User Manual

EKI-6333AC-M12 Series

EN50155 Industrial M12 Wi-Fi AP

ADVANTECH

Enabling an Intelligent Planet

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Product Warranty (5 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for five years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.

2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.

3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.

4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.

5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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 B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters (7.87 inches) between the radiator and your body.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

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.*

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to: support@advantech.com

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- 1 x WiFi AP
- 4 x Antennas

Safety Instructions

- Read these safety instructions carefully.
- Keep this User Manual for later reference.
- This device is for indoor use only.
- Disconnect this equipment from any DC outlet before cleaning. Use a 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 warnings 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 overvoltage.
- 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's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO -40°C (-40°F) ~ 80°C (176°F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
- The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

  DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Safety Precaution - Static Electricity

Static electricity can cause bodily harm or damage electronic devices. To avoid damage, keep static-sensitive devices in the static-protective packaging until the installation period. The following guidelines are also recommended:

- Wear a grounded wrist or ankle strap and use gloves to prevent direct contact to the device before servicing the device. Avoid nylon gloves or work clothes, which tend to build up a charge.
- Always disconnect the power from the device before servicing it.
- Before plugging a cable into any port, discharge the voltage stored on the cable by touching the electrical contacts to the ground surface.

About the Device

This device is for indoor use only.

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Chapter 1

Introduction

1.1 Overview

EKI-6333AC-M12 Series Industrial Wi-Fi AP is designed for railway applications, including rolling stock. EKI-6333AC-M12 Series support AP/Bridge/Client mode and is designed with dual 2.4GHz/5GHz wireless module, support IEEE 802.11 a/b/g/n/ac concurrent dual band with M12 connector to provide a reliable wireless connectivity for Industrial environments.

EKI-6333AC-M12 Series product has high performance of wireless connectivity for devices in remote locations where cable connections are impractical. EKI-6333AC-M12 Series provides ample bandwidth, even for video application.

1.2 Device Features

- Support 802.11ac MIMO 2T2R
- WLAN transmission rate up to 867 Mbps
- Supports secure access with WEP, 802.1x, WPA/WPA2-Personal, WPA/WPA2-Enterprise
- Provides Web-based configuration
- Support Dual band 2.4G/5G concurrent
- Design with Dual radio module
- Anti-vibration M12 design
- Wide Range Power Input 24/48/72/96/110 V_{DC})

1.3 Specifications

Specifications	Description	
Interface	I/O Port	■ M12 X-Code (EKI-6333ACX) ■ M12 D-Code (EKI-6333ACD)
	Console Port	M12 A-Code female
	USB Port	M12 A-Code female
	Power Connector	M12 A-Code male
Physical	Enclosure	Metal shell with solid mounting kits
	Mounting	Wall
	Dimensions (W x H x D)	186 x 50.1 x 104.8 mm (7.32" x 1.97" x 4.13")
	Weight	0.5 Kg (1.1 lbs)
LED Display	System LED	Power 1, Power 2, Status, Alarm
	Port LED	■ WLAN: Quality ■ LAN: Link/Active
Environment	Operating Temperature	-40°C ~ 75°C (-40°F ~ 166°F)
	Storage Temperature	-40°C ~ 80°C (-40°F ~ 176°F)
	Ambient Relative Humidity	10 ~ 95% RH

Specifications	Description	
Wireless LAN Communications	Compatibility	IEEE 802.11a/b/g/n/ac
	Speed	Up to 867 Mbps
	Antenna	4 (supports 2T2R)
	Free Space Range	Open space 100 m
	Wireless Security	Open System, Shared Key, Legacy 8021X, WPA/WPA2, WPA-PSK (TKIP), WPA2-PSK (AES)
Ethernet Communications	Compatibility	IEEE 802.11a/b/g/n/ac
	Speed	■ 100/1000 Mbps EKI-6333ACX) ■ 10/100 Mbps (EKI-6333ACD)
Power	Power Consumption	LV Model: 12W HV Model: 18W
	Power Input	24/48V_{DC} (LV model), 72/96/110V_{DC} (HV model)
Software	Operation Modes	Access Point/Bridge/Client mode
	Management	Web UI
Regulatory Approvals	EMC	CE, FCC Part 15 Subpart B (Class B)
	Rail Traffic	EN 50155

