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SE400 Series

USER MANUAL



B+B SMARTWORX

Powered by

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DECLARATION OF CONFORMITY

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

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

- Read these safety instructions carefully.
- Keep this user manual for later reference.
- Disconnect this equipment from any AC outlet before cleaning. Use damp cloth. Do not use liquid or spray detergents for cleaning.
- For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
- Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- All cautions and warning on the equipment should be noted.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over voltage.
- Never pour any liquid into an opening. This may cause fire or electrical shock.
- Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- If one of the following situations arises, get the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.

- The equipment has been exposed to moisture.
- The equipment does not work well, or you cannot get it to work according to the user manual
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.
- Instructions for installation in a pollution Degree 2 environment or equivalent statement.
- PoE requirements:
This product was in-door used and not connected to outside plant, so user manual shall have the description as below or equivalent: “The equipment is to be connected only to PoE networks without routing to the outside plant.”
- Do NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -40°C(-40°F) OR ABOVE 75°C(167°F) THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

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.

THE REPAIR OR REPLACEMENT OF THE DEFECTIVE ITEMS IN ACCORDANCE WITH THE EXPRESS WARRANTY SET FORTH ABOVE IS ADVANTECH B+B SMARTWORX SOLE OBLIGATION UNDER THIS WARRANTY. THE WARRANTY CONTAINED IN THIS SECTION SHALL EXTEND TO THE ORIGINAL USER ONLY, IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND ALL SUCH WARRANTIES AND INDEMNITIES ARE EXPRESSLY DISCLAIMED, INCLUDING WITHOUT LIMITATION (I) THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND OF MER-

CHANTABILITY AND (II) ANY WARRANTY THAT THE PRODUCTS ARE DO NOT INFRINGE OR VIOLATE THE INTELLECTUAL PROPERTY RIGHTS OF ANY THIRD PARTY. IN NO EVENT SHALL ADVANTECH B+B SMARTWORX BE LIABLE FOR LOSS OF BUSINESS, LOSS OF USE OR OF DATA INTERRUPTION OF BUSINESS, LOST PROFITS OR GOODWILL OR OTHER SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES. ADVANTECH B+B SMARTWORX SHALL DISREGARD AND NOT BE BOUND BY ANY REPRESENTATIONS, WARRANTIES OR INDEMNITIES MADE BY ANY OTHER PERSON, INCLUDING WITHOUT LIMITATION EMPLOYEES, DISTRIBUTORS, RESELLERS OR DEALERS OF ADVANTECH B+B SMARTWORX WHICH ARE INCONSISTENT WITH THE WARRANTY, SET FORTH ABOVE.

RETURNS 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

Phone: (815) 433-5100 7:00 AM - 7:00 PM CST

Fax: (815) 433-5109

Email: orders@advantech-bb.com

WARNINGS, CAUTIONS AND NOTES

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*



Caution! *Cautions are included to help you avoid damaging hardware or losing data. e.g.*



There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note! *Notes provide optional additional information.*



PRODUCT OVERVIEW

Supported Models

Standard Models:

Table 1: Standard Models

SE408	SEC410-2SFP	SE416
SEC418-2SFP		

Wide Temperature Models:

Table 2: Wide Temperature Models

SE408-EI-T	SE408-PN-T	SE408-PNMA-T
SE408-T	SEC410-2SFP-EI-T	SEC410-2SFP-PN-T
SEC410-2SFP-T	SE416-EI-T	SE416-PN-T
SE416-T	SEC418-2SFP-EI-T	SEC418-2SFP-PN-T
SEC418-2SFP-T		

