

# **PT-7728/7828**

## **Quick Installation Guide**

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**Moxa PowerTrans Switch**

**Version 9.2, May 2021**

**Technical Support Contact Information**  
**[www.moxa.com/support](http://www.moxa.com/support)**

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**P/N: 1802077280019**

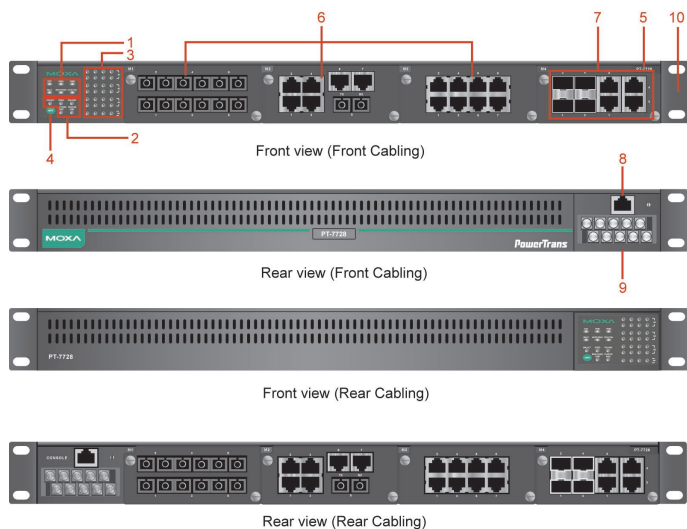


## Package Checklist

The Moxa PowerTrans switch is shipped with the following items. If any of these items are missing or damaged, please contact your customer service representative for assistance.

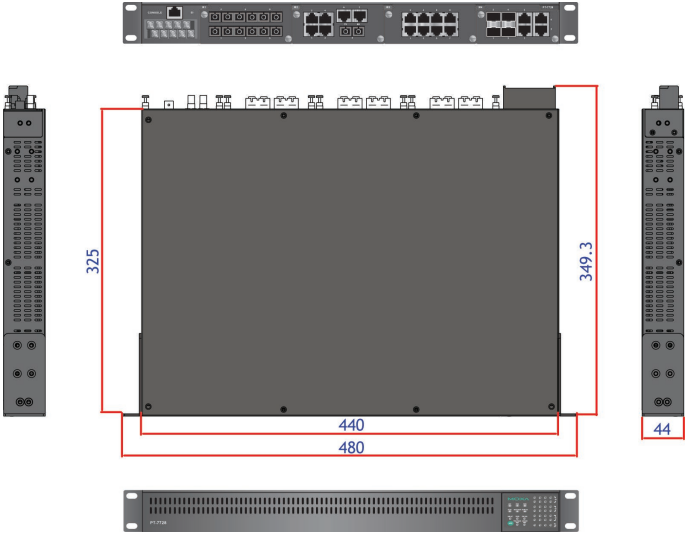
- 1 Moxa PowerTrans Switch
- RJ45 to DB9 console port cable
- Protective caps for unused ports
- 2 rack-mount ears
- Quick installation guide (printed)
- Warranty card

## Panel Layout

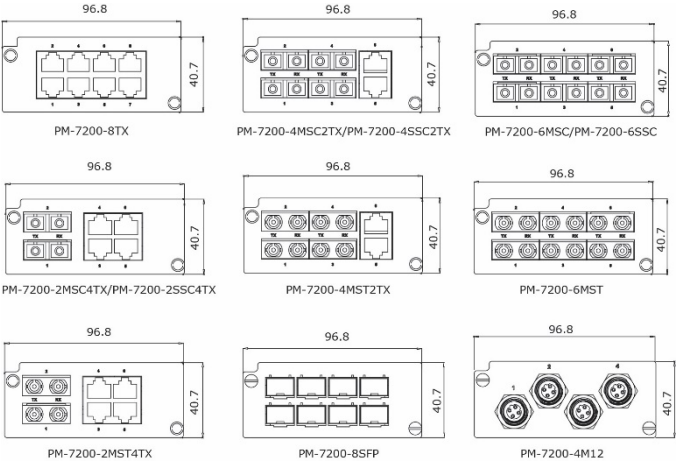


1. System status LEDs
2. Interface Module mode LEDs
3. Interface Module port LEDs
4. Push-button switch to select mode for Interface Module
5. Model Name
6. Fast Ethernet Interface Modules
7. Gigabit Ethernet Interface Modules
8. Serial Console port
9. 10-pin terminal block for power inputs, and relay output
10. Rack Mounting Kit

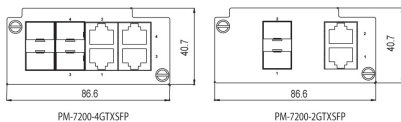
# Dimensions (unit = mm)



## Fast Ethernet Interface Modules (slots 1, 2, and 3)

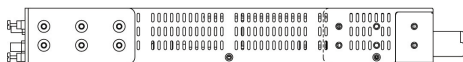


## Gigabit Ethernet Interface Modules (for slot 4)



## Rack Mounting

Use four screws to attach the PT switch to a standard rack.