1.4 Dimensions
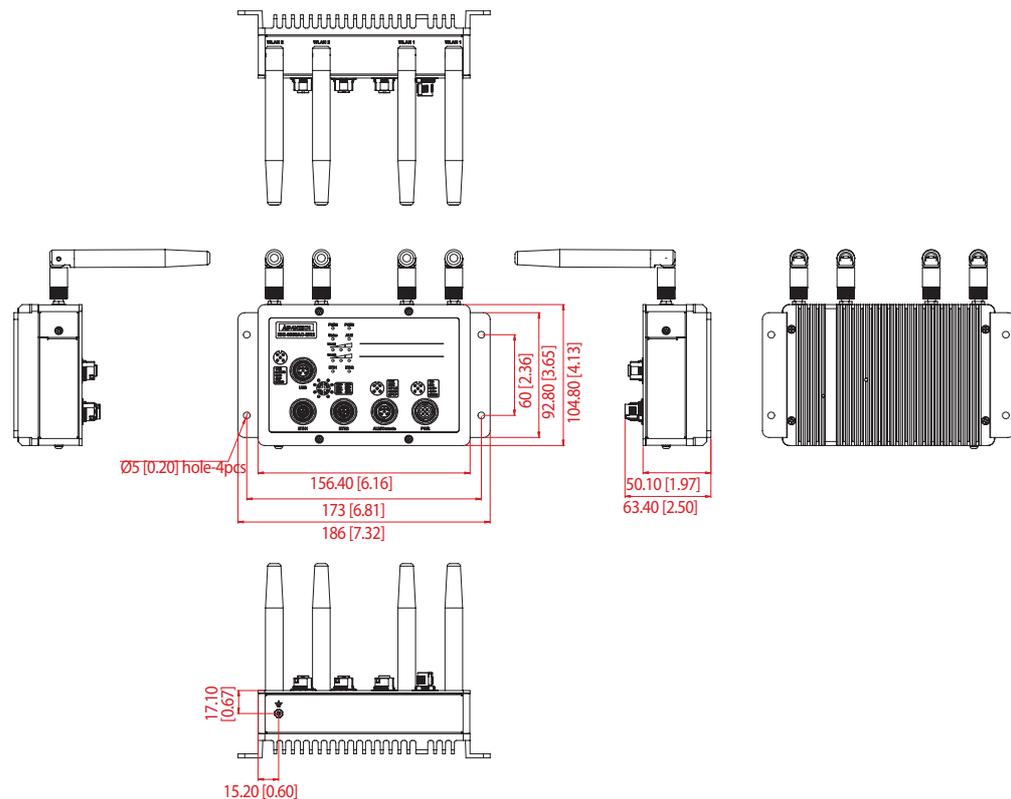
Figure 1.1 Dimensions

Chapter 2

Getting Started

2.1 Hardware

2.1.1 Front View
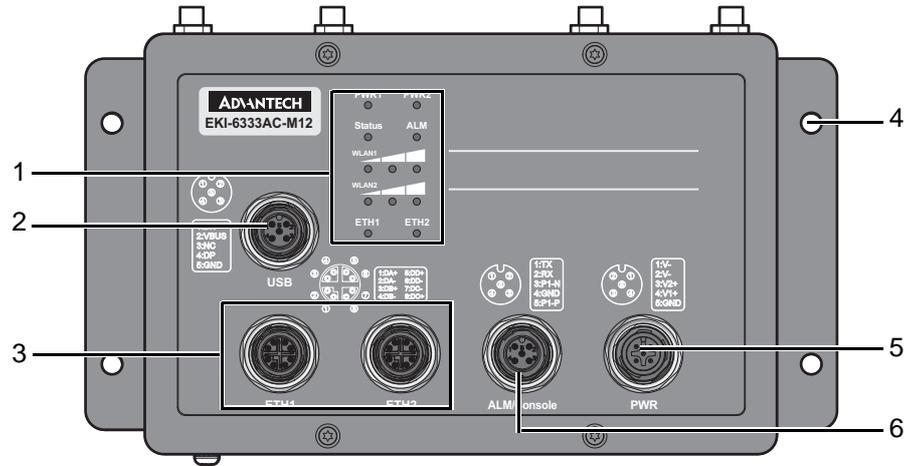
Figure 2.1 Front View

No.	Item	Description
1	System LED panel	See "LED Indicators" on page 6 for further details.
2	USB port	M12 5-pin (female) port to connect the USB device.
3	ETH ports	ETH ports x 2.
4	Wall mounting holes	Screw holes (x4) used in the installation of a wall mounting plate
5	Power input port	M12 5-pin (male) DC power connector port.
6	ALM/Console port	M12 5-pin (female) port to access the managed switch's software.

2.1.2 Top View
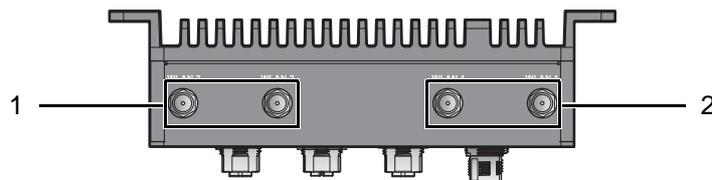
Figure 2.2 Top View

No.	Item	Description
1	Antenna connectors	Connectors for WLAN2 antennas.
2	Antenna connectors	Connectors for WLAN1 antennas.

2.1.3 Bottom View
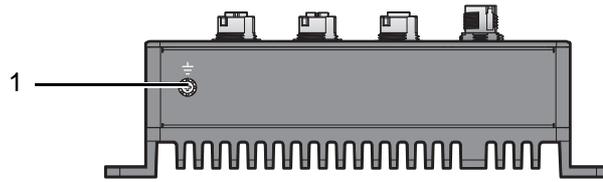
Figure 2.3 Bottom View

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

2.1.4 LED Indicators
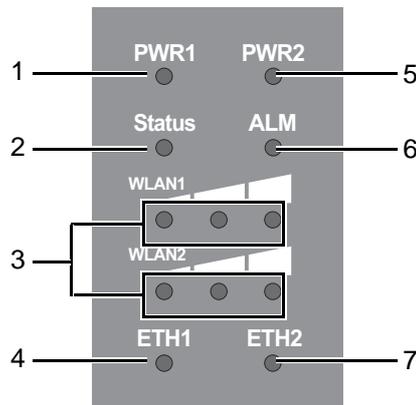
Figure 2.4 System LED Panel

| No.	LED Name	LED Color	Description
1	PWR1	Green	Power 1 is on
		Off	Power 1 is off or power error condition exists
2	Status	Green	System is ready
		Green, blinking	System is booting
		Off	System is not functioning
3	Wireless Signal Strength	Green	AP mode: ■ Enable: LED1 on; LED2, LED3 off ■ Disable: LED1, LED2, LED3 off Client mode: ■ LED1 on: Connect AP successfully 　− RSSI > -50dB: LED2, LED3 on 　− -50dB > RSSI > -60dB: LED2 on, LED3 blinking 　− -60dB > RSSI > -80dB: LED2 on, LED3 off 　− -80dB > RSSI: LED2 blinking, LED3 off
4	ETH1	Green, blinking	Ethernet port 1 is transmitting or receiving data
5	PWR2	Green	Power 2 is on
		Off	Power 2 is off or power error condition exists
6	ALM	Red	Either Power 1 or Power 2 is off
		Off	Power 1, Power 2 are on
7	ETH2	Green, blinking	Ethernet port 2 is transmitting or receiving data

2.2 Connecting Hardware

2.2.1 Wall Mounting

The wall mounting option provides better shock and vibration resistance than the DIN rail vertical mount.

> **Note!** *When installing, make sure to allow for enough space to properly install the cabling.*

Before the device can be mounted on a wall, you will need to remove the DIN rail plate.

