

# SE200 Series Switches

User Manual



**B+B** SMARTWORX

Powered by

**ADVANTECH**

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**CONTENTS**

List of Figures.....	4
Declaration Of Conformity.....	5
CE .....	5
FCC CLASS A .....	5
Safety Instructions.....	6
Safety Precaution - Static Electricity.....	6
Product Warranty – Limited Lifetime .....	7
Return Policy.....	8
1. Overview.....	9
1.1 Introduction.....	9
1.1.1 High-Speed Transmissions .....	9
1.1.2 Dual Power Input.....	9
1.1.3 Flexible Mounting .....	9
1.1.4 Advanced Protection .....	9
1.1.5 Standard and Wide Operating Temperature.....	10
1.1.6 Easy Troubleshooting .....	10
1.2 Features .....	10
1.3 Specifications.....	11
1.3.1 SE205, SE205-T and SE208, SE208-T .....	11
1.3.2 SE205-MMSC and SE205-SMSC .....	13
1.4 Packing List .....	14
1.5 Safety Precaution.....	14
2. Installation .....	15
2.1 LED Indicators .....	15

2.2 Dimensions (units: mm).....	16
2.3 Mounting.....	18
2.3.1 Wall mounting.....	18
2.3.2 DIN-rail Mounting.....	19
2.4 Network Connection.....	20
2.5 Power Connection.....	20
3. Troubleshooting.....	21
3.1 Power Input.....	21
3.2 Cable.....	21
3.3 Diagnosing LED Indicators.....	21
5. Advantech B+B Smartworx Technical Support.....	22

## LIST OF FIGURES

Figure 1. Mechanical Diagram - SE205x Copper.....	16
Figure 2. Mechanical Diagram - SE205x Fiber / SE208x Copper.....	17
Figure 3. Wall Mounting.....	18
Figure 4. Din Rail Mounting.....	19
Figure 5. Din rail mounting.....	19
Figure 6. Power connector pin assignment.....	20

**DECLARATION OF CONFORMITY****CE**

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

**FCC CLASS A**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## SAFETY INSTRUCTIONS

1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
  - a) The power cord or plug is damaged.
  - b) Liquid has penetrated into the equipment.
  - c) The equipment has been exposed to moisture.
  - d) The equipment does not work well, or you cannot get it to work according to the user's manual.
  - e) The equipment has been dropped and damaged.
  - f) The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -40C (-40F) OR ABOVE 85C (185F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.**

## SAFETY PRECAUTION - STATIC ELECTRICITY

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

**PRODUCT WARRANTY – LIMITED LIFETIME**

Effective for products of Advantech B+B SmartWorx shipped on or after May 1, 2013, Advantech B+B SmartWorx warrants that each such product shall be free from defects in material and workmanship for its lifetime. This limited lifetime warranty is applicable solely to the original user and is not transferable. Power supplies are exempt from the limited lifetime warranty and are covered by a six year warranty.

This warranty is expressly conditioned upon proper storage, installation, connection, operation and maintenance of products in accordance with their written specifications.

Pursuant to the warranty, within the warranty period, Advantech B+B SmartWorx, at its option will:

1. Replace the product with a functional equivalent;
2. Repair the product; or
3. Provide a partial refund of purchase price based on a depreciated value.

Products of other manufacturers sold by Advantech B+B SmartWorx are not subject to any warranty or indemnity offered by Advantech B+B SmartWorx, but may be subject to the warranties of the other manufacturers.

Notwithstanding the foregoing, under no circumstances shall Advantech B+B SmartWorx have any warranty obligations or any other liability for: (i) any defects resulting from wear and tear, accident, improper use by the buyer or use by any third party except in accordance with the written instructions or advice of the Advantech B+B SmartWorx or the manufacturer of the products, including without limitation surge and overvoltage conditions that exceed specified ratings, (ii) any products which have been adjusted, modified or repaired by any party other than Advantech B+B SmartWorx or (iii) any descriptions, illustrations, figures as to performance, drawings and particulars of weights and dimensions contained in the Advantech B+B SmartWorx' catalogs, price lists, marketing materials or elsewhere since they are merely intended to represent a general idea of the products and do not form part of this price quote and do not constitute a warranty of any kind, whether express or implied, as to any of the Advantech B+B SmartWorx's products.

