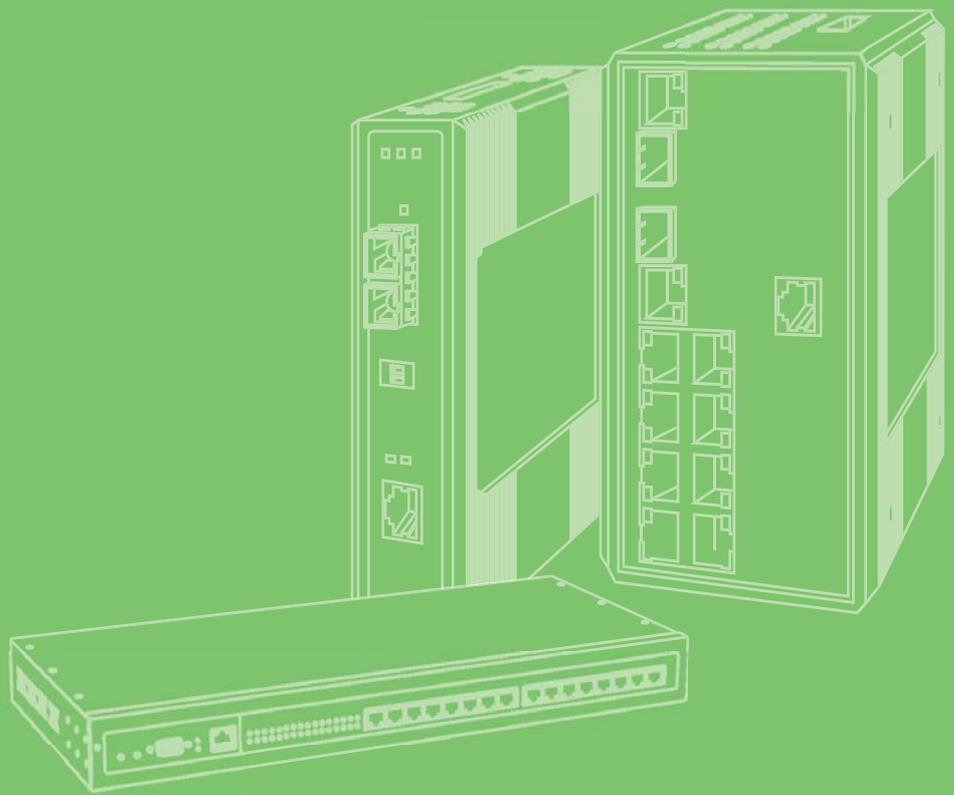


User Manual



EKI-136x-MB-BE Series

1/2-port RS-232/422/485 to
802.11a/b/g/n WLAN Modbus
Gateway

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 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 Modbus gateway
- 1 x DIN-Rail Mounting Bracket and Screws
- 1 x Wall-mounting Bracket
- 2 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

The EKI-136x-MB-BE Series bring RS-232/422/485 to wireless LAN or LAN. They allow nearly any device with serial ports to connect and share an WLAN network. The EKI-136x-MB-BE Series provide a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to a network.

With the EKI-136x-MB-BE Series, your existing serial devices can be used with the most popular operating systems on the market. There is no need to write special drivers for specific operating systems. In addition, you can actively request data or issue commands from the RS-232/422/485 side or wireless LAN side. This data can be sent bilaterally. Thus, the EKI-136x-MB-BE Series are especially suitable for remote monitoring environments such as security systems, factory automaton, SCADA, transportation and more.

Types of supported devices:

- Human Machine Interface (HMI)
- Programmable Logic Controller (PLC)
- Flow meters
- Temperature / pressure monitoring equipment
- Gas leak detection device
- Scales
- Power monitoring equipment
- Data Acquisition Modules

1.2 Features

- Links any serial device to an IEEE 802.11a/b/g/n network
- Supports 802.11n MIMO 2T2R
- WLAN transmission rate up to 300 Mbps
- Supports secure access with WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise
- Supports up to 921.6 kbps, and any baud rate setting
- Provides Web-based configuration and Windows utility
- Supports Modbus TCP and Modbus RTU
- Supports Dual band 2.4G/5G selective

1.3 Specifications

Specifications	Description	
Interface	I/O Port	<ul style="list-style-type: none"> ■ EKI-1361-MB: 1 x RJ45 + 1 x RS-232/422/485 ■ EKI-1362-MB: 1 x RJ45 + 2 x RS-232/422/485
	Power Connector	Terminal block
Physical	Enclosure	Metal shell with solid mounting kits
	Installation	DIN-Rail and Wall mount
	Dimensions (W x H x D)	28.5 x 120 x 85.3 mm (1.12" x 4.72" x 3.36")
LED Display	System LED	Power 1, Power 2, Status
	Port LED	<ul style="list-style-type: none"> ■ WLAN: Quality, Link/Active ■ LAN: Link/Active ■ Serial: Tx, Rx
Environment		Operating Temperature
	Storage Temperature	-40°C ~ 80°C (-40°F ~ 176°F)
	Ambient Relative Humidity	10 ~ 95% RH
Wireless LAN Communications	Compatibility	IEEE 802.11a/b/g/n
	Speed	Up to 300Mbps
	Antenna	2 (supports 2T2R)
	Free Space Range	Open space 100 m
	Wireless Security	WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise
Ethernet Communications	Compatibility	IEEE 802.3, IEEE 802.3u
	Speed	10/100/1000 Mbps
	Port Connector	8-pin RJ45
	Protection	Built-in 1.5 KV magnetic isolation
Serial Communications	Port Type	RS-232/422/485, software selectable
	Port Connector	DB9 male
	Data Bits	5, 6, 7, 8
	Stop Bits	1, 1.5, 2
	Parity	None, Odd, Even, Space, Mark
	Baud Rate	50 bps ~ 921.6 kbps, any baud rate setting
	Protection	15 KV ESD for all signals
Power	Power Consumption	<ul style="list-style-type: none"> ■ EKI-1361-MB: 8W ■ EKI-1362-MB: 9W
	Power Input	12 ~ 48V _{DC} , redundant dual inputs

Specifications	Description	
Software	Driver Support	32-bit/64-bit Windows XP/Vista/7/8/8.1/10, Windows Server 2003/2008/2008 R2/2012/2012 R2 and Linux
	Utility	Advantech EKI Device Configuration Utility
	Operation Modes	<ul style="list-style-type: none"> ■ Access Point mode/Station mode ■ Modbus RTU Master/Slave ■ Modbus ASCII Master/Slave
	Configuration	Windows utility, Telnet console, Web Browser
	Protocol	ARP, ICMP, IPv4, IPv6, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, DNS, SNMP, HTTP, SMTP, SNTF
Regulatory Approvals	EMC	CE, FCC Part 15 Subpart B (Class B)

1.4 Dimensions

The following view depicts the EKI-1361-MB.