1. On the installation site, place the device firmly against the wall. Make sure the device is vertically and horizontally level.
2. Insert a pencil or pen through the screw holes on the mounting bracket to mark the location of the screw holes on the wall.
3. Remove the device from the wall and drill holes over each marked location (4) on the wall, keeping in mind that the holes must accommodate wall sinks in addition to the screws.
4. Insert the wall sinks into the walls.
5. Align the mounting bracket over the screw holes on the wall.
6. Starting with the upper bracket, insert a screw through the bracket and rotate it to secure. Do not tighten at this point. Repeat for the remaining locations, see the following figure.
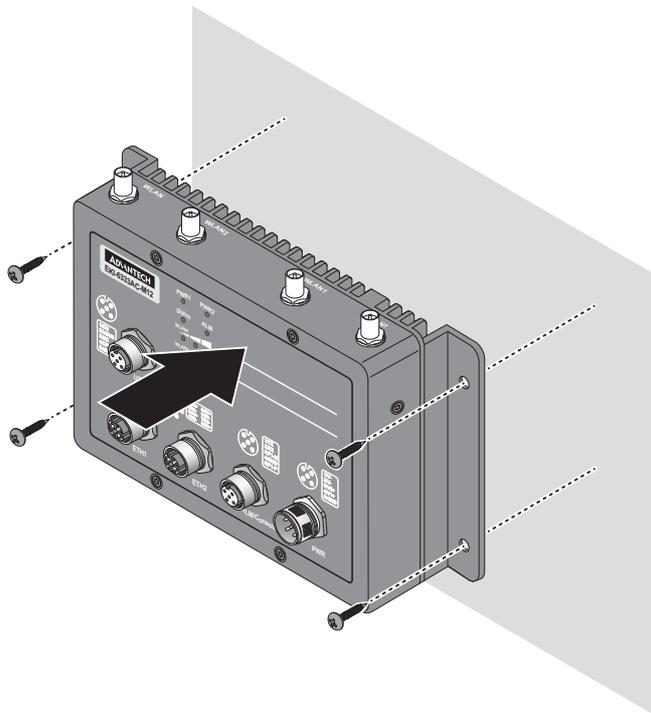
Figure 2.5 Wall Mount Installation

7. Once the device is installed on the wall, tighten the screws to secure the device.

2.2.2 Wireless Connection

1. Connect the antenna by screwing the antenna connectors in a clockwise direction.
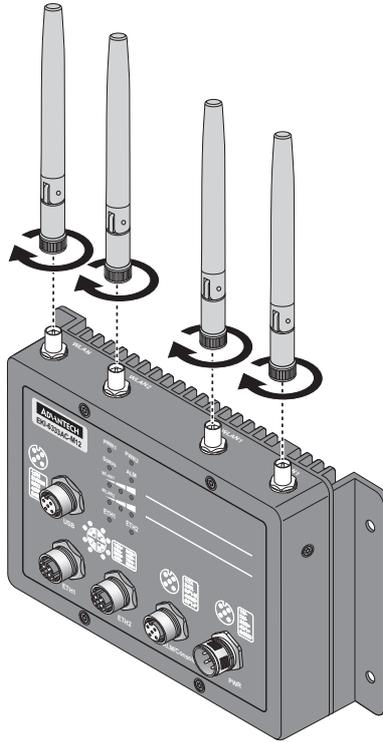
Figure 2.6 Installing the Antenna

2. Position the antenna for optimal signal strength.

> *Note!* *The location and position of the antenna is crucial for effective wireless connectivity*
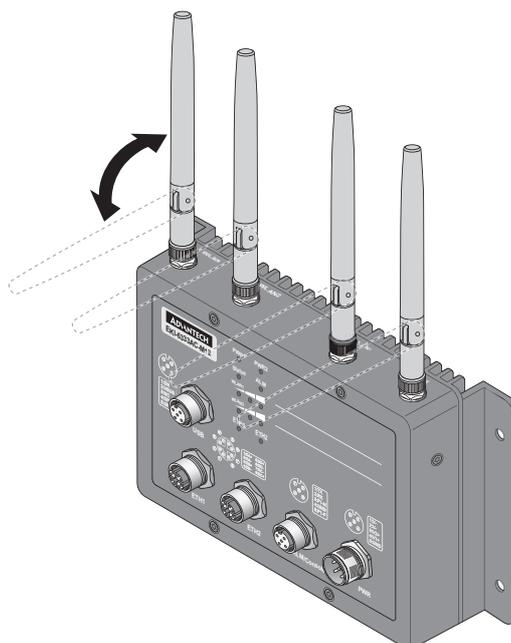
Figure 2.7 Positioning the Antenna

2.2.3 Network Connection

The managed Ethernet models have Gigabit Ethernet ports (8-pin shielded M12 connector with X coding) circular connectors. The 10/100/1000Mbps ports located on the switch's front side are used to connect to Ethernet-enabled devices.

2.2.3.1 M12 X-Coded Connector Pin Assignment
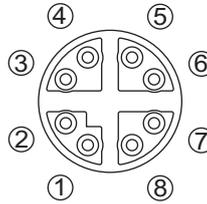
Figure 2.8 M12 X-Coded Connector Pin Assignment

Pin	Description
1	DA+
2	DA-
3	DB+
4	DB-
5	DD+
6	DD-
7	DC-
8	DC+

2.2.4 USB Connection

The managed USB models have Fast USB ports (5-pin shielded M12 connector with A coding) circular connectors. The USB port located on the switch's front side are used to connect to USB-enabled devices.

2.2.4.1 M12 A-Coded Connector Pin Assignment
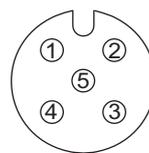
Figure 2.9 M12 A-Coded Connector Pin Assignment

Pin	Description
1	DN
2	VBUS
3	NC
4	DP
5	GND

2.2.5 Console Connection

The console port, used to access the managed switch's software, has an 5-pin M12 (male) port. A console cable with the mating M12 (female) port and both a DB-9 and / or a USB connector is available for purchase from Advantech.

2.2.5.1 M12 A-Coded Connector Pin Assignment
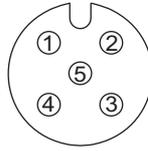
Figure 2.10 M12 A-Coded Connector Pin Assignment

| Pin	Description
1	TX
2	RX
3	P1-N
4	GND
5	P1-P

2.2.6 Power Connection

2.2.6.1 Overview

Warning! Power down and disconnect the power cord before servicing or wiring the device.