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**RETURN POLICY**

Eligible items returned within 30 days of purchase qualify for a full refund (less shipping charges). Advantech B+B SmartWorx has the option to accept returns of products 30 days after the date of purchase and such returns are subject to a restocking fee of up to 20%. Software is not returnable if opened. Advantech B+B SmartWorx will not accept returns of products that were modified by a customer. All custom orders are non-returnable and non-cancelable.

**REPAIR SERVICE:** We offer a repair service for our products. Please call, FAX, or e-mail to request a Return Material Authorization (RMA) number and routing instructions. Shipping charges and any duties, taxes or brokerage fees are the customer's responsibility.

**RETURN AND REPAIR CONTACT INFORMATION**

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## 1. OVERVIEW

### 1.1 INTRODUCTION

SE200 series switches are plug and play, unmanaged switches in 5 or 8 port configurations.

Models include SE205, SE208, SE205-T, SE208-T, SE205-MMSC, and SE205-SMSC. The last two models offer a fiber port in Multi-mode or Single-mode fiber.

#### 1.1.1 HIGH-SPEED TRANSMISSIONS

SE200 series switches include a switch controller that can automatically sense transmission speeds (10/100 Mbps). The RJ-45 interface can also be auto-detected, so MDI or MDI-X is automatically selected and a crossover cable is not required. All Ethernet ports have memory buffers that support the store-and-forward mechanism. This assures that data is properly transmitted.

#### 1.1.2 DUAL POWER INPUT

SE200 redundant power input is designed with power reserve protection to prevent the switch device from being damaged by incorrect wiring. When one of power input is incorrect, the P-Fail LED will turn on and send an alarm through a relay output.

#### 1.1.3 FLEXIBLE MOUNTING

SE200 series switches are extremely compact and can be mounted on a DIN-rail or a panel mount. They are suitable for any space-constrained environment.

**SE205, SE205-T:** 30 x 120 x 95 mm (1.18 x 4.72 x 3.74 in)

**SE208, SE208-T:** 30 x 140 x 95 mm (1.18 x 5.51 x 3.74 in)

**SE205-MMSC, SE205-SMSC:** 30 x 140 x 95 mm (1.18 x 5.51 x 3.74 in)

#### 1.1.4 ADVANCED PROTECTION

SE200 series switches support up to 3,000 VDC surge protection for power line, and 4000V ESD for Ethernet ports. They can secure equipment against unregulated voltage and make systems safer and more reliable. Furthermore, SE200 series switches provide currency overload protection with a resettable fuse to ensure that the device component won't be damaged by overload current.

### 1.1.5 STANDARD AND WIDE OPERATING TEMPERATURE

**SE205, SE208, SE205-MMSC and SE205-SMSC:** -10 to 60°C. (14 to 140°F)

**SE205-T and SE208-T:** -40 to 75°C (-40 to 167°F)

You can safely use SE200 series switches in some of the harshest industrial environments.

### 1.1.6 EASY TROUBLESHOOTING

LED indicators make troubleshooting quick and easy. Each 10/100 Base-TX port has 2 LEDs that display the link status/transmission speed and duplex/collision status. The three power indicators, P1, P2 and P-Fail, help you diagnose problems as well.