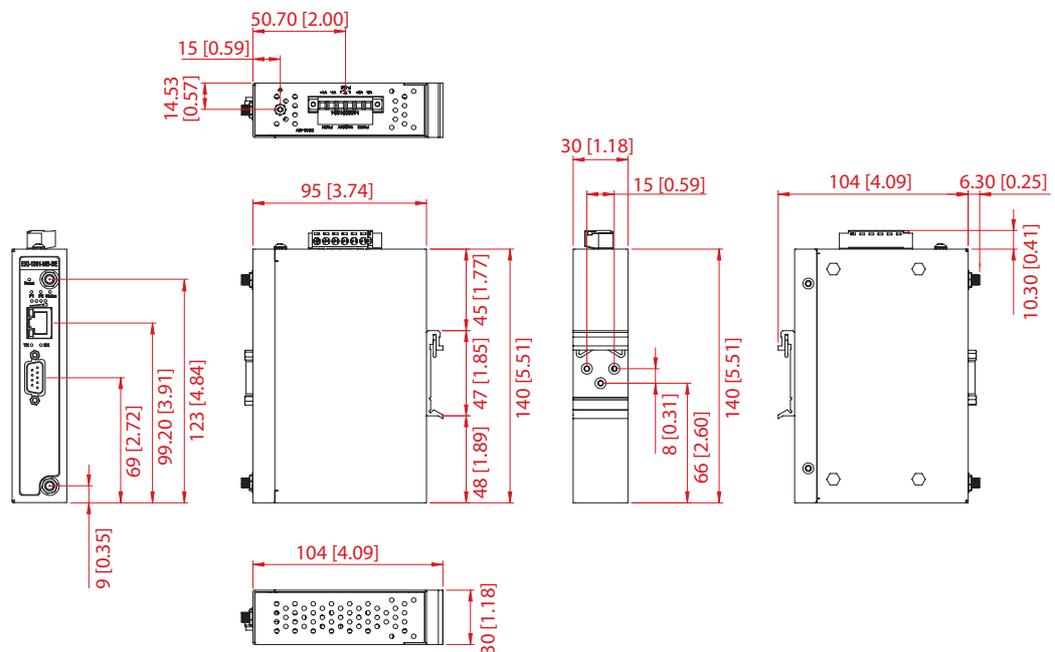


Figure 1.1 EKI-1361-MB Dimensions

The following view depicts the EKI-1362-MB.

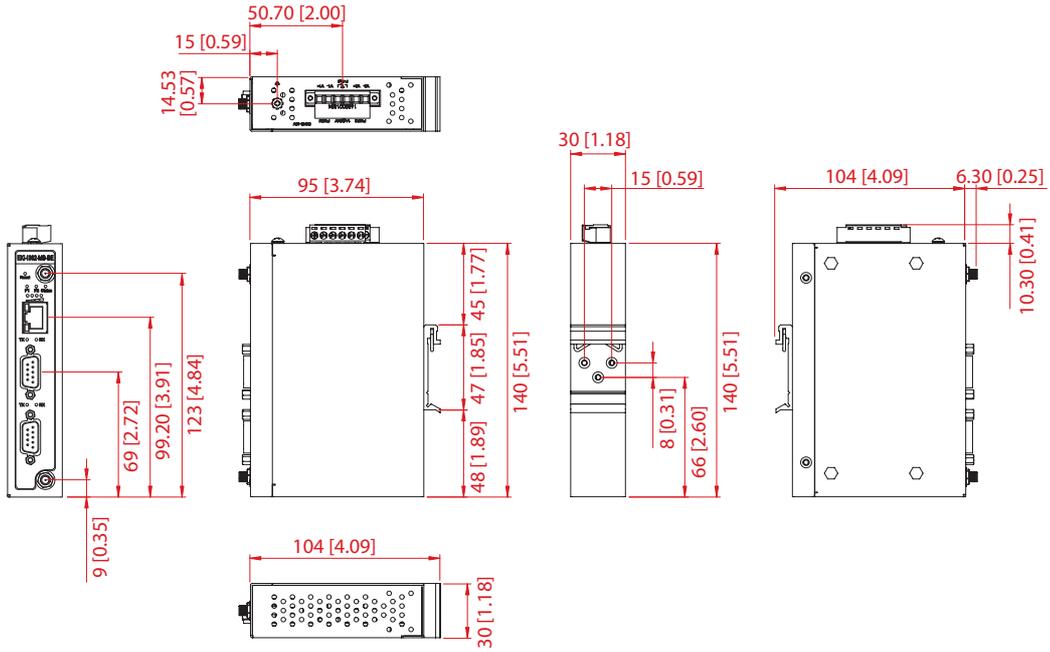


Figure 1.2 EKI-1362-MB Dimensions

Chapter 2

Getting Started

2.1 Hardware

2.1.1 Front View

The following view shows the EKI-1361-MB.

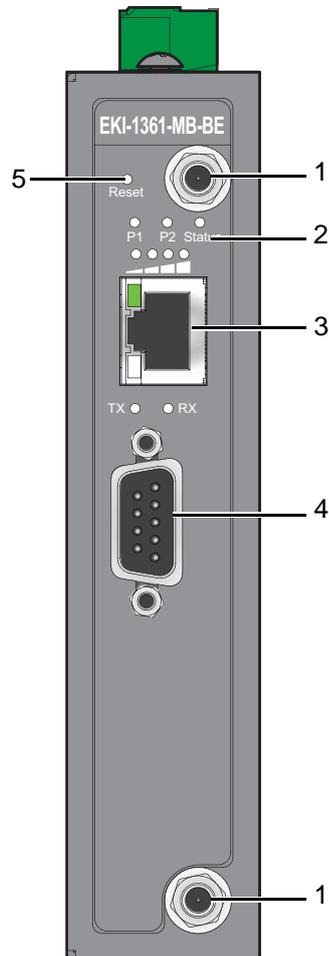


Figure 2.1 EKI-1361-MB Front View

No.	Item	Description
1	Antenna connector	Connector for antenna.
2	System LED panel	See "LED Indicators" on page 10 for further details.
3	ETH port	RJ45 ports x 1.
4	Serial port	DB9 pinout, supports RS-232/422/485.
5	Reset button	Button allows for system soft reset or factory default reset.

The following view shows the EKI-1362-MB.