Caution! Do not disconnect modules or cabling unless the power is first switched off.

The device only supports the voltage outlined in the type plate. Do not use any other power components except those specifically designated for the device.

Caution! Disconnect the power cord before installation or cable wiring.

The devices can be powered by using the same DC source used to power other devices. A DC voltage range of 24 to 110 V_{DC} must be applied between the V1+ terminal and the V1- terminal (PW1), see the following illustrations. The chassis ground screw terminal should be tied to the panel or chassis ground. A redundant power configuration is supported through a secondary power supply unit to reduce network down time as a result of power loss.

EKI-6333AC-M12 Series support 24 to 110 V_{DC}. Dual power inputs are supported and allow you to connect a backup power source.

Single DC Power

Redundant DC Power
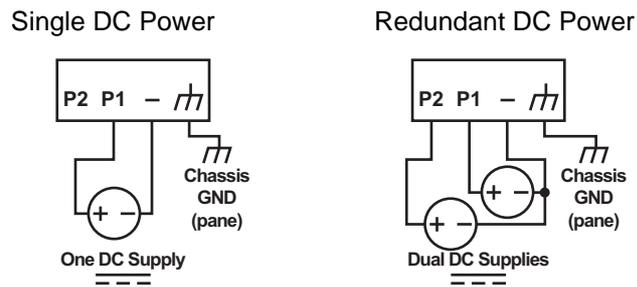
Figure 2.11 Power Wiring for EKI-6333AC-M12 Series

2.2.6.2 Considerations

Take into consideration the following guidelines before wiring the device:

- The Terminal Block (CN1) is suitable for 12-24 AWG (3.31 - 0.205 mm^2). Torque value 7 lb-in.
- The cross sectional area of the earthing conductors shall be at least 3.31 mm^2.
- Calculate the maximum possible current for each power and common wire. Make sure the power draw is within limits of local electrical code regulations.
- For best practices, route wiring for power and devices on separate paths.
- Do not bundle together wiring with similar electrical characteristics.
- Make sure to separate input and output wiring.
- Label all wiring and cabling to the various devices for more effective management and servicing.

> *Note!* *Routing communications and power wiring through the same conduit may cause signal interference. To avoid interference and signal degradation, route power and communications wires through separate conduits.*

2.2.6.3 Grounding the Device

> *Caution!* *Do not disconnect modules or cabling unless the power is first switched off.*
>
> *The device only supports the voltage outlined in the type plate. Do not use any other power components except those specifically designated for the device.*

> *Caution!* *Before connecting the device properly ground the device. Lack of a proper grounding setup may result in a safety risk and could be hazardous.*

> *Caution!* *Do not service equipment or cables during periods of lightning activity.*

Caution! *Do not service any components unless qualified and authorized to do so.*

Caution! *Do not block air ventilation holes.*

Electromagnetic Interference (EMI) affects the transmission performance of a device. By properly grounding the device to earth ground through a drain wire, you can setup the best possible noise immunity and emissions.

Drain Wire with Lug

Connection to Grounding Point
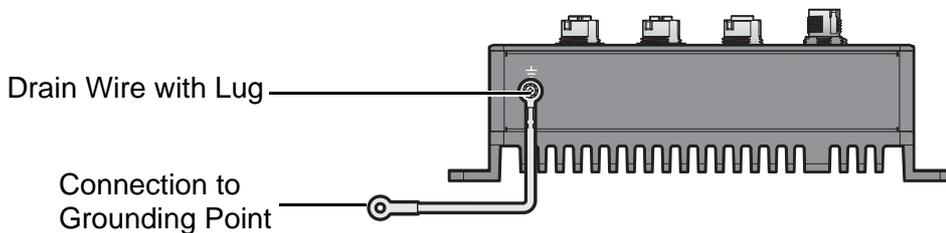
Figure 2.12 Grounding Connection

By connecting the ground terminal by drain wire to earth ground the device and chassis can be ground.

Note! *Before applying power to the grounded device, it is advisable to use a volt meter to ensure there is no voltage difference between the power supply's negative output terminal and the grounding point on the device.*

2.2.6.4 Wiring the Power Inputs

Caution! *Do not disconnect modules or cabling unless the power is first switched off.*

The device only supports the voltage outlined in the type plate. Do not use any other power components except those specifically designated for the device.

Warning! *Power down and disconnect the power cord before servicing or wiring the device.*

To wire the power inputs:

Make sure the power cable is not connected to the switch or the power converter before proceeding.

1. Align the notch on the cable with the protrusion on the connector port. Before inserting the cable, the cable must be aligned to the connector to prevent damage to the pins in the port.
2. Insert the cable and gently push it in. If there is any resistance, remove the cable and re-align it with the connector.
3. Once the cable is fully seated in the port, turn the nut on the cable to secure it to the connector.
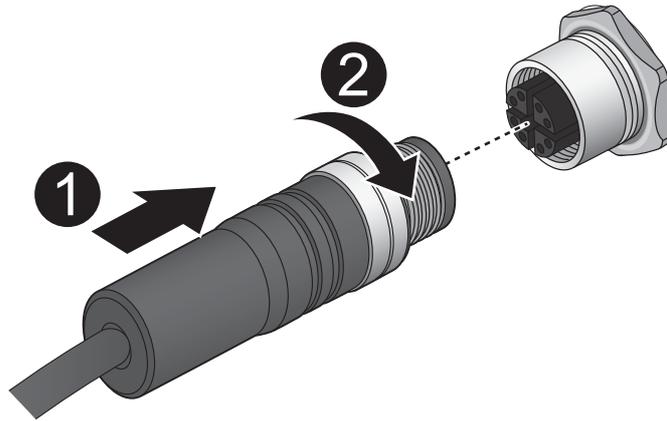
Figure 2.13 Installing the Power Cable

The power input is now connected to the switch. The switch can be powered on.

To remove the power inputs:

Make sure the power is not connected to the device or the power converter before proceeding.