Specifications

Table 3: Specifications

Specifications	Description	
Interface	I/O Port	<ul style="list-style-type: none"> ■ SE408 series: 8 x 10/100BaseT(X) ■ SE416 series: 16 x 10/100BaseT(X) ■ SEC410 series: 8 x 10/100BaseT(X) + 2 x 10/100Base-T(X) or 100Base-FX SFP ■ SEC418 series: 16 x 10/100BaseT(X) + 2 x 10/100Base-T(X) or 100Base-FX SFP
	Power Connector	6-pin screw Terminal Block (including relay)
Physical	Enclosure	Metal Shell
	Protection Class	IP30
	Installation	DIN-Rail and Wall-Mount
	Dimensions (W x H x D)	<ul style="list-style-type: none"> ■ SE408 series: 43mm x 120mm x 84mm (1.69in x 4.72in x 3.3in) ■ SE416 series: 74mm x 120mm x 84mm (2.91in x 4.72in x 3.3in) ■ SEC410 series: 74mm x 120mm x 84mm (2.91in x 4.72in x 3.3in) ■ SEC418 series: 74mm x 120mm x 84mm (2.91in x 4.72in x 3.3in)
LED Display	System LED	PWR1, PWR2, P-Fail, Loop detection PoE
	Port LED	Link / Speed / Activity

Table 3: Specifications (Continued)

Specifications	Description	
Environment	Operating Temperature	Standard Temperature: -10°C ~ 60°C (14°F ~ 140°F) Wide Temperature: -40°C ~ 75°C (-40°F ~ 167°F)
	Storage Temperature	-40°C ~ 85° C (-40°F ~ 185° F)
	Ambient Relative Humidity	10 ~ 95% (non-condensing)
Switch Properties	MAC Address	8K entries
	Switching Bandwidth	<ul style="list-style-type: none"> ■ SE408 series : 1.6Gbps ■ SE416 series : 3.2Gbps ■ SEC410 series: 5.6Gbps ■ SEC418 series: 7.2Gbps
Power	Power Consumption	<ul style="list-style-type: none"> ■ SE408 series: 5.2 watts ■ SE416 series: 8 watts ■ SEC410 series: 5.8 watts ■ SEC418 series: 8.2 watts
	Power Input	12V ~ 48V (8.4V ~ 52.8V), redundant dual inputs
Certifications	Safety	<ul style="list-style-type: none"> ■ IEC/EN 60950-1, UL508 ■ Class 1 Division 2, IECEx, ATEX
	EMC	CE, FCC
	EMI	EN 55011/ 55022 Class A, EN 61000-6-4, FCC Part 15 Subpart B Class A
	EMS	<ul style="list-style-type: none"> ■ EN 55024/ EN 61000-6-2 ■ EN 61000-4-2 (ESD) Level 3 ■ EN 61000-4-3 (RS) Level 3 ■ EN 61000-4-4 (EFT) Level 3 ■ EN 61000-4-5 (Surge) Level 3 ■ EN 61000-4-6 (CS) Level 3 ■ EN 61000-4-8 (Magnetic Field) Level 3
	Shock	IEC 60068-2-27
	Freefall	IEC 60068-2-32
	Vibration	IEC 60068-2-6

Hardware Views

Front View

The following view applies to SE408 series.

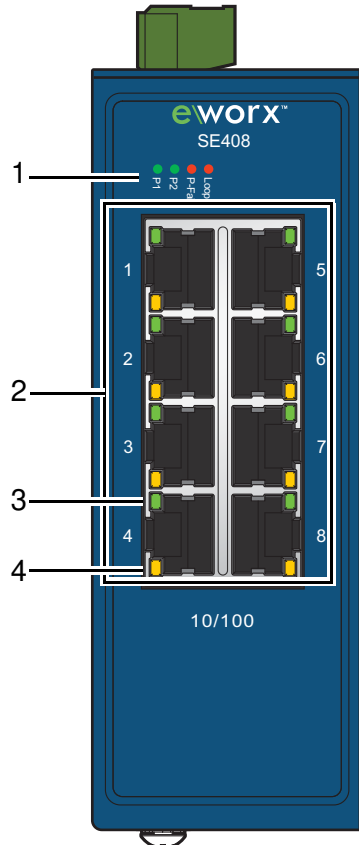


Figure 1: Front View

Table 4: Front View

No.	Item	Description
1	System LED panel	See "System LED Panel" on page 7 for further details.
2	ETH port	Eight 10/100BaseT(X) ports.
3	LNK/ACT LED	Link activity LED.
4	Speed LED	<ul style="list-style-type: none"> ■ Gigabit Ethernet: <ul style="list-style-type: none"> - Green: 1000M - Amber: 100M - Off: 10M ■ Fast Ethernet: <ul style="list-style-type: none"> - Amber: 100M - Off: 10M

The following view applies to SE416 series.