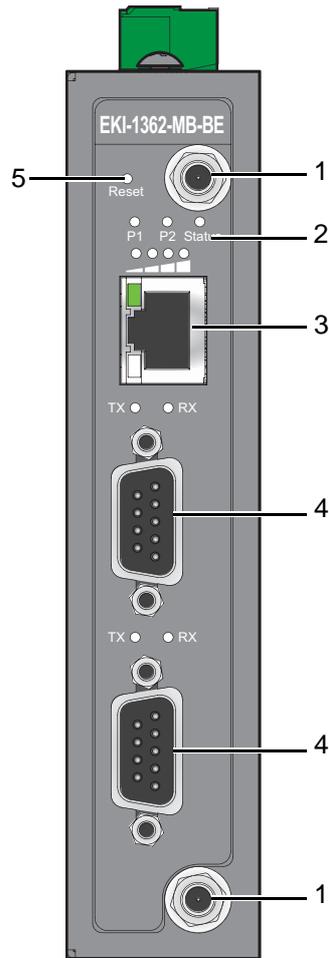


Figure 2.2 EKI-1362-MB Front View

No.	Item	Description
1	Antenna connector	Connector for antenna.
2	System LED panel	See "LED Indicators" on page 10 for further details.
3	ETH port	RJ45 ports x 1.
4	Serial port	DB9 pinout, supports RS-232/422/485.
5	Reset button	Button allows for system soft reset or factory default reset.

2.1.2 Rear View

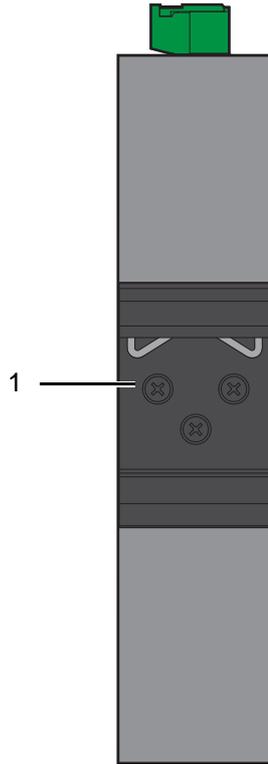


Figure 2.3 Rear View

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

2.1.3 Top View

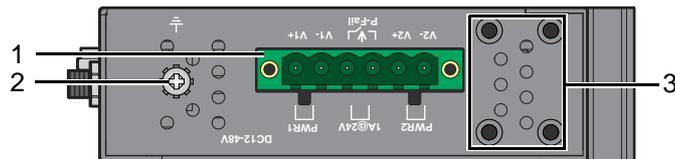


Figure 2.4 Top View

No.	Item	Description
1	Terminal block	Connect cabling for power and alarm wiring
2	Ground terminal	Screw terminal used to ground chassis
3	Wall mounting holes	Screw holes (x4) used in the installation of a wall mounting plate

2.1.4 LED Indicators

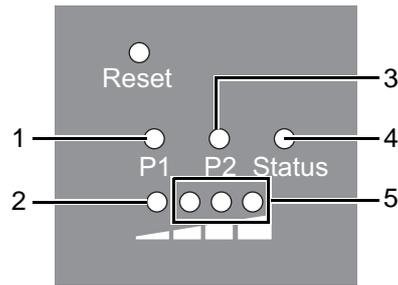


Figure 2.5 System LED Panel

Station Mode

No.	LED Name	LED Color	Description
1	P1	Green	Power 1 is on
		Off	Power 1 is off or power error condition exists
2	WLAN Status	Green	WLAN link is ready
		Off	WLAN is not functioning
3	P2	Green	Power 2 is on
		Off	Power 2 is off or power error condition exists
4	Status	Amber, blinking	System is ready
		Off	System is not functioning
5	WLAN Signal Strength	Off	No signal available
		Green (One)	Signal quality is less than -80 dBm
		Green (Two)	Signal quality is between -80 dBm and -60 dBm
		Green (Three)	Signal quality is more than -60 dBm

AP Mode

No.	LED Name	LED Color	Description
1	P1	Green	Power 1 is on
		Off	Power 1 is off or power error condition exists
2	WLAN Status	Off	In AP mode, the LED is always off
3	P2	Green	Power 2 is on
		Off	Power 2 is off or power error condition exists
4	Status	Amber, blinking	System is ready
		Off	System is not functioning
5	WLAN Signal Strength	Green	Designates signal strength
		Off	WLAN is not functioning

LED Name	LED Color	Description
Ethernet	Off	10Mbps Ethernet connection
	Green, blinking	Ethernet port is transmitting or receiving data
	Amber	100Mbps Ethernet connection
	Green	1000Mbps Ethernet connection
Serial	Amber	Serial port is receiving data
	Green	Serial port is transmitting data
	Off	No data is transmitted or received through the serial port

2.2 Connecting Hardware

2.2.1 DIN Rail Mounting

The DIN rail mount option is the quickest installation option. Additionally, it optimizes the use of rail space.

The metal DIN rail kit is secured to the rear of the gateway. The device can be mounted onto a standard 35 mm (1.37") x 7.5 mm (0.3") height DIN rail. The devices can be mounted vertically or horizontally. Refer to the following guidelines for further information.

Note! A corrosion-free mounting rail is advisable.



When installing, make sure to allow for enough space to properly install the cabling.

2.2.1.1 Installing the DIN-Rail Mounting Kit

1. Position the rear panel of the gateway directly in front of the DIN rail, making sure that the top of the DIN rail clip hooks over the top of the DIN rail, as shown in the following illustration.

Warning! Do not install the DIN rail under or in front of the spring mechanism on the DIN rail clip to prevent damage to the DIN rail clip or the DIN rail.



Make sure the DIN rail is inserted behind the spring mechanism.

2. Once the DIN rail is seated correctly in the DIN rail clip, press the front of the gateway to rotate the gateway down and into the release tab on the DIN rail clip. If seated correctly, the bottom of the DIN rail should be fully inserted in the release tab.

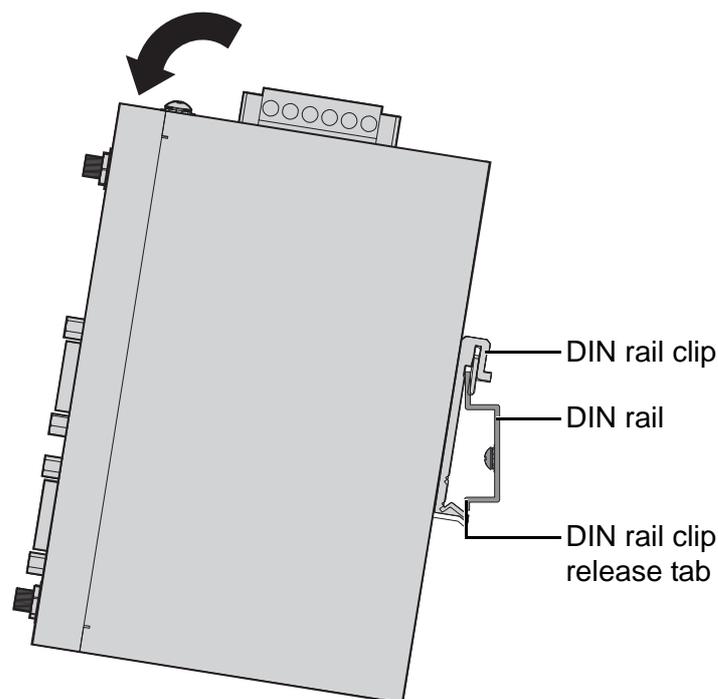


Figure 2.6 Installing the DIN-Rail Mounting Kit

See the following figure for an illustration of a completed DIN installation procedure.