1. Loosen the screws securing the connector to the power cable receptor.
2. Remove the power cable from the device.
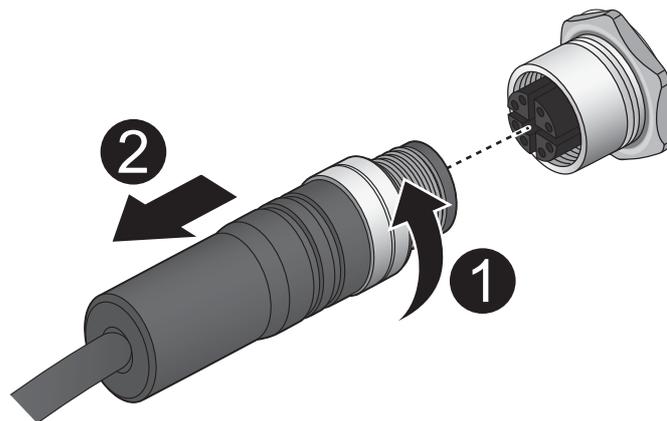
Figure 2.14 Removing the Power Cable

2.2.6.5 Standard M12 5-Pin Female Pin Assignment

This section describes the proper connection of the 24, 48, 72, 96 and 110 V_{DC} to the DC power connector on the switch. The DC input connector is located on the left side of the front panel. The power terminals are connected as shown in the following figure. They are electrically floating inside the unit so that either may be grounded by the user if desired. The chassis is earthened or ground (GND). The mating connection to the switch is created through a RD24, female connector. Simply align the keyed female connector to the male connector and twist the threaded to secure.
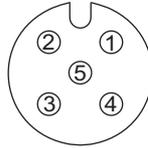
Figure 2.15 Standard M12 5-Pin Female DC Power Input Connector

Pin	Description
1	V1-
2	V2-
3	V2+
4	V1+
5	GND

Chapter 3

Web Interface

3.1 Log In

To access the login window, connect the device to the network, see "Network Connection" on page 9. Once the device is installed and connected, power on the device see the following procedures to log into your device.

When the device is first installed, the default IP is 192.168.1.1. You will need to make sure your network environment supports the device setup before connecting it to the network.

1. Launch your web browser on a computer.
2. In the browser's address bar type in the device's default IP address (192.168.1.1). The login screen displays.
3. Enter the default user name and password (admin/admin) to log into the management interface. You can change the default password after you have successfully logged in.
4. Click **Login** to enter the management interface.

Figure 3.1 Login Screen

Note!   *Screen may differ depending on Web browsers.*

3.1.1 Changing Default Password

The HTTP page allows you to configure the WiFi AP login details.

1. Log in to the user interface menu, see "Basic" on page 20.
2. Navigate to **Home** > **Administration** > **HTTP**. The HTTP configuration page displays.
3. Enter the username of the profile to change (currently logged in user displays), then enter the new password under the **Password** field.
4. Re-type the same password in the **Confirm Password** field.
5. Click **Apply** to change the current account settings.

Figure 3.2 Administration > HTTP

3.2 Overview

To access this page, click **Overview**.

Figure 3.3 Overview

The following table describes the items in the previous figure.

Item	Description
System Info	
Firmware Version	Displays the current firmware version of the device.
Local Hostname	Displays the current local hostname of the device.
System Time	Displays the current date of the device.
System Up Time	Displays the time since the last device reboot.
System Platform	Displays the model name of the device.
Local Network	
Local IP Address	Displays the assigned IP address of the device.
Local Netmask	Displays the assigned netmask of the device.
MAC Address	Displays the MAC address of the device.
System Status	
Memory Utilization	Displays the total memory utilization in terms of percentage.
CPU Utilization	Displays the total CPU utilization in terms of percentage.

3.3 Network Settings

3.3.1 LAN

To access this page, click **Network Settings** > **LAN**.

Figure 3.4 Network Settings > LAN

The following table describes the items in the previous figure.

| Item	Description
Local Hostname	Enter the device name: up to 31 alphanumeric characters.
Network mode	Click the drop-down menu to select the IP Address Setting mode: Static or DHCP client.
IP Address	Enter a value to specify the IP address of the interface. The default is 192.168.1.1.
Subnet Mask	Enter a value to specify the IP subnet mask for the interface. The default is 255.255.255.0.
Default Gateway	Enter a value to specify the default gateway for the interface.
Primary DNS Server	Enter a value to specify the primary DNS server for the interface.
Secondary DNS Server	Enter a value to specify the secondary DNS server for the interface.
MAC Address	Display the MAC address to which packets are statically forwarded.
DHCP Server	Select **Enabled** or **Disabled** to designate the DHCP server function type. When a new DHCP server mode is selected, the switch requires a system restart for the new mode to take effect.
Start IP Address	Enter starting a IP address for the IP assignment.
Pool Counter	Enter a variable to define the number of IP addresses for a given network.
Leasetime	Enter in the value designating the lease time for the DHCP server.
Submit	Click **Submit** to save the values and update the screen.

Note! *All new configurations will take effect after rebooting. To reboot the device, click **Administration** > **Tools** > **Reboot**.*

3.4 Wireless Settings

3.4.1 Operation Mode

To access this page, click **Wireless Settings** > **Operation Mode**
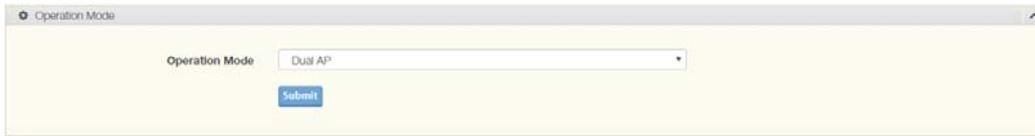
Figure 3.5 Wireless Settings > Operation Mode

The following table describes the items in the previous figure.

Item	Description
Operation Mode	Click the drop-down menu to select an operation mode.
Submit	Click **Submit** to save the values and update the screen.