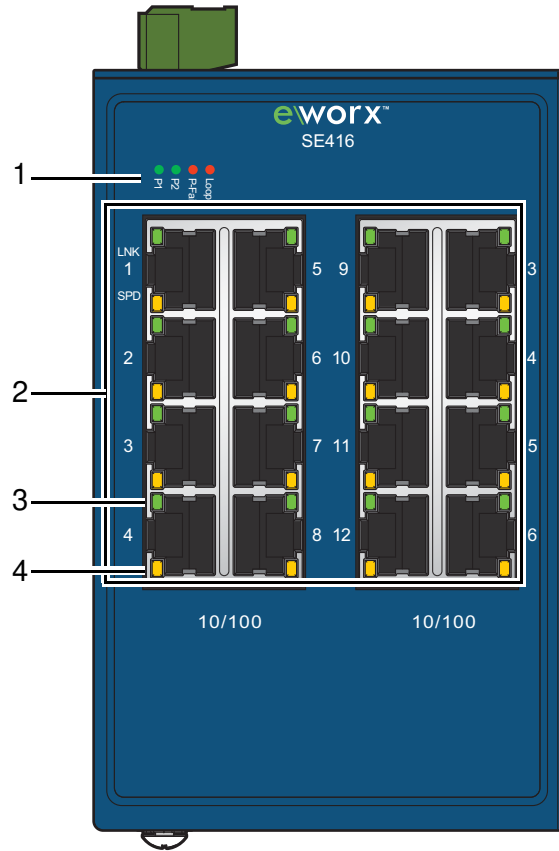


Figure 2: Front View

Table 5: Front View

No.	Item	Description
1	System LED panel	See "System LED Panel" on page 7 for further details.
2	ETH port	Sixteen 10/100BaseT(X) ports.
3	LNK/ACT LED	Link activity LED.
4	Speed LED	<ul style="list-style-type: none"> ■ Fast Ethernet: – Amber: 100M – Off: 10M

The following view applies to SEC410 series.

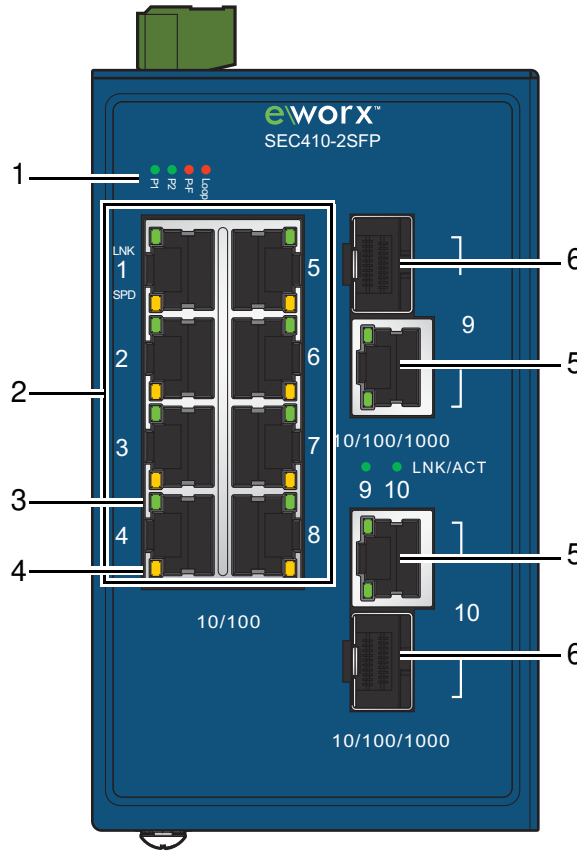


Figure 3: Front View

Table 6: Front View

No.	Item	Description
1	System LED panel	See “System LED Panel” on page 7 for further details.
2	ETH port	Eight 10/100BaseT(X) ports + two 100/1000BaseT(X) combo ports.
3	LNK/ACT LED	Link activity LED.
4	Speed LED	<ul style="list-style-type: none"> ■ Gigabit Ethernet: <ul style="list-style-type: none"> – Green: 1000M – Amber: 100M – Off: 10M
5	ETH port	Two 10/100/1000BaseT(X) ports.
6	ETH port	Two 100/1000Base-FX SFP ports.

