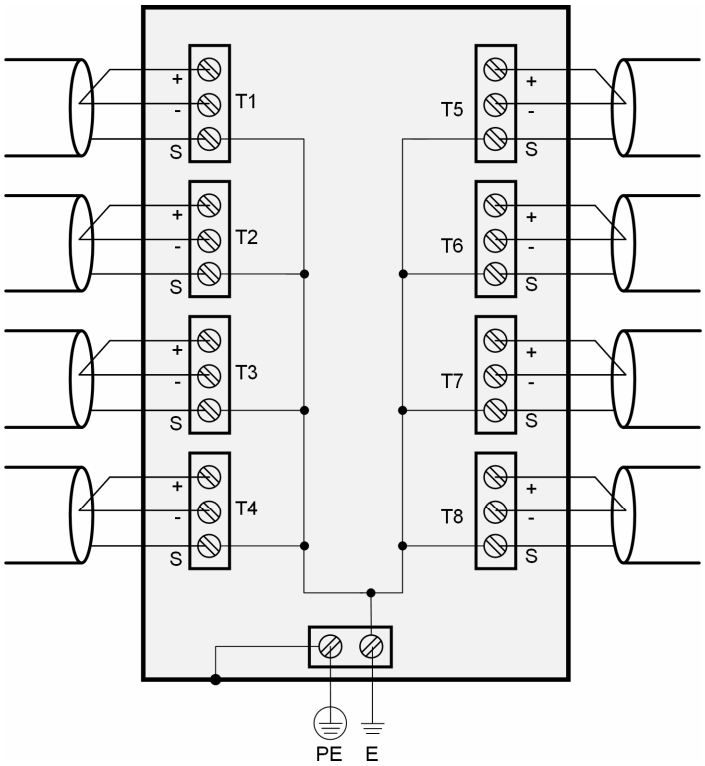


Figure 3-1 Grounding example

3.6 LED Indicators

AEP6208 provides 16 LEDs, including 12 port status LEDs, 2 device status LEDs, and 2 power LEDs. All LEDs are on the top of the front panel.

Table 3-2 LED description

LED	Status	Meaning	Troubleshooting
T1–T8, P1–P4	On	Link established	—
	Off	No link established	—
	Flashing	Link activity	—
Sys	On	Normal	—
	Off	Hardware failure	1. Check whether the power supply is good. 2. If the fault still persists, contact local representatives.

LED	Status	Meaning	Troubleshooting
	Flashing	Pending	1. Check whether the links of copper and fiber ports are good. 2. Check whether the E-Bus communication is normal, such as whether the controller is connected and in communication. 3. Check whether the software configuration is downloaded. 4. Check whether there is E-Bus node address conflict.
Mode	On	In E-Bus node mode	—
	Off	In common Ethernet switch mode	—
PWRA	On	Power supply A is good	—
	Off	Power supply A is bad	1. Check whether the power supply module and power wiring are normal. 2. If the fault still persists, contact local representatives.
PWRB	On	Power supply B is good	—
	Off	Power supply B is bad	1. Check whether the power supply module and power wiring are normal. 2. If the fault still persists, contact local representatives.