3.4.2 WLAN

3.4.2.1 Basic

To access this page, click **Wireless Settings** > **WLAN** > **Basic**.
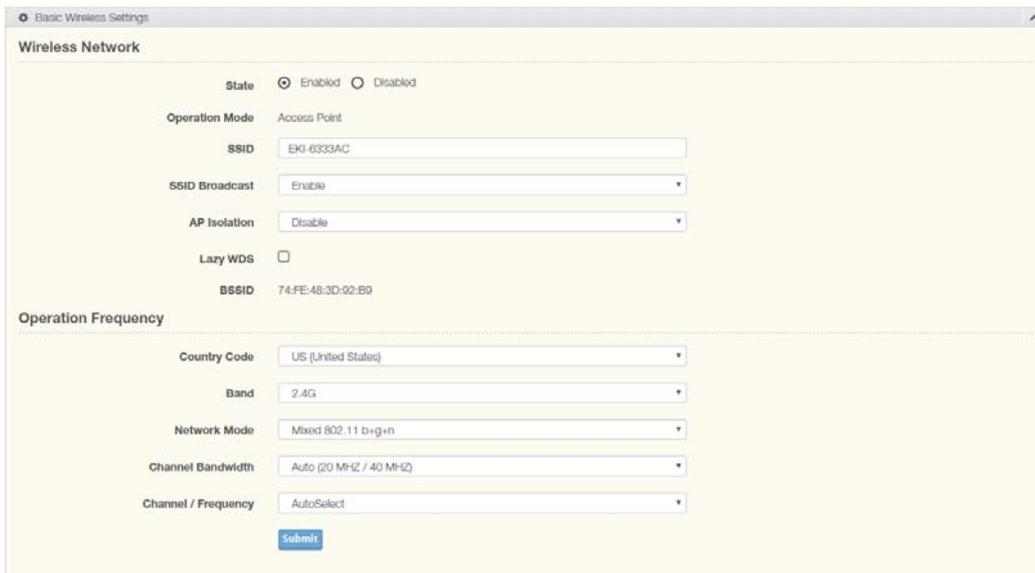
Figure 3.6 Wireless Settings > WLAN > Basic

The following table describes the items in the previous figure.

Item	Description
Wireless Network	
State	Select **Enabled** or **Disabled** to set the WLAN state.
Operation Mode	Supports three modes, Operation Mode (default), Bridge and Client mode.
SSID	Enter the name to distinguish it from other networks in your neighborhood.
SSID Broadcast	Click the drop-down menu to enable or disable the SSID broadcast function.
AP Isolation	Click the drop-down menu to enable or disable the AP Isolation function.

Item	Description
Lazy WDS	Click the checkbox to enable the lazy WDS function.
BSSID	Display the MAC address of the device.
Operation Frequency	
Country Code	Click the drop-down menu to select the country code to specify different selectable channels. Some specific channels and/or operational frequency bands are country dependent.
Band	Click the drop-down menu to select the band channel.
Network Mode	Click the drop-down menu to select the network mode.
Channel Bandwidth	Click the drop-down menu to select the band and channel bandwidth.
Channel / Frequency	Select the 2.4 or 5G wireless frequency to the least congested channel. The available settings on a 2.4G setting are 2.412 GHz to 2.484 GHz. For 5G, the available settings are 5.18 GHz to 5.825 GHz. The function is only enabled when Operation Mode is set to Access Point.
Submit	Click **Submit** to save the values and update the screen.

3.4.2.2 Advanced

To access this page, click **Wireless Settings** > **WLAN** > **Advanced**.
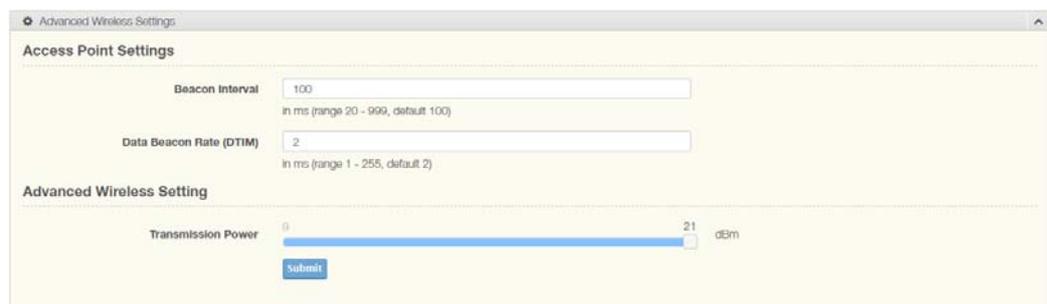
Figure 3.7 Wireless Settings > WLAN > Advanced

The following table describes the items in the previous figure.

Item	Description
Access Point Settings	
Beacon Interval	Enter a value (20-999) to specify the frequency interval to broadcast packets.
Data Beacon Rate (DTIM)	DTIM, which stands for Delivery Traffic Indication Message, is contained in the data packets. It is for enhancing the wireless transmission efficiency. The default is set to 2. Enter a value between 1 and 255.
Advanced Wireless Setting	
Transmission Power	Use the scroll bar to set the transmission power of the WiFi. By default the AP transmits at full power: Full, Half, Quarter.
Submit	Click **Submit** to save the values and update the screen.

3.4.2.3 Security

To access this page, click **Wireless Settings** > **WLAN** > **Security**.

Figure 3.8 Wireless Settings > WLAN > Security

The following table describes the items in the previous figure.

Item	Description
Security Policy	
Security Mode	Click the drop-down menu to select the encryption when communication. Available options: None, WEP, WPA-Personal and WPA/WPA2-Enterprise. If data encryption is enabled, the key is required and only sharing the same key with other wireless devices can the communication be established.
Submit	Click **Submit** to save the values and update the screen.

3.4.2.4 Statistics

To access this page, click **Wireless Settings** > **WLAN** > **Statistics**.

Figure 3.9 Wireless Settings > WLAN > Statistics

The following table describes the items in the previous figure.

Item	Description
Overview	
Mode	Display the current operation mode of the device.
SSID	Display the SSID.
Channel / Frequency	Display the current channel / frequency of the device.
BSSID	Display the MAC address of the device.
Station List	
Station BSSID	Displays the basic service set identifier (BSSID), access point unique MAC address.
Signal level	Displays the power level measure in decibel-milliwatts of the listed BSSID.
Connected time	Displays the total uptime period.
Tx/Rx rate	Displays the transmit (Tx) to receive (Rx) rate of the connected client.