**NOTE** Two additional rack-mount ears can be ordered as an option. Use them to secure the rear of the chassis in high-vibration environments.

## Wiring Requirements



### WARNING

#### Safety First!

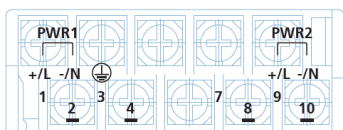
Be sure to disconnect the power cord before installing and/or wiring your Moxa PowerTrans Switch. Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

## Grounding Moxa PowerTrans Switch

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

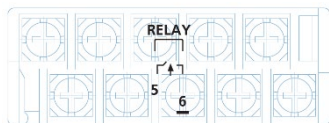
## Wiring the Power Inputs

The PT series of switches supports dual redundant power supplies: "Power Supply 1 (PWR1)" and "Power Supply 2 (PWR2)". The connections for PWR1, PWR2 and the RELAY are located on the terminal block. The front view of the terminal block connectors are shown below.



## Wiring the Relay Contact

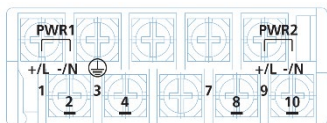
Each PT switch has one relay output. Refer to the next section for detailed instructions on how to connect the wires to the terminal block connector, and how to attach the terminal block connector to the terminal block receptor.



**FAULT:** The relay contact of the 10-pin terminal block connector are used to detect user-configured events. The two wires attached to the RELAY contacts form an open circuit when a user-configured event is triggered. If a user-configured event does not occur, the RELAY circuit will be closed.

## Wiring the Redundant Power Inputs

Each PT switch has two sets of power inputs: power input 1 and power input 2.



**STEP 1:** Insert the dual set positive/negative DC wires into PWR1 and PWR2 terminals (+ → pins 1, 9; - → pins 2, 10). Or insert the L/N AC wires into PWR1 and PWR2 terminals (L → pin 1, 9; N → pin 2, 10)

**STEP 2:** To keep the DC or AC wires from pulling loose, use a screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

**NOTE** 1. The PT switch with dual power supplies uses PWR2 as the first priority power input by default.

## LED Indicators

LED	Color	State	Description
<b>System LEDs</b>			
<b>STAT</b>	GREEN	On	System has passed self-diagnosis test on boot-up and is ready to run.
		Blinking	System is undergoing the self-diagnosis test.
	RED	On	System failed self-diagnosis on boot-up.
<b>PWR1</b>	AMBER	On	Power is being supplied to the main module's power input PWR1.
		Off	Power is not being supplied to the main module's power input PWR1.
<b>PWR2</b>	AMBER	On	Power is being supplied to the main module's power input PWR2.
		Off	Power is not being supplied to the main module's power input PWR2.
<b>FAULT</b>	RED	On	The corresponding PORT alarm is enabled and a user-configured event has been triggered.
		Off	The corresponding PORT alarm is enabled and a user-configured event has not been triggered, or the corresponding PORT alarm is disabled.
<b>MSTR/HEAD</b>	GREEN	On	This PT switch is set as the Master of the Turbo Ring, or as the Head of the Turbo Chain.
		Blinking	The PT switch has become the Ring Master of the Turbo Ring, or the Head of the Turbo Chain, after the Turbo Ring or the Turbo Chain went down.
		Off	The PT switch is not the Master of this Turbo Ring or is set as a Member of the Turbo Chain.
<b>CPLR/TAIL</b>	GREEN	On	The PT switch coupling function is enabled to form a back-up path, or it is set as the Tail of the Turbo Chain.
		Blinking	Turbo Chain is down.
		Off	This PT switch disabled the coupling function, or is set as a Member of the Turbo Chain.

LED	Color	State	Description
<b>Mode LEDs</b>			
<b>LNK/ACT</b>	GREEN	On	The corresponding module port's link is active.
		Blinking	The corresponding module port's data is being transmitted.
		Off	The corresponding module port's link is inactive.
<b>SPEED</b>	GREEN	Off	The corresponding module port's data is being transmitted at 10 Mbps.
		On	The corresponding module port's data is being transmitted at 100 Mbps.
		Blinking	The corresponding module port's data is being transmitted at 1000 Mbps.
<b>FDX/HDX</b>	GREEN	On	The corresponding module port's data is being transmitted in full duplex mode.
		Off	The corresponding module port's data is being transmitted in half duplex mode.
<b>RING/CHAIN PORT</b>	GREEN	On	The corresponding module's port is the ring or chain port of this PT switch.
		Off	The corresponding module's port is not the ring or chain port of this PT switch.
<b>COUPLER PORT</b>	GREEN	On	The corresponding module's port is the coupler port of this PT switch.
		Off	The corresponding module's port is not the coupler port of this PT switch.