Section 4 Dimensions, Mounting and Removal

4.1 Dimensions

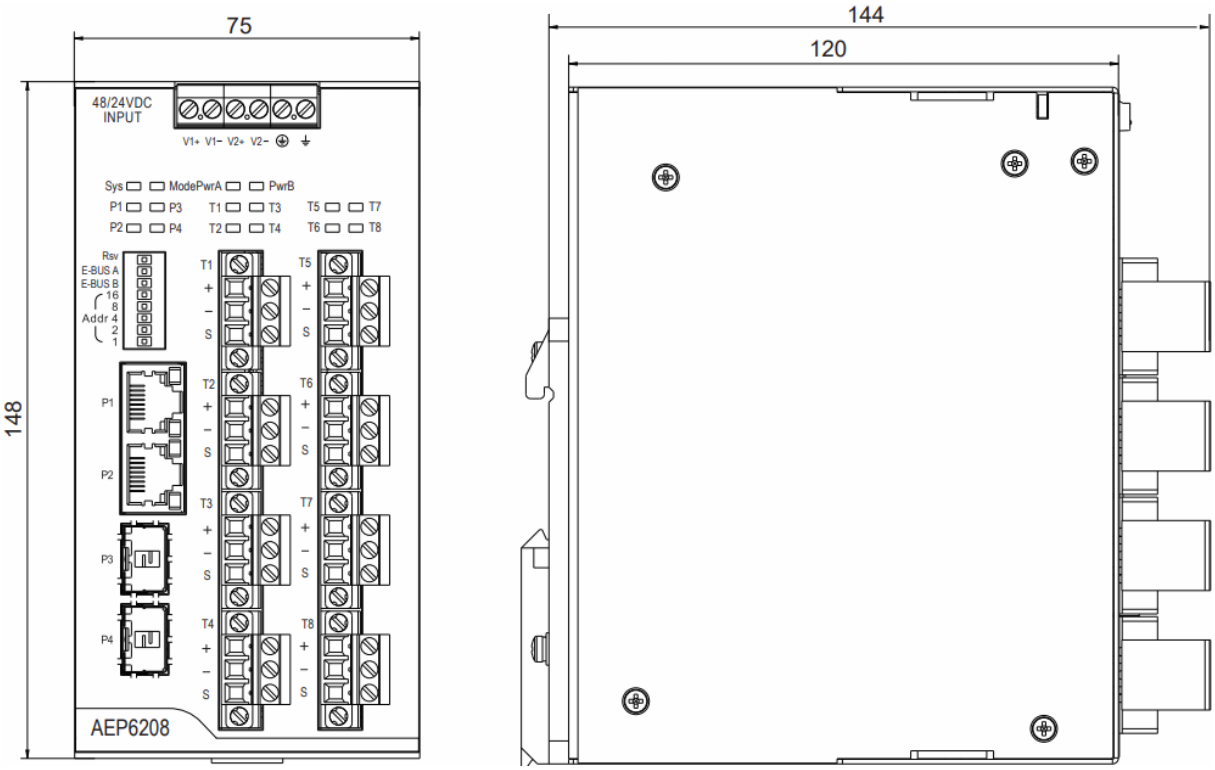


Figure 4-1 Dimensions (unit: mm)

4.2 Mounting

To mount the module to a standard DIN rail:

1. Attach the upper side of the module (with the buckle) to the rail. See 1 in Figure 4-2.
2. With the upper side as the axis, press the module and attach the other side to the rail. See 2 in Figure 4-2.
3. Connect the wires and properly manage them.

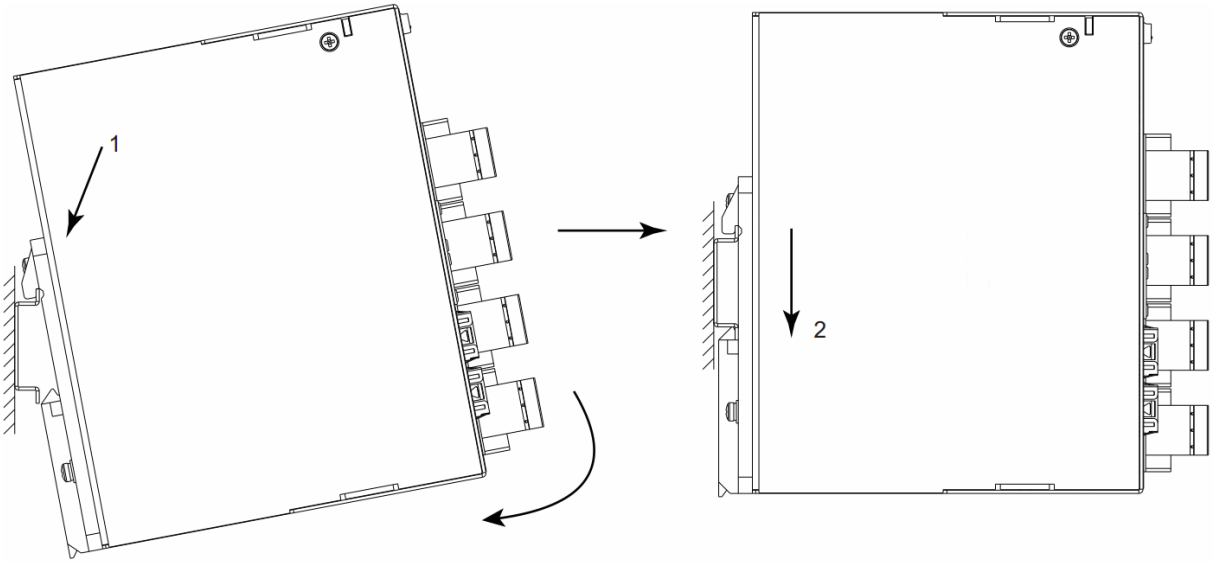


Figure 4-2 Mount the module

4.3 Removal

To remove the module:

1. Align the slotted screwdriver with the buckle. See 1 in Figure 4-3.
2. Push down the slotted screwdriver to free the buckle from the DIN rail. See 2 in Figure 4-3.