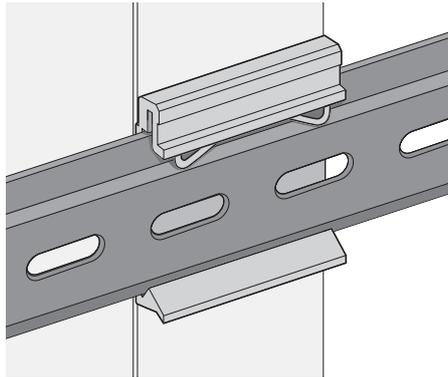


Figure 2.7 Correctly Installed DIN Rail Kit

3. Grasp the bottom of the gateway and slightly rotate it upwards. If there is resistance, the gateway is correctly installed. Otherwise, re-attempt the installation process from the beginning.

2.2.1.2 Removing the DIN-Rail Mounting Kit

1. Ensure that power is removed from the gateway, and disconnect all cables and connectors from the front panel of the gateway.
2. Push down on the top of the DIN rail clip release tab with your finger. As the clip releases, lift the bottom of the gateway, as shown in the following illustration.

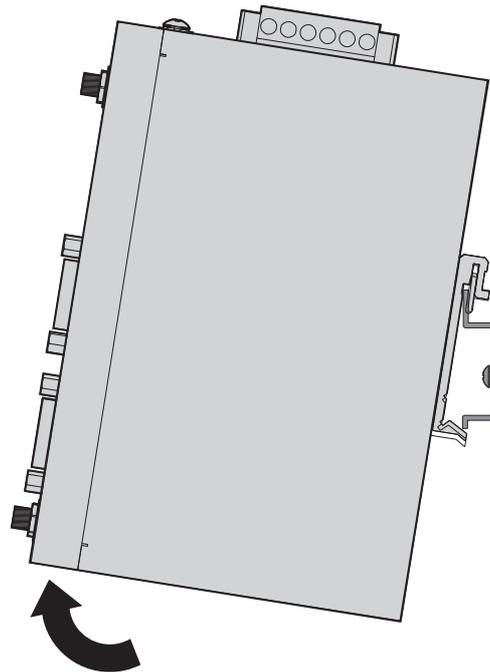


Figure 2.8 Removing the DIN-Rail

2.2.2 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. Rotate the device to view the rear side and locate the DIN mounting plate.
2. Remove the screws securing the DIN mounting plate to the rear side.
3. Remove the DIN mounting plate. Store the DIN mounting plate and provided screws for later use.
4. Align the wall mounting brackets with the designated location as illustrated in the following figure. The screw holes on the device and the brackets align if seated correctly.
5. Secure the wall brackets to the device with M3 screws, see the following figure.

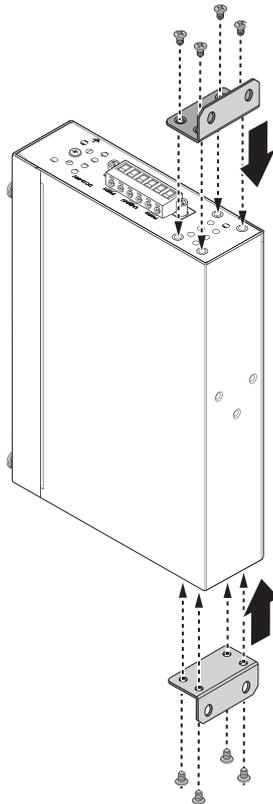


Figure 2.9 Installing Wall Mount Plates

Once the wall mounting brackets are secured on the device, mark the screw hole location on the wall area.

6. On the installation site, place the device firmly against the wall. Make sure the gateway is vertically and horizontally level.
7. Insert a pencil or pen through the screw holes on the mounting bracket to mark the location of the screw holes on the wall.
8. Remove the gateway 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.

9. Insert the wall sinks into the walls.
10. Align the mounting bracket over the screw holes on the wall.
11. 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.

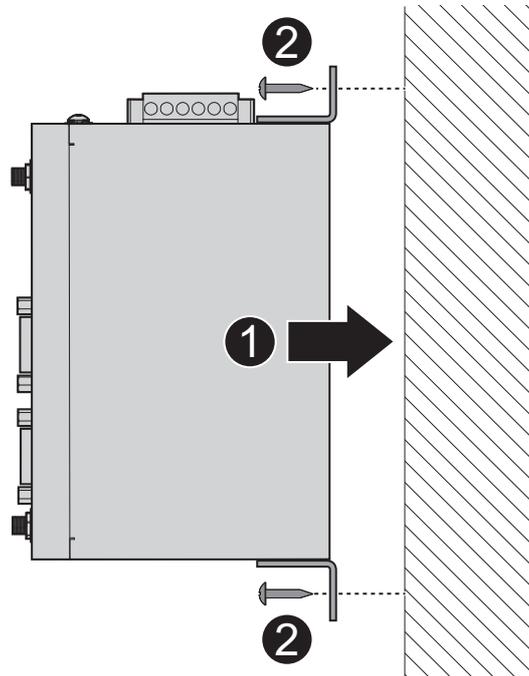


Figure 2.10 Wall Mount Installation

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

2.2.3 Wireless Connection

1. Connect the antenna by screwing the antenna connectors in a clockwise direction.

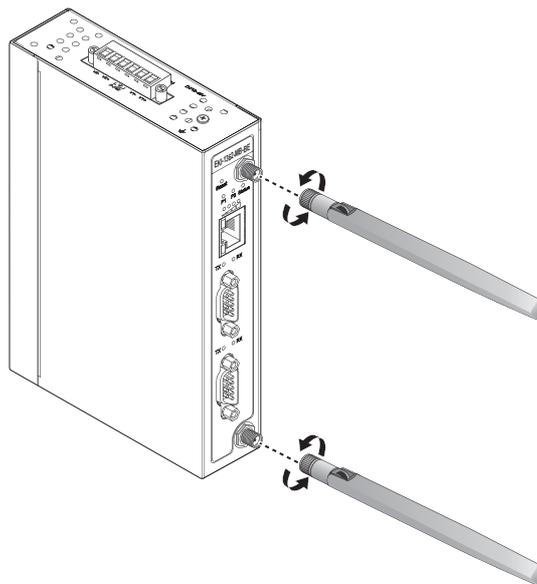


Figure 2.11 Installing the Antenna

2. Position the antenna for optimal signal strength.

Note! *The location and position of the antenna is crucial for effective wireless connectivity*