## Specifications

<b>Technology</b>	
Standards	IEEE 802.3, 802.3u, 802.3ab, 802.3z, 802.3x, 802.1D, 802.1w, 802.1Q, 802.1p, 802.1X, 802.3ad
Flow control	IEEE 802.3x flow control, back pressure flow control
<b>Interface</b>	
Fast Ethernet	10/100BaseT(X) or 100BaseFX (SC/ST connector or SFP slot)
Gigabit Ethernet	10/100/1000BaseT(X), 1000BaseSX/LX/LHX/ZX (SFP slot, LC connector)
System LED Indicators	STAT, PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL
Module LED Indicators	LNK/ACT, FDX/HDX, SPEED, RING /CHAIN PORT, COUPLER PORT
Alarm Contact	One relay output with current carrying capacity of 3 A @ 30 VDC

<b>Optical Fiber (100BaseFX)</b>	
Distance	Multi-mode: 0 to 5 km, 1300 nm (50/125µm, 800 MHz*km) 0 to 4 km, 1300 nm (62.5/125µm, 500 MHz*km) Single mode: 0 to 40 km, 1310 nm (9/125µm, 3.5 PS/(nm*km)) 0 to 80 km, 1550 nm (9/125µm, 19 PS/(nm*km))
Min. TX Output	Multi-mode: -20 dBm; Single mode: -5 dbm Single-mode 80 km: -5 dBm
Max. TX Output	Multi-mode: -10 dBm; Single mode: 0 dbm Single mode 80 km: 0 dBm
RX Sensitivity	Multi-mode: -32 dBm; Single mode: -34 dbm Single mode 80 km: -34 dBm
<b>Power</b>	
Input Voltage	24 VDC (18 to 36V) or 48 VDC (36 to 72V) or 110/220 VDC/VAC (88 to 300 VDC and 85 to 264 VAC)
Input Current	Max. 2.58 A @ 24 VDC Max. 1.21 A @ 48 VDC Max. 0.64/0.33 A @ 110/220 VDC Max. 0.53/0.28 A @ 110/220 VAC
<b>Physical Characteristics</b>	
Housing	IP 30 protection, metal case
Dimensions (W x H x D)	440 x 44 x 325 mm (17.32 x 1.73 x 12.76 inch)
Weight	5900 g
Installation	19" rack mounting
<b>Regulatory Approvals</b>	
Safety	UL 61010-2-201, EN 61010-2-201
Power Automaton	IEC 61850-3, IEEE 1613
Road Traffic	NEMA TS2
Rail Traffic	EN 50121-4, EN 50155 (complies with a portion of EN 50155 specifications)
EMI	FCC Part 15, CISPR (EN 55032) class A
<b>Environmental Limits</b>	
Operating Temp.	-40 to 75°C (-40 to 167°F) certified by UL 85°C type tested for 16 hours Cold start min. 100 VAC at -40°C
Storage Temp.	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity.	5 to 95% (non-condensing)
<b>WARRANTY</b>	5 years

## Rack Mounting Instructions

- Elevated Operating Ambient:** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.
- Reduced Air Flow:** Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.



3. **Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
5. **Reliable Earthing:** Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

## Restricted Access Locations

- This equipment is intended to be used in Restricted Access Locations, such as a computer room, with access limited to SERVICE PERSONAL or USERS who have been instructed on how to handle the metal chassis of equipment that is so hot that special protection may be needed before touching it. The location should only be accessible with a key or through a security identity system.
- External metal parts of this equipment are extremely hot!! Before touching the equipment, you must take special precautions to protect your hands and body from serious injury.



### ATTENTION

1. This device is only for indoor use and Pollution degree 2.
2. Conductors rated to withstand at least 105°C must be used for the Power Supply Terminal.
3. When wiring the relay contact, digital input and power inputs, we suggest using the cable type - AWG (American Wire Gauge) 16-24 and the corresponding pin type cable terminals. The connector must be able to withstand torque at maximum 5 pound-inches.
4. The equipment has a separate protective earthing terminal on the chassis that must be permanently connected to earth ground to adequately ground the chassis and protect the operator from electrical hazards. To avoid risks of electric shock, do not replace or remove the protective conductor.
5. The IP rating is not part of the safety certification.
6. This device must be installed within a suitable enclosure.
7. The cable that is connected to the field wiring terminals must be able to withstand at least 75°C.

## Responsible Risk

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. The manufacture is not responsible for any accident caused by the scenario mentioned above.

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