## 1.2 FEATURES

- IP30 rated metal enclosure
- Slim design with DIN rail and wall mounting (included)
- 10/100 Mbps auto-negotiation
- Full/half duplex flow control to ensure compatibility with legacy devices
- MDI/MDI-X auto crossover
- Broadcast storm protection
- Store and Forward switching
- Redundant power inputs 12 to 48 VDC (10.8 to 52.8 VDC) with power fail relay
- Wide operating temperature support -40 to 75°C (-T models)

#### Copper Models

5 or 8 Fast Ethernet ports with Auto MDI/MDI-X

#### Fiber Models

(4) x 10/100 Mbps RJ45 with either (1) Multi-mode (SE205-MMSC) or (1) Single-mode (SE205-SMSC)

## 1.3 SPECIFICATIONS

### 1.3.1 SE205, SE205-T AND SE208, SE208-T

<b>SE205, SE205-T and SE208, SE208-T</b>	
<b>Communications</b>	
Compatibility	IEEE 802.3, 802.3u, 802.3x
LAN	10/100Base-TX
Transmission Distance	Up to 100 m
Transmission Speed	Up to 100 Mbps
<b>Interface</b>	
Connectors (SE205, SE205-T)	5 x RJ-45 6-pin removable screw terminal (power)
Connectors (SE208, SE208-T)	8 x RJ-45 6-pin removable screw terminal (power)
LED Indicators	Unit: P1, P2, P-Fail TX port: Link/Active, Duplex/Collision
<b>Power</b>	
Current Overload Protection	0.9A@12VDC (25C)
Power Consumption	2.93 W (SE205, SE205-T) 4.71 W (SE208, SE208-T)
Power Input	2 x Unregulated +12 to 48 VDC
Fault Output	1 Relay Output
<b>Mechanical</b>	
Dimensions (WxHxD)	SE205, SE205-T: 30 x 120 x 95 mm (1.18 x 4.72 x 3.74 in) SE208, SE208-T: 30 x 140 x 95 mm (1.18 x 5.51 x 3.74 in)
Enclosure	IP30, Metal shell with solid mounting
Mounting	DIN-rail, Wall
<b>Protection</b>	
ESD (Ethernet)	4000 VDC
Surge (EFT for power)	3000 VDC
Power Reverse	Yes
<b>Environmental</b>	
Operating Temperature	SE205, SE208 Models -10 to 60°C (14 to 140° F) SE205-T, SE208-T Models -40 to 75°C (-40° to 167° F)
Operating Humidity	5% to 95% (non-condensing)
Storage Temperature	-40 to 85°C (-40 to 185° F)
<b>Certifications</b>	

Safety	UL/cUL 60950
EMI	FCC Part 15 Subpart B Class A, EN 55022, Class A
EMS	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

## 1.3.2 SE205-MMSC AND SE205-SMSC

<b>SE205-MMSC and SE205-SMSC</b>	
<b>Communications</b>	
Compatibility	IEEE 802.3, 802.3u, 802.3x
LAN	10/100Base-TX
Transmission Distance	Up to 100 m
Transmission Speed	Up to 100 Mbps
<b>Interface</b>	
Connectors (SE205-MMSC)	4 x RJ-45 1 x 100Base-FX (Multi-Mode, SC type) 6-pin removable screw terminal (power)
Connectors (SE205-SMSC)	4 x RJ-45 1 x 100Base-FX (Single-Mode SC type) 6-pin removable screw terminal (power)
LED Indicators	Unit: P1, P2, P-Fail TX port: Link/Active, Duplex/Collision
<b>Power</b>	
Current Overload Protection	0.9A@12VDC (25C)
Power Consumption	4.2 W
Power Input	2 x Unregulated +12 to 48 VDC
Fault Output	1 Relay Output
<b>Mechanical</b>	
Dimensions (WxHxD)	SE205-MMSC, SE205-SMSC: 30 x 140 x 95 mm (1.18 x 5.51 x 3.74 in)
Enclosure	IP30, Metal shell with solid mounting
Mounting	DIN-rail, Wall
<b>Protection</b>	
ESD (Ethernet)	4000 VDC
Surge (EFT for power)	3000 VDC
Power Reverse	Yes
<b>Environmental</b>	
Operating Temperature	-10 to 60°C (14 to 140° F)
Operating Humidity	5% to 95% (non-condensing)
Storage Temperature	-40 to 85°C (-40 to 185° F)
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Safety	UL/cUL 60950
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EMS	EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8
Shock	IEC 60068-2-27

Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

#### 1.4 PACKING LIST

- 1 x SE200 series Industrial Ethernet Switch
- 2 x Wall Mounting Bracket and Screws
- 1 x DIN-rail Mounting Bracket and Screws
- 1 x DC Jack Cable 2.0/150mm

#### 1.5 SAFETY PRECAUTION

Attention: If DC voltage is supplied by an external circuit, please use a protection device on the power supply input.