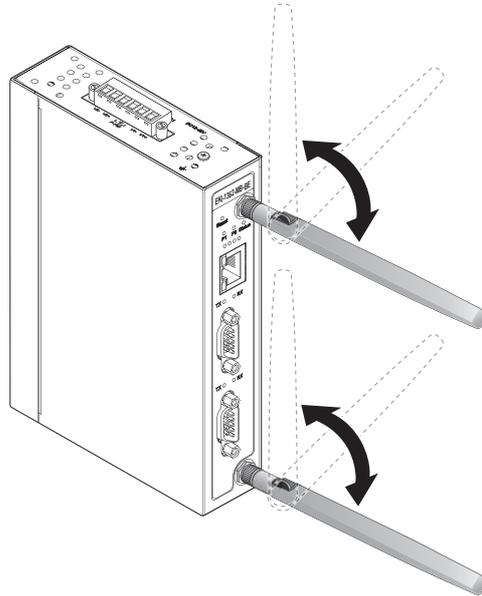


Figure 2.12 Positioning the Antenna

2.2.4 Network Connection

For RJ45 connectors, data-quality, twisted pair cabling (rated CAT5 or better) is recommended. The connector bodies on the RJ45 Ethernet ports are metallic and connected to the GND terminal. For best performance, use shielded cabling. Shielded cabling may be used to provide further protection.

Straight-thru Cable Wiring		Cross-over Cable Wiring	
Pin 1	Pin 1	Pin 1	Pin 3
Pin 2	Pin 2	Pin 2	Pin 6
Pin 3	Pin 3	Pin 3	Pin 1
Pin 6	Pin 6	Pin 6	Pin 2

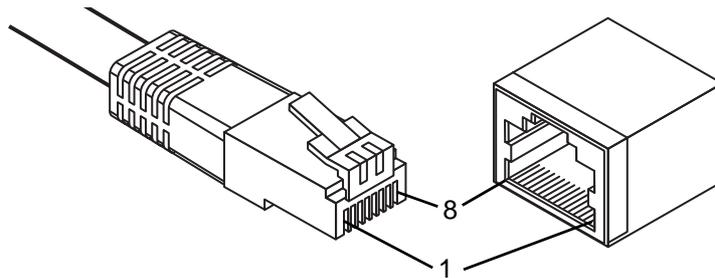


Figure 2.13 Ethernet Plug & Connector Pin Position

Maximum cable length: 100 meters (328 ft.) for 10/100BaseT.

2.2.5 Serial Connection

EKI-136x-MB-BE Series provides up to four ports DB9 (male) connectors. RS-232/422/485 pin assignments as below:

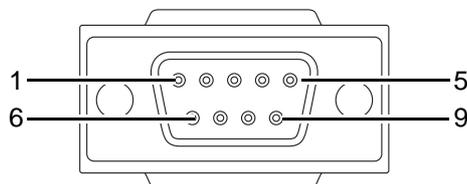


Figure 2.14 DB9 Pin Assignment

Pin	1	2	3	4	5	6	7	8	9
RS-232	DCD	RX	TX	DTR	GND	DSR	RTS	CTS	RI
RS-422	TX-			TX+	GND		RX+		RX-
RS-485	DATA-			DATA+	GND				

2.2.6 Power Connection

2.2.6.1 Overview

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



Caution! Do not disconnect modules or cabling unless the power is first gatewayed 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 gateways can be powered by using the same DC source used to power other devices. A DC voltage range of 12 to 48 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-136x-MB-BE Series support 12 to 48 V_{DC}. Dual power inputs are supported and allow you to connect a backup power source.

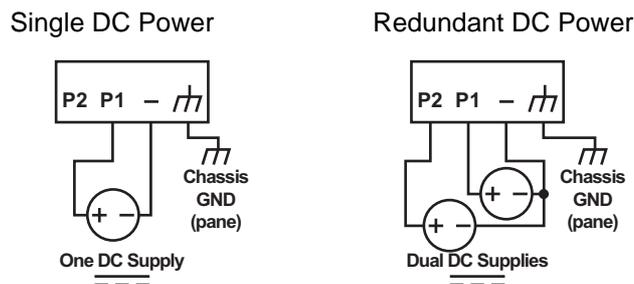


Figure 2.15 Power Wiring for EKI-136x-MB-BE Series

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 mm²). Torque value 7 lb-in.
- The cross sectional area of the earthing conductors shall be at least 3.31 mm².
- 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.

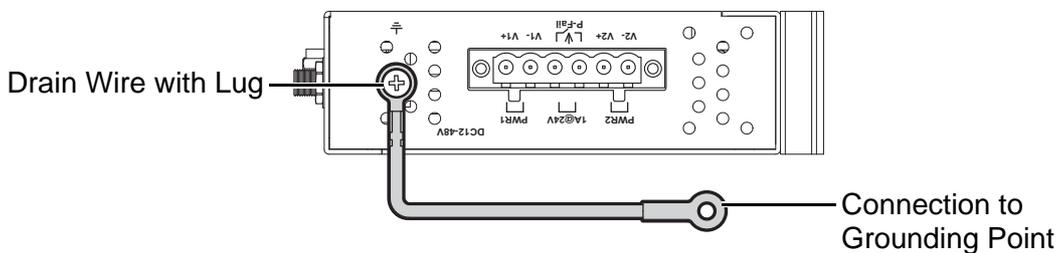


Figure 2.16 Grounding Connection

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

Note! Before applying power to the grounded gateway, 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 gateway.



2.2.6.4 Wiring a Relay Contact

The following section details the wiring of the relay output. The terminal block on the EKI-136x-MB-BE Series is wired and then installed onto the terminal receptor located on the EKI-136x-MB-BE Series.

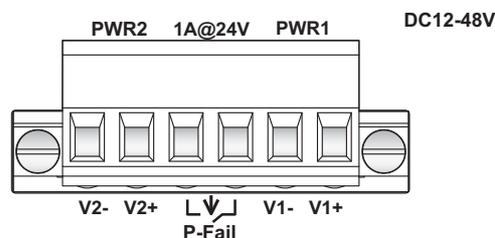


Figure 2.17 Terminal Receptor: Relay Contact

The terminal receptor includes a total of six pins: two for PWR1, two for PWR2 and two for a fault circuit.

2.2.6.5 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 gateway.



There are two power inputs for normal and redundant power configurations. The power input 2 is used for wiring a redundant power configuration. See the following for terminal block connector views.