The following view applies to SEC418 series.

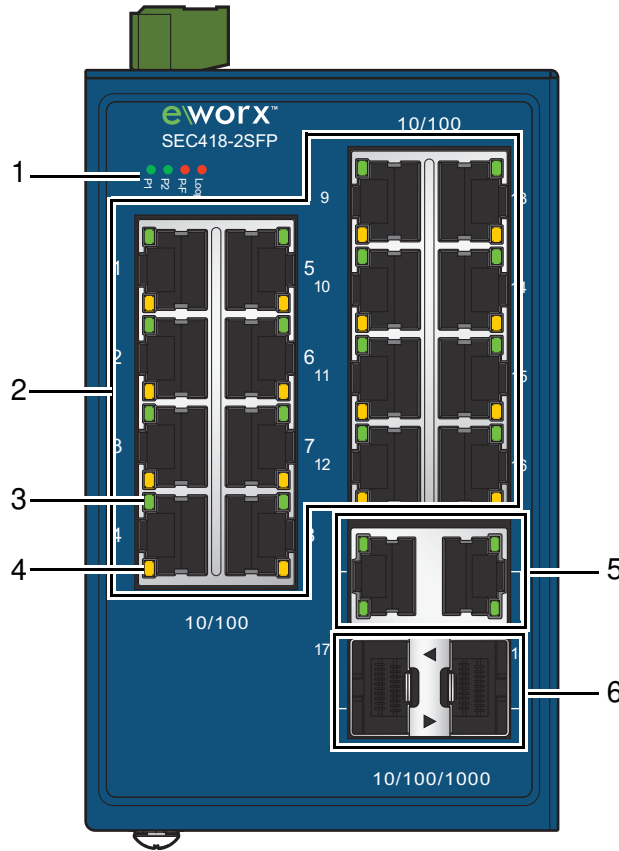


Figure 4: Front View

Table 7: Front View

No.	Item	Description
1	System LED panel	See “System LED Panel” on page 7 for further details.
2	ETH port	Sixteen 10/100BaseT(X) ports + two 100/1000BaseT(X) combo ports.
3	LNK/ACT LED	Link activity LED.
4	Speed LED	<ul style="list-style-type: none"> ■ Gigabit Ethernet: <ul style="list-style-type: none"> – Green: 1000M – Amber: 100M – Off: 10M
5	ETH port	Two 10/100/1000BaseT(X) ports.
6	ETH port	Two 100/1000Base-FX SFP ports.

System LED Panel

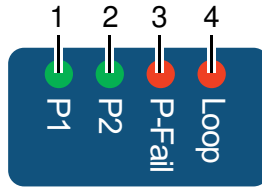


Figure 5: System LED Panel

Table 8: System LED Panel

No.	LED Name	LED Color	Description
1	PW1 LED	Solid green	Powered up.
		Off	Powered down or not installed.
2	PW2 LED	Solid green	Powered up.
		Off	Powered down or not installed.
3	P-Fail	Solid red	When PW1 or PW2 is disconnected, the LED lights.
		Off	When PW1 and PW2 is connected, the LED is off.
4	Loop	Solid red	When loop detected, the LED lights.
		Off	No loop detected.

Rear View

The following view applies to SE408 series.