**2. INSTALLATION**

**2.1 LED INDICATORS**

LED	Color	Description	
P1	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
P2	Green	On	Power input 2 is active
		Off	Power input 2 is inactive
P-Fail	Red	On	Power input 1 or 2 is inactive
		Off	Power input 1 and 2 are both active, or no power input
Link/Active (1 to 5 or 1 to 8)	Green	On	Connected to network
		Flashing	Networking is active
		Off	Not connected to network
Duplex/Collision (1 to 5 or 1 to 8)	Yellow	On	Ethernet port full duplex
		Flashing	Collision of packets occurs
		Off	Ethernet port half duplex or not connect to network

## 2.2 DIMENSIONS (UNITS: MM)

Units=mm

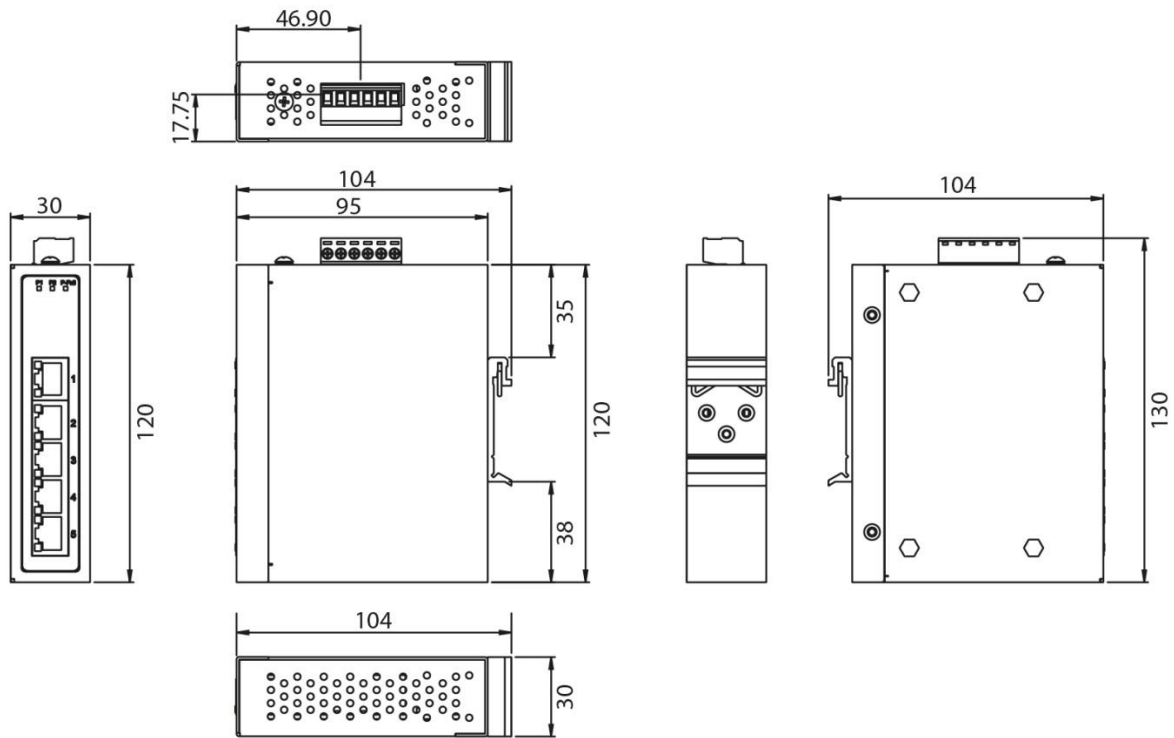


Figure 1. Mechanical Diagram - SE205x Copper



Units=mm

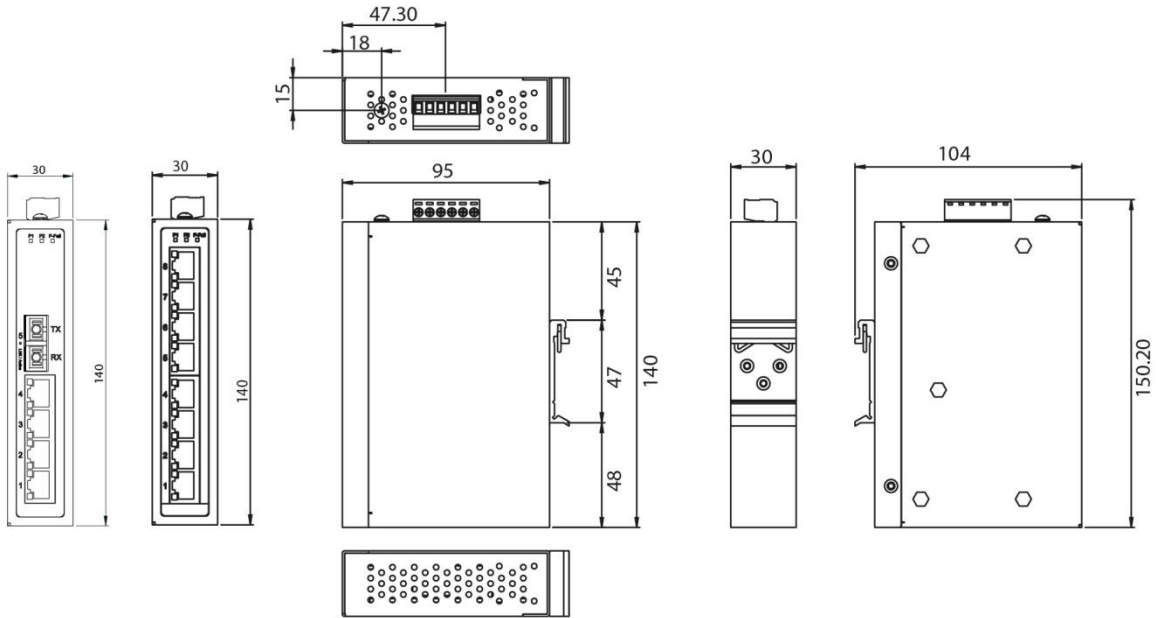
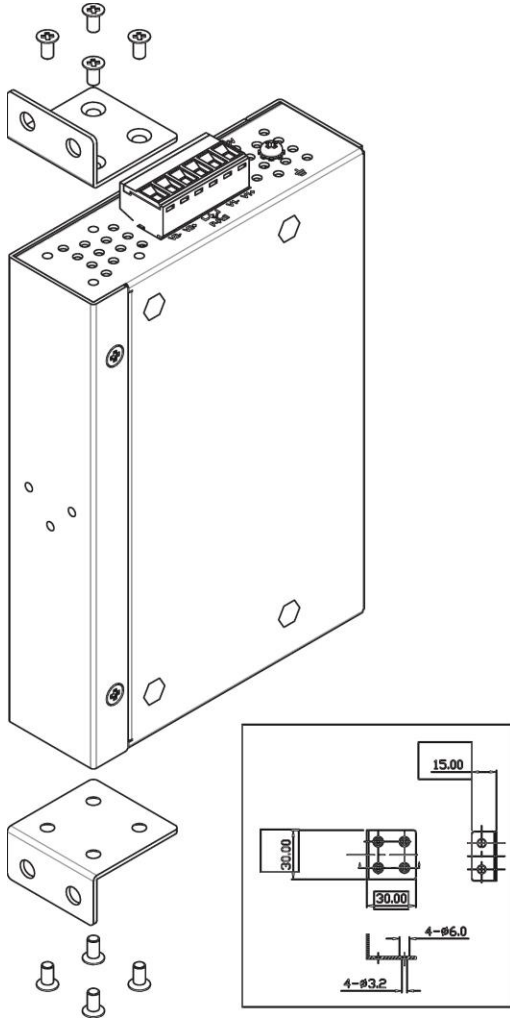


Figure 2. Mechanical Diagram - SE205x Fiber / SE208x Copper

## 2.3 MOUNTING

### 2.3.1 WALL MOUNTING

Use the included screws to connect the metal mounting kit.