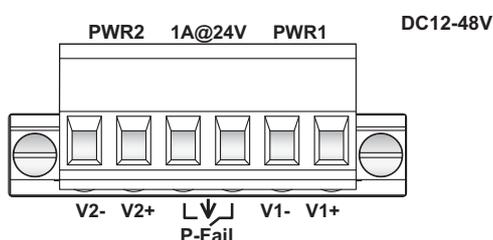


Figure 2.18 Terminal Receptor: Power Input Contacts

To wire the power inputs:

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

1. Loosen the screws securing terminal block to the terminal block receptor.
2. Remove the terminal block from the gateway.

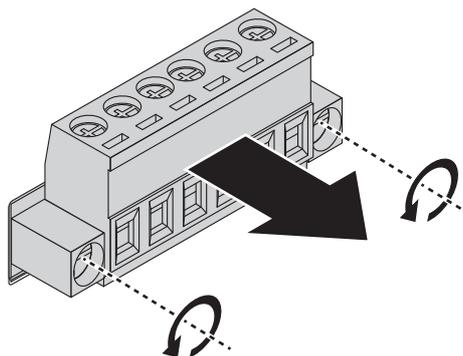


Figure 2.19 Removing a Terminal Block

3. Insert a small flat-bladed screwdriver in the V1+/V1- wire-clamp screws, and loosen the screws.
4. Insert the negative/positive DC wires into the V+/V- terminals of PW1. If setting up power redundancy, connect PW2 in the same manner.

5. Tighten the wire-clamp screws to secure the DC wires in place.

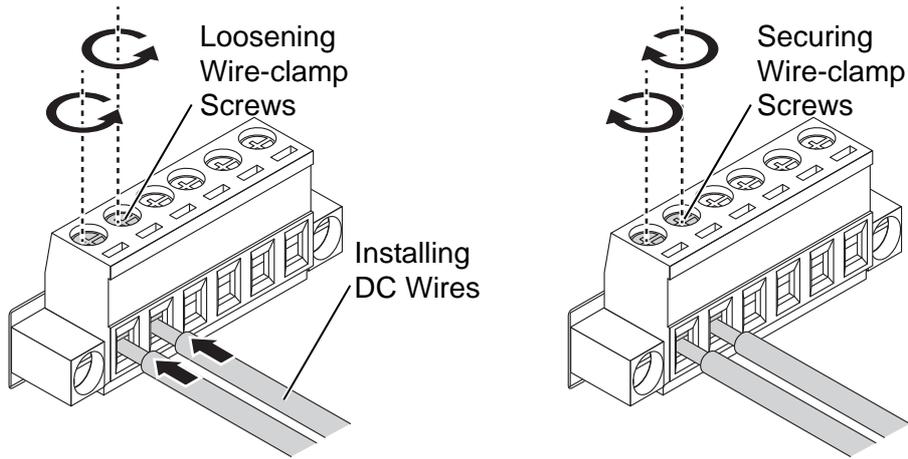


Figure 2.20 Installing DC Wires in a Terminal Block

6. Align the terminal block over the terminal block receptor on the gateway.
7. Insert the terminal block and press it in until it is flush with the terminal block receptor.
8. Tighten the screws on the terminal block to secure it to the terminal block receptor.

If there is no gap between the terminal block and the terminal receptor, the terminal block is seated correctly.

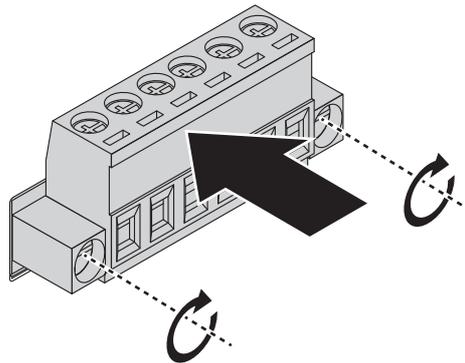


Figure 2.21 Securing a Terminal Block to a Receptor

2.3 Reset Button

Reset configuration to factory default:

Press and hold Reset button for 5 seconds.

System reboot:

Press and hold Reset button for 2 seconds.

Note! Do NOT power off the gateway when loading default settings.



Chapter 3

Utility Configuration

3.1 Installing the Configuration Utility

Note! *Microsoft.NET Framework version 2.0 or greater is required for this application.*



1. Insert the Advantech EKI Device Configuration Utility CD-ROM into the CD-ROM drive (whereas E:\ is the drive name of your CD-ROM) on the host PC.
2. Use Windows explorer or the Windows Run command to execute the setup program, the path for the setup program on the CD-ROM is as follows:
E:\EKI_Device_Configuration_Utility_v2.01.exe
3. If there is an existing COM port mapping utility on the host PC, remove it at this time. A system reboot may be necessary before continuing the installation.
4. Once the InstallShield Wizard screen displays, click **Next** to proceed with the installation.