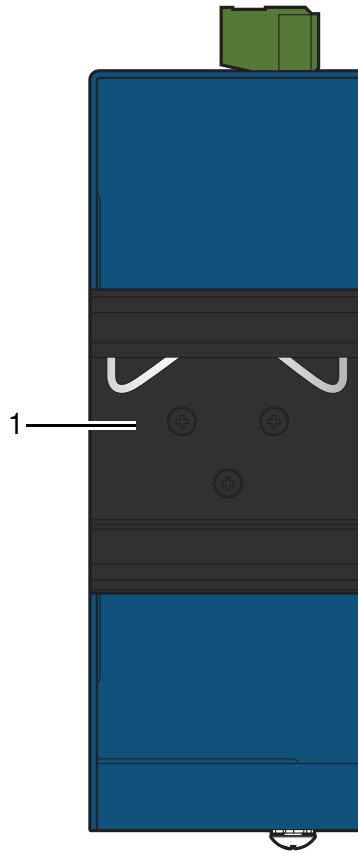


Figure 6: Rear View

Table 9: Rear View

No.	Item	Description
1	DIN-Rail mounting plate	Mounting plate used for the installation to a standard DIN rail.

The following view applies to SE416, SEC410, SEC418 series.

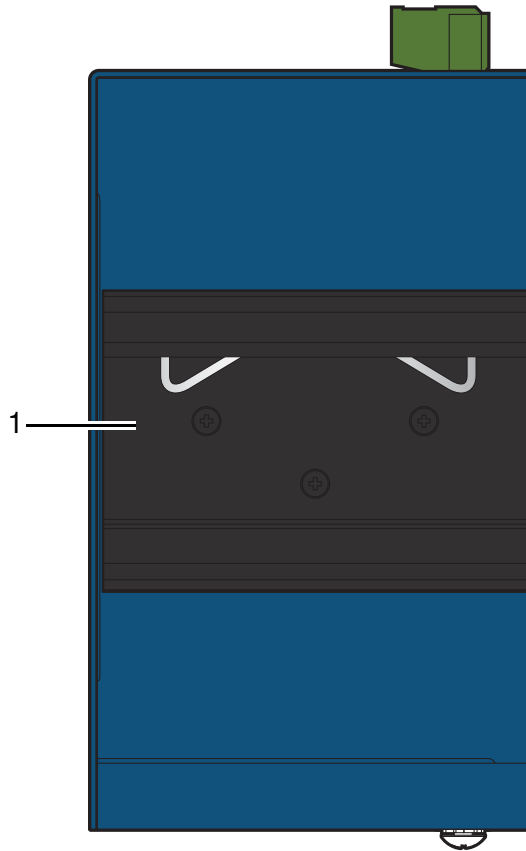


Figure 7: Rear View

Table 10: Rear View

No.	Item	Description
1	DIN-Rail mounting plate	Mounting plate used for the installation to a standard DIN rail.

Top View

The following view applies to SE408 series.

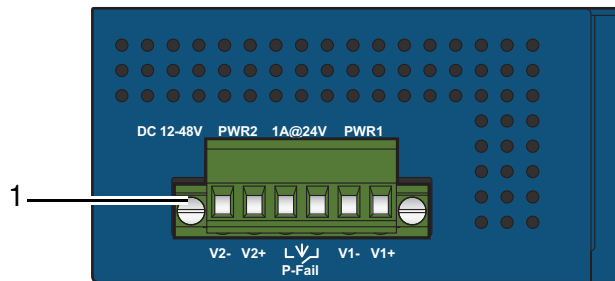


Figure 8: Top View

Table 11: Top View

No.	Item	Description
1	Terminal block	Connect cabling for power and alarm wiring.

The following view applies to SE416, SEC410, SEC418 series.

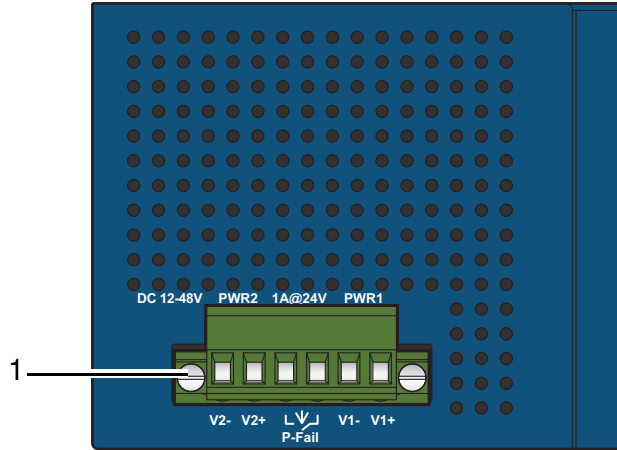


Figure 9: Top View

Table 12: Top View

No.	Item	Description
1	Terminal block	Connect cabling for power and alarm wiring.