**Figure 3. Wall Mounting**

### 2.3.2 DIN-RAIL MOUNTING

Position the SE200 series switch on the top of the DIN-rail at this angle.



**Figure 4. Din Rail Mounting**

Slide the device down and towards the DIN rail until it clicks into place.



**Figure 5. Din rail mounting**

2.4 NETWORK CONNECTION

SE200 series switches support connection to 10 Mbps Ethernet, or 100 Mbps Fast Ethernet, and Half or Full duplex operation. SE200 series switches can be connected to other hubs or switches through a twisted-pair straight through cable or a crossover cable up to 100m long. The connection can be made from any TX copper port of the SE200 series switch (MDI-X) to another hub or switch that supports either MDI-X or uplink MDI port.

SE200 series switches support auto-crossover. You can connect any RJ-45 (MDI-X) station port on the switch to any device, such as a switch, bridge or router.

2.5 POWER CONNECTION

SE200 series switches support dual +12 to 48 VDC power inputs and power-fail relay output.

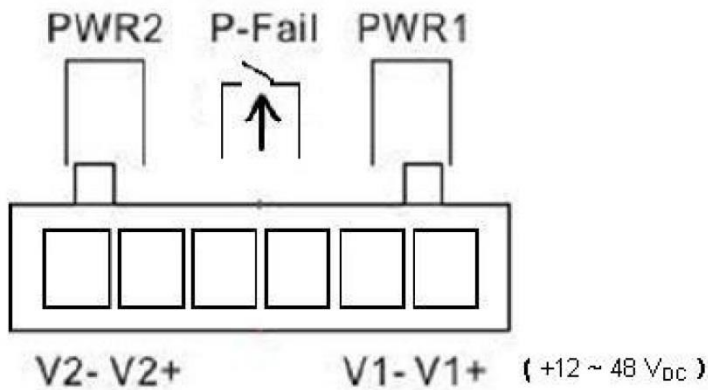


Figure 6. Power connector pin assignment

You can connect an alarm indicator, buzzer or other signaling equipment through the relay output. The relay opens if power input 1 or 2 fails. (“Open” means that the light would be off if you connect the relay output to an LED.)

### 3. TROUBLESHOOTING

#### 3.1 POWER INPUT

Verify that the switch is using the right power cord/adaptor (+12 to 48 VDC). Do not use a power adaptor with DC output voltage higher than 48V, or the switch will be damaged.

#### 3.2 CABLE

Select the proper UTP cable to construct the user network. Use Unshielded Twisted-Pair (UTP) or Shielded Twisted-Pair (STP) cable for RJ-45 connections. Use 100 Category 3, 4 or 5 cable for 10 Mbps connections and 100 Category 5 cable for 100 Mbps connections. Ensure that the length of any twisted-pair connection does not exceed 100 meters (328 feet).

#### 3.3 DIAGNOSING LED INDICATORS

The switch can be easily diagnosed by observing the panel indicators.

If the power indicator does not light up when the power cord is plugged in, there may be a problem with power cord. Check for loose power connections, power losses or surges at the power outlet. If you still cannot resolve the problem, contact your local dealer for assistance.

If the Industrial switch LED indicators are normal and the connected cables are correct, but the packets still cannot pass, please check the configuration or status of your connected Ethernet devices.

**5. ADVANTECH B+B SMARTWORX TECHNICAL SUPPORT**

**Phone:** 1-800-346-3119  
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