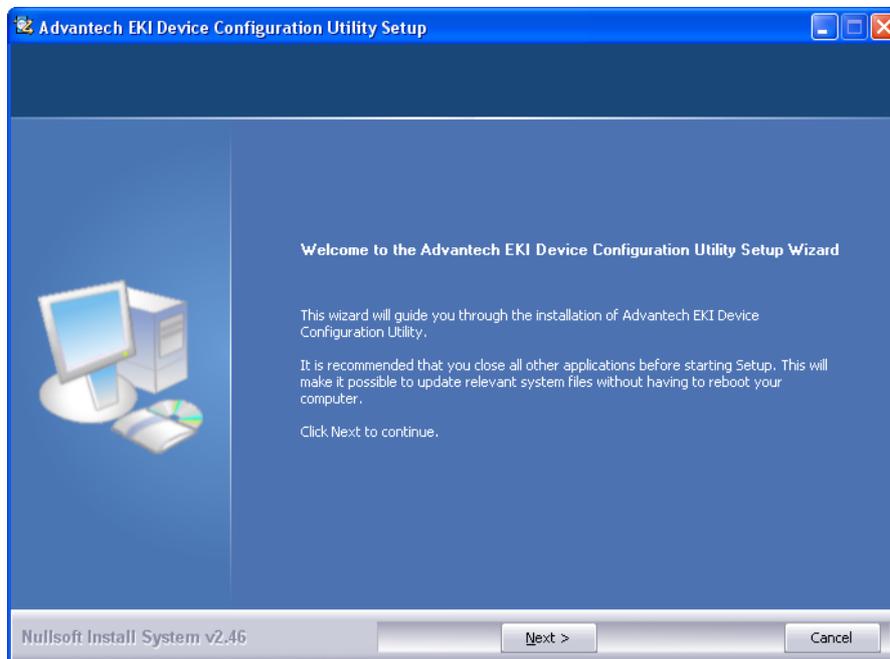


Figure 3.1 InstallShield Wizard 1 of 4

5. The Software License Agreement displays, press **I Agree** to continue or **Cancel** to stop the installation.

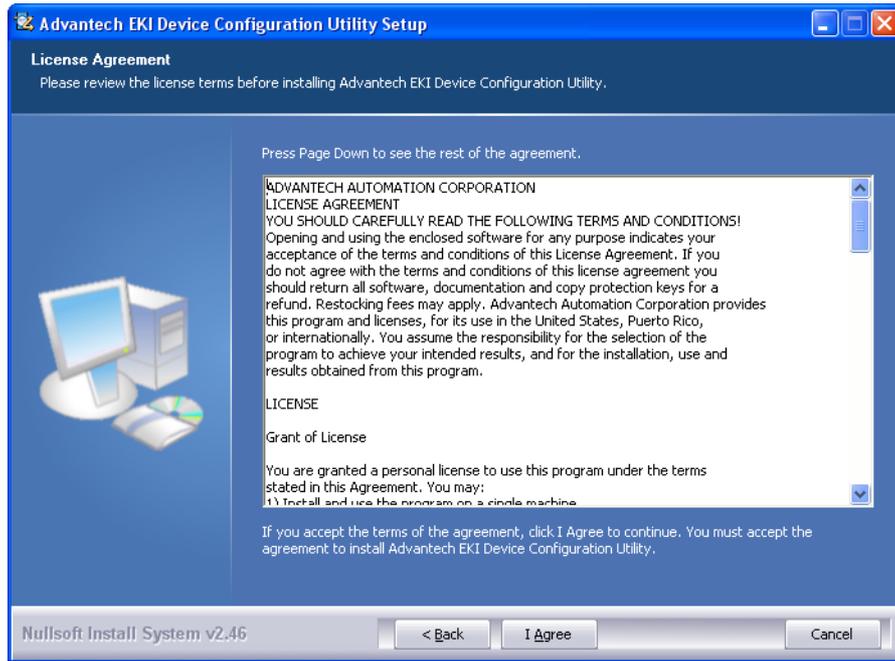


Figure 3.2 InstallShield Wizard 2 of 4

The InstallShield continues and a status screen displays. The default installation path is C:\Program Files\EKI Device Configuration Utility.

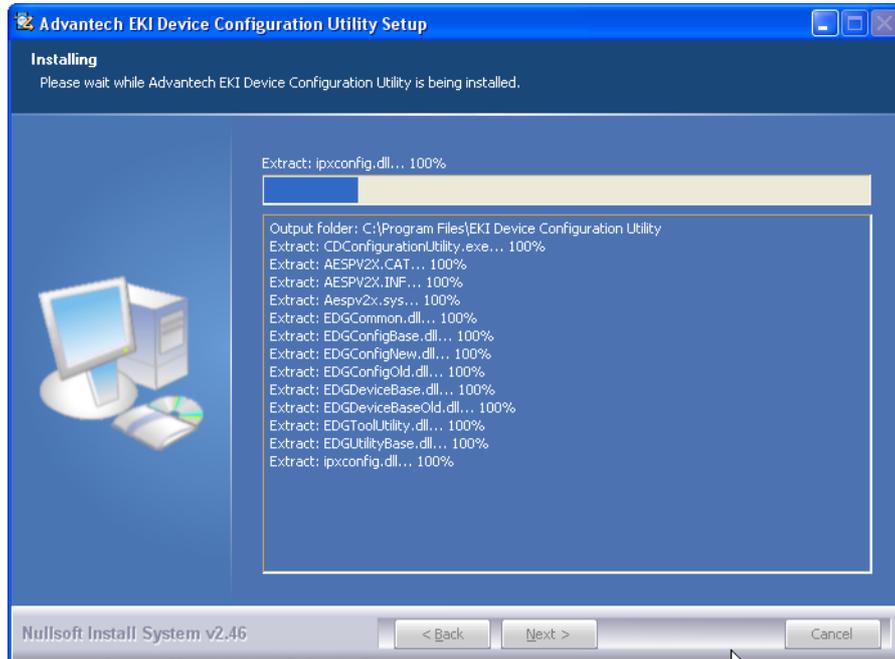


Figure 3.3 InstallShield Wizard 3 of 4

6. Once the installation of the package is finished a Configuration Utility Setup screen displays. Click **Finish** to conclude the process and exit the InstallShield Wizard.

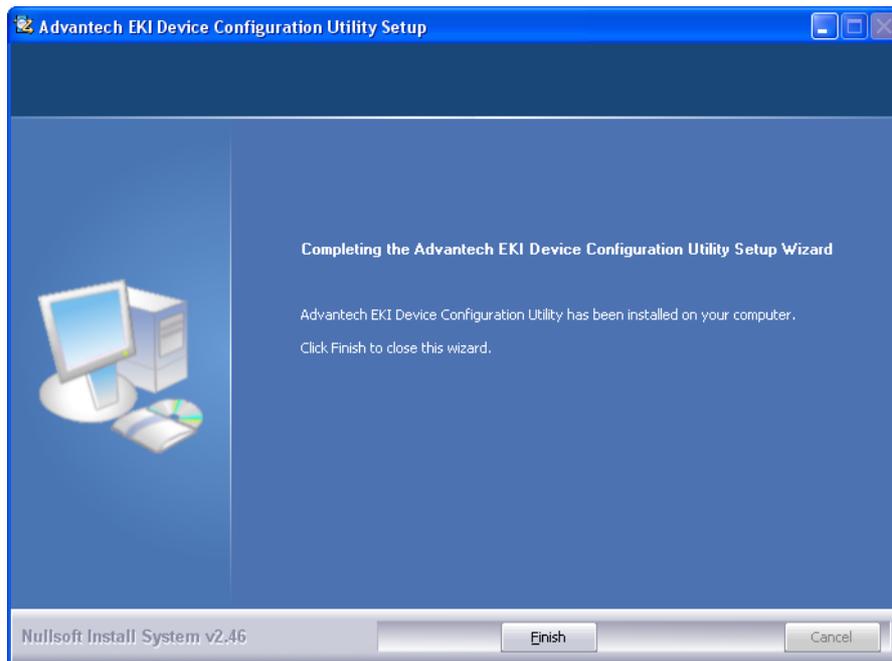


Figure 3.4 InstallShield Wizard 4 of 4

3.2 Starting the Configuration Utility

Advantech EKI-136x-MB-BE Series devices provide an easy-to-use utility to configure your device through an Ethernet connection. For secure administration, it can also restrict the access rights for configuration to only one host PC. With this secure function enabled, other PCs will not have permission for configuration. After the installation program on the Advantech IEDG Series Driver Utility CD-ROM is finished, the devices are ready for use and configuration.