Item	Description
Tx packets/bytes	Displays the total Tx packets and corresponding bytes.
Rx packets/bytes	Displays the total Rx packets and corresponding bytes.
Wlan status	
TX packets	Display the current Tx packets.
TX bytes	Display the current Tx bytes.
RX packets	Display the current Rx packets.
RX bytes	Display the current Rx bytes.

3.4.2.5 Access Control

The Access Control feature is only available when the wireless mode of the device is set to AP, see "Basic" on page 20.

Access Control allows for an administrator to allow or deny access by defining specific devices through their MAC address.

To access this page, click **Wireless Settings** > **WLAN** > **Access Control**.
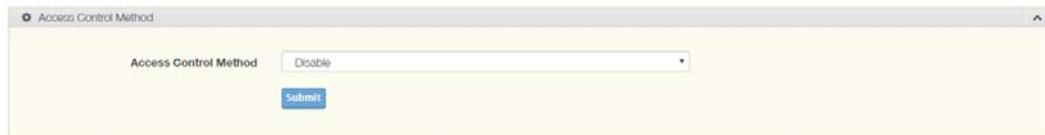
Figure 3.10 Wireless Settings > WLAN > Access Control

The following table describes the items in the previous figure.

Item	Description
Access Control Method	Click the drop-down menu to set the access control method: Disable, Deny or Allow. In the Deny or Allow menu, enter the MAC address of the target device - support for up to 32 target devices.
Submit	Click **Submit** to save the values and update the screen.

3.4.2.6 Log

To access this page, click **Wireless Settings** > **WLAN** > **Log**.
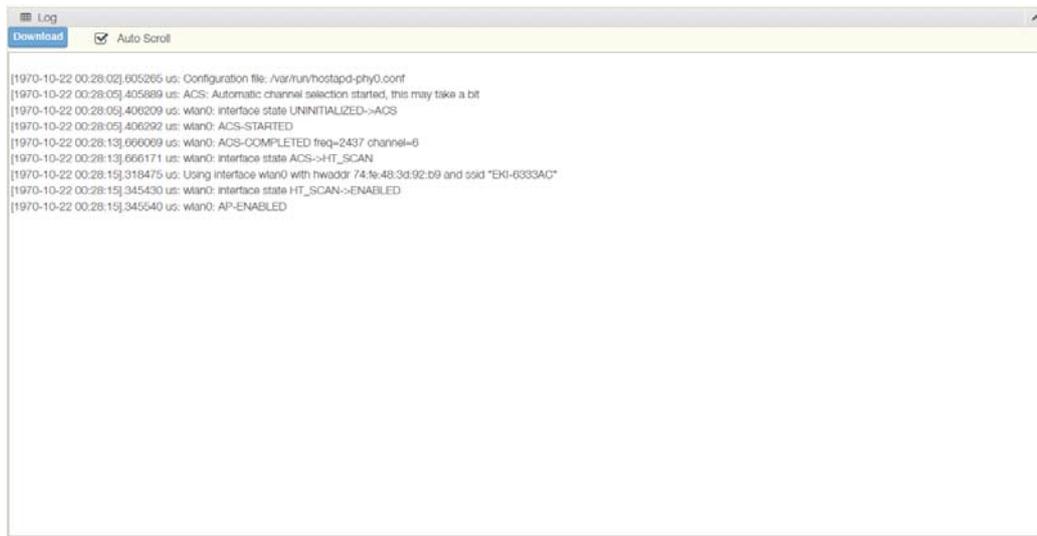
Figure 3.11 Wireless Settings > WLAN > Log

The following table describes the items in the previous figure.

Item	Description
Download	Click **Download** to download the log file.
Auto Scroll	Click the checkbox to enable the Auto Scroll function.

3.5 Administration

3.5.1 Syslog

Users can enable the syslogd function to record historical events or messages locally or on a remote syslog server.

To access this page, click **Administration** > **Syslog**.
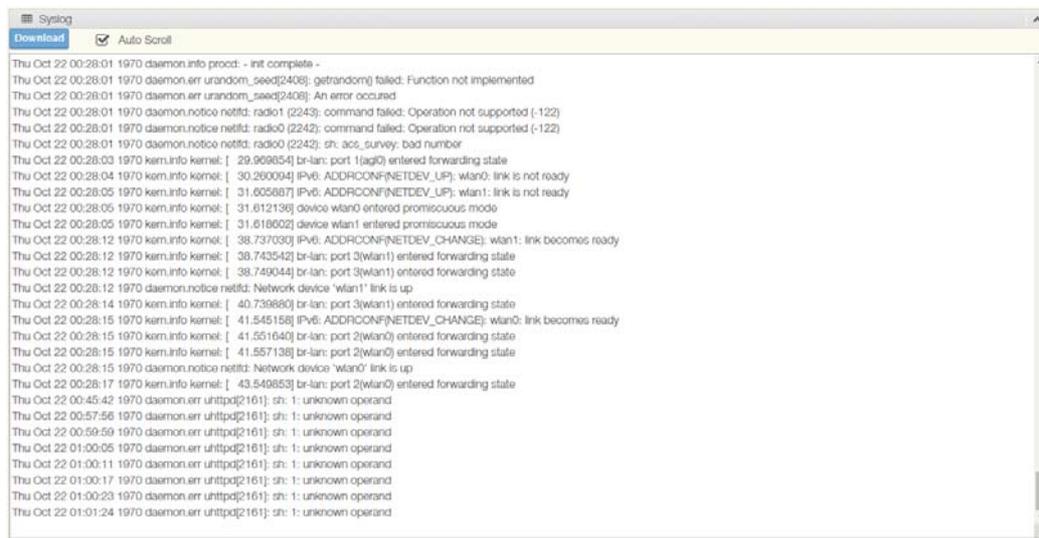
Figure 3.12 Administration > Syslog

The following table describes the items in the previous figure.

Item	Description
Download	Click **Download** to download the log file.
Auto Scroll	Click the checkbox to enable the Auto Scroll function.