Bottom View

The following view applies to SE408 series.

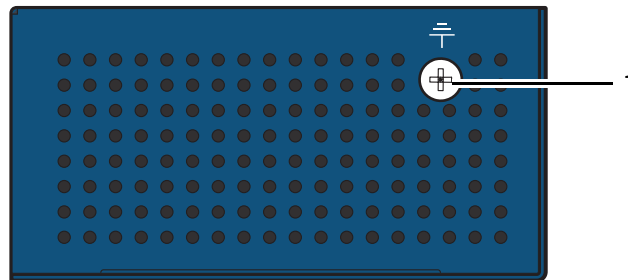


Figure 10: Bottom View

Table 13: Bottom View

No.	Item	Description
1	Ground terminal	Screw terminal used to ground chassis.

The following view applies to SE416, SEC410, SEC418 series.

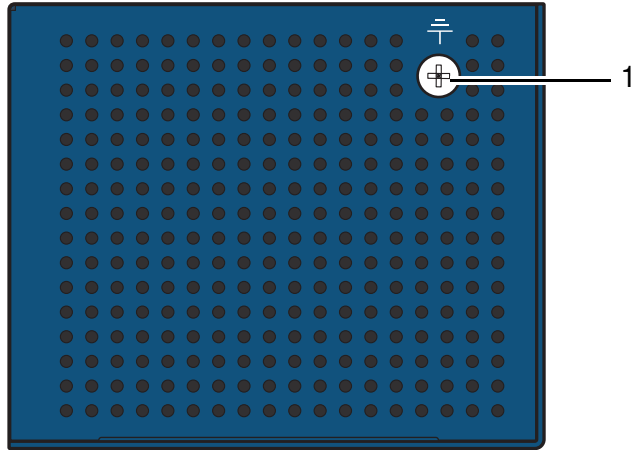


Figure 11: Bottom View

Table 14: Bottom View

No.	Item	Description
1	Ground terminal	Screw terminal used to ground chassis.

SWITCH INSTALLATION

Installation Guidelines

The following guidelines are provided to optimize the device performance. Review the guidelines before installing the device.

- Make sure cabling is away from sources of electrical noise. Radios, power lines, and fluorescent lighting fixtures can interfere with the device performance.
- Make sure the cabling is positioned away from equipment that can damage the cables.
- Operating environment is within the ranges listed range, see “Specifications” on page 1.
- Relative humidity around the switch does not exceed 95 percent (noncondensing).
- Altitude at the installation site is not higher than 10,000 feet.
- In 10/100 fixed port devices, the cable length from the switch to connected devices can not exceed 100 meters (328 feet).
- Make sure airflow around the switch and respective vents is unrestricted. Without proper airflow the switch can overheat. To prevent performance degradation and damage to the switch, make sure there is clearance at the top and bottom and around the exhaust vents.

Connecting Hardware

These instructions will explain how to find a proper location for your Modbus Gateways, how to connect to the network, hook up the power cable, and connect to the SE400 Series.

Verifying Switch Operation

Before installing the device in a rack or on a wall, power on the switch to verify that the switch passes the power-on self-test (POST). To connect the cabling to the power source see “Power Supply Installation” on page 20.

At startup (POST), the System LED blinks green, while the remaining LEDs are a solid green. Once the switch passes POST self-test, the System LED turns green. The other LEDs turn off and return to their operating status. If the switch fails POST, the System LED switches to an amber state.

After a successful self-test, power down the switch and disconnect the power cabling.

The switch is now ready for installation on its final location.