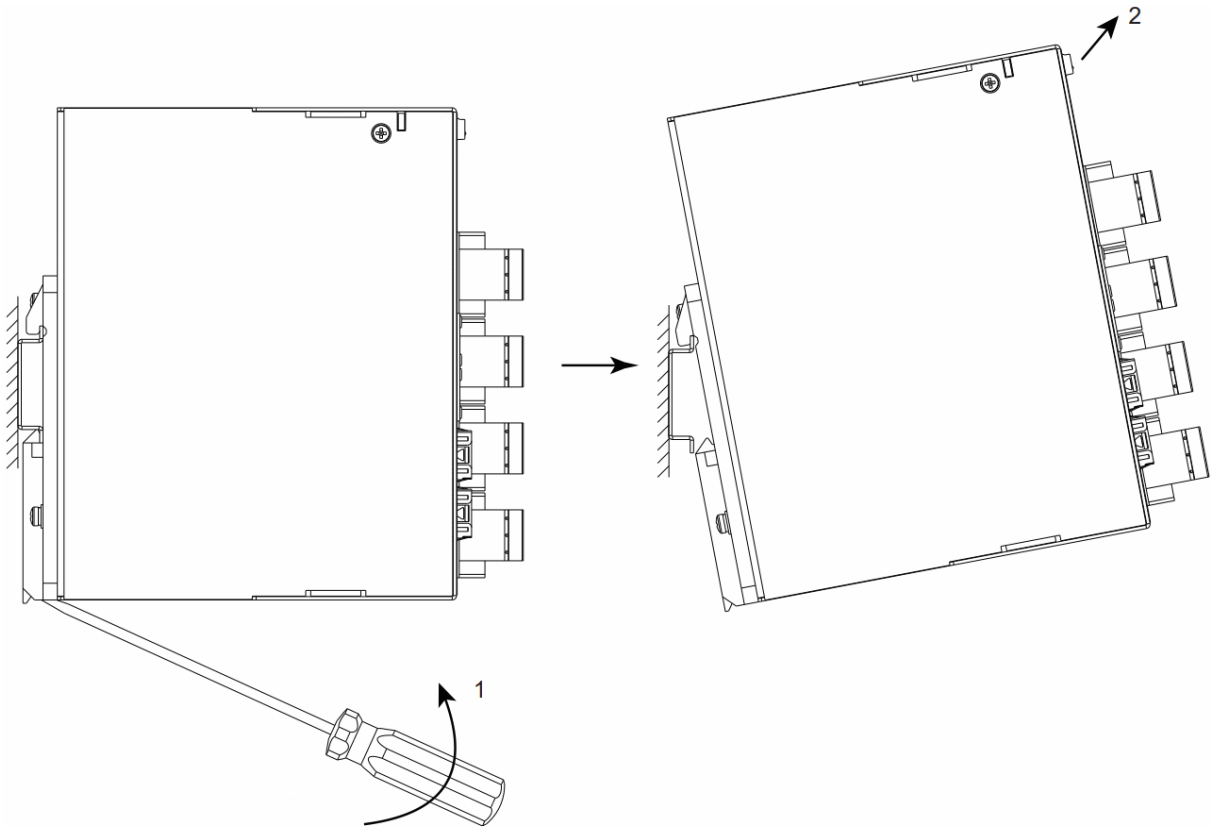


Figure 4-3 Remove the module

Section 5 Principles for Safe Applications

1. The equipment shall only be used in an area of at least pollution degree 2, as defined in lEC 60664-1. See lEC 60079-7, Annex H.2.
2. The equipment shall be installed in an enclosure that provides a minimum ingress protection of lP54 in accordance with lEC 60079-0.
3. Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment. See lEC 60079-7, Annex H.2.
4. The ambient temperature (T_{amb}), as specified in Ex marking, has to be seen as the temperature of the surrounding atmosphere where the equipment is installed.

Section 6 Revision History

Table 6-1 Revision history

Version	Applicable product model	Remarks
V1.0 (20230403)	AEP6208-2E2F-S V10.10.00	First release.
V1.1 (20240905)	AEP6208-2E2F-S V12.12.00 and above	Updated the device appearance. Modified the mounting and removal method.
V1.2 (20250114)	AEP6208-2E2F-S V12.12.00 and above	Updated the overview descriptions.