3.5.2 NTP / Time

To access this page, click **Administration** > **NTP / Time**.
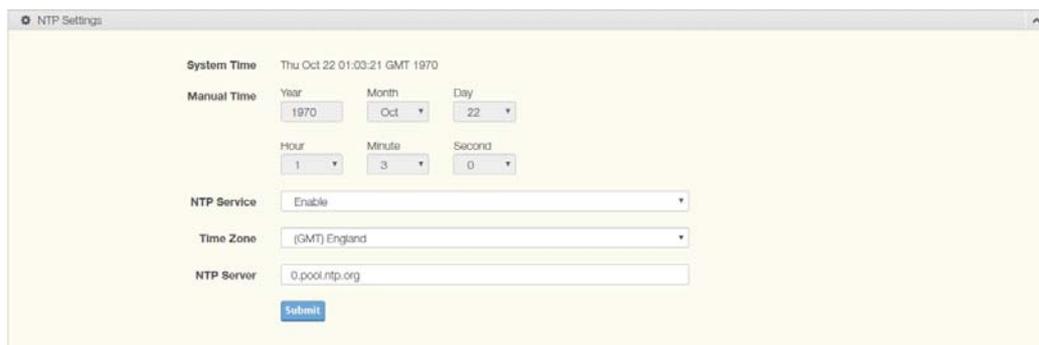
Figure 3.13 Administration > NTP / Time

The following table describes the items in the previous figure.

Item	Description
System Time	Displays the system date and time.
Manual Time	Set the system date and time.
NTP Service	Click the drop-down menu to enable the NTP server.
Time Zone	Click the drop-down menu to select a system time zone.

| Item	Description
NTP Server	Enter the address of the SNTP server.
Submit	Click **Submit** to save the values and update the screen.

3.5.3 HTTP

To access this page, click **Administration** > **HTTP**.

Figure 3.14 Administration > HTTP

The following table describes the items in the previous figure.

Item	Description
HTTP common settings	
Redirect HTTP requests to HTTPS	Click the drop-down menu to enable or disable the function. By default the function is disabled. When enabled, a NAT setting and Open Ports can be setup to direct connection requests to an internal server.
HTTPS port	Enter the port to forward HTTPS traffic, default: 443.
HTTP port	Enter the port to forward HTTP traffic, default: 80.
Username and password	
Username	Display the user name.
Password	Enter the character set for the define password type.
Confirm Password	Retype the password entry to confirm the profile password.
Submit	Click **Submit** to save the values and update the screen.

3.5.4 Configuration Manager

To access this page, click **Administration** > **Configuration Manager**.
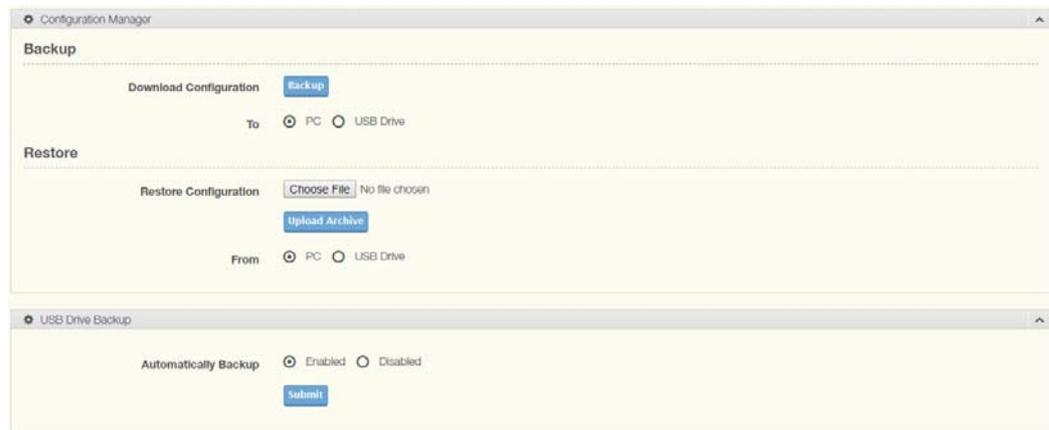
Figure 3.15 Administration > Configuration Manager

The following table describes the items in the previous figure.

Item	Description
Backup	
Download Configuration	Click **Backup** to backup the device settings.
To	Click **PC** or **USB Drive** to select the correct file location.
Restore	
Choose File	Click **Choose File** to select the configuration file.
Upload Archive	Click **Upload Archive** to restore the configuration to the device.
From	Click **PC** or **USB Drive** to select the correct file location.
USB Drive Backup	
Automatically Backup	Select **Enabled** or **Disabled** to enable the function.

3.5.5 Upgrade Manager

To access this page, click **Administration** > **Upgrade Manager**.

Figure 3.16 Administration > Upgrade Manager

The following table describes the items in the previous figure.

Item	Description
Upgrade Manager	Click **Choose File** to select the configuration file.
Upload	Click **Upload** to upload to the current version.

3.5.6 Reset System

To access this page, click **Administration** > **Reset System**.

Figure 3.17 Administration > Reset System

The following table describes the items in the previous figure.

Item	Description
Reset	Click **Reset** to have all configuration parameters reset to their factory default values. All changes that have been made will be lost, even if you have issued a save.

3.5.7 Apply Configuration

To access this page, click **Administration** > **Apply Configuration**.

Figure 3.18 Administration > Apply Configuration

The following table describes the items in the previous figure.

Item	Description
Apply and Reboot	Click **Apply and Reboot** to have configuration changes you have made to be saved across a system reboot. All changes submitted since the previous save or system reboot will be retained by the switch.

3.5.8 Tools

To access this page, click **Administration** > **Tools**.

The following table describes the items in the previous figure.

Item	Description
Reboot	
Reboot	Click **Reboot** to reboot the device. Any configuration changes you have made since the last time you issued a save will be lost.
Ping	
IP Address / Name	Enter the IP address or host name of the station to ping. The initial value is blank. The IP Address or host name you enter is not retained across a power cycle. Host names are composed of series of labels concatenated with periods. Each label must be between 1 and 63 characters long, maximum of 64 characters.
Ping	Click **Ping** to display ping result for the IP address.

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