Advantech EKI Device Configuration Utility is an excellent device management tool. You can connect and configure the local and remote Advantech devices easily. The utility provides access to the following functions:

- Configure the network settings (you can set the IP address, Gateway address, and Subnet mask)
- Perform diagnostic tests (virtual COM port testing, port status list)
- Perform administrative functions (export and import the device setting, manage access IP, a descriptive name, upgrade firmware)

You can open the Configuration Utility from the Windows Start Menu by clicking **Start > All Programs > EKI Device Configuration Utility > EKI Device Configuration Utility**. The Configuration Utility displays as shown in the following figure.

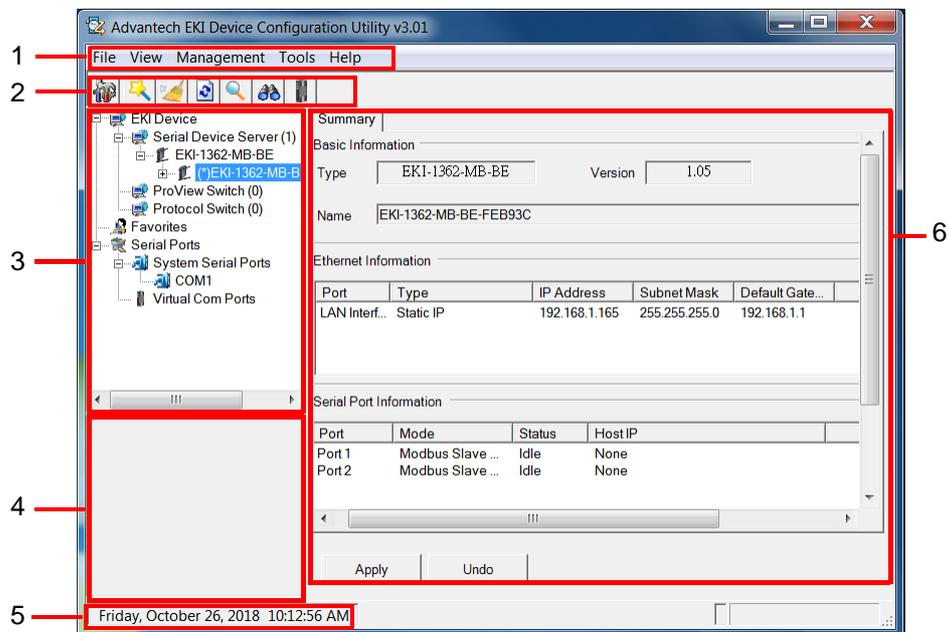


Figure 3.5 Configuration Utility Overview

No	Item	Description
1	Menu Bar	Displays File, View, Management, Tools and Help.
2	Quick Tool Bar	Useful management functions shortcuts.
3	Device List Area	Available devices are listed in this area. Devices and COM ports can be organized or grouped in this area.
4	Information Panel	Click on the devices or move cursor to the devices, the related information is shown in this area.
5	Status Bar	Displays the current time.
6	Configuration Area	Click on the item on the Device List Area, the configuration page displays.

3.3 Discovering Your Device

3.3.1 Auto Searching

Advantech EKI Device Configuration Utility will automatically search all the EKI-136x-MB-BE Series devices on the network and show them on the Device List Area of the utility. The utility provides an auto-search function to show your device(s) by simply executing the configuration utility program from the Start Menu.

From here all devices on the same network domain will be searched and displayed on Device List Area. You can click on the device name to show the features of the specific device.

Click on the “+” before the model name, and the utility will expand the tree structure to show the individual device name. Click on the “-” before the model name, and the utility will collapse the tree structure.

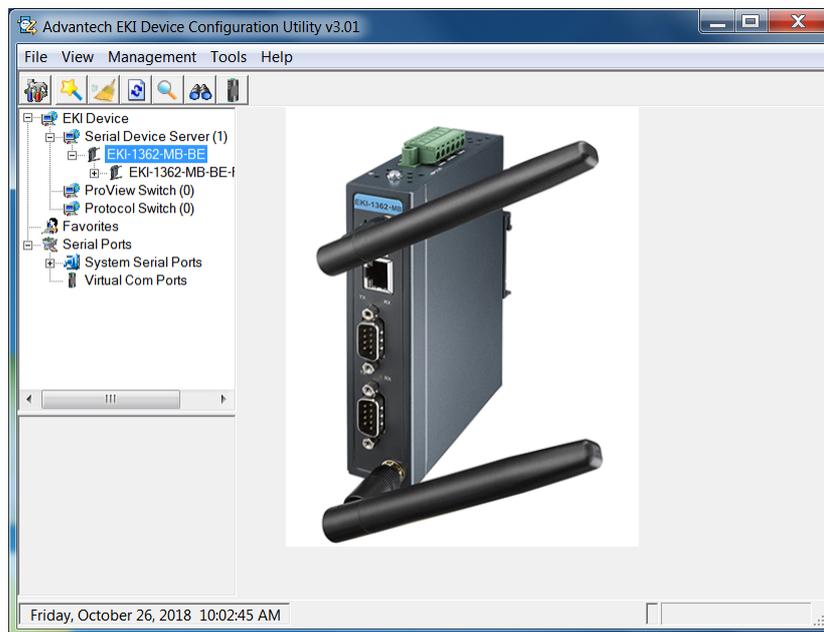


Figure 3.6 Open View of Serial Device Configuration Utility

Note! *When you run the configuration utility for the first time, the default device name is obtained from the serial device’s MAC identification number. The name can be altered through the configuration utility.*

Select the device in this sub-tree. The first tab on the Configuration Area shows the summary of “Basic Information” included device type, version, and name, “Ethernet

Information”, and “Serial Port Information”. The serial port information frame displays the operation mode, status and connected host IP.

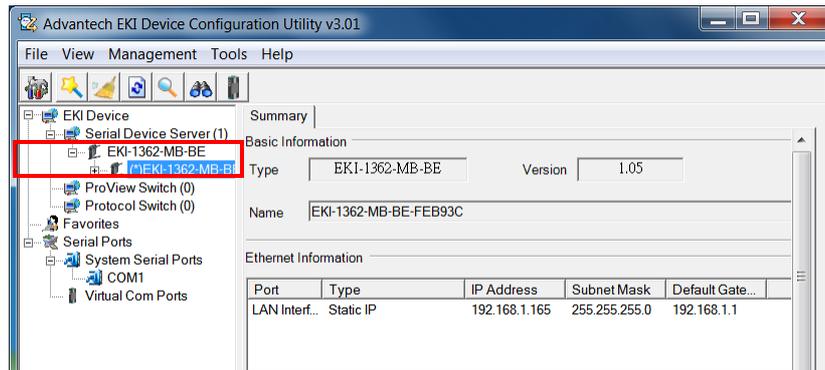


Figure 3.7 Selecting a Group

Click on the “+” before the device name, and the utility will expand the interfaces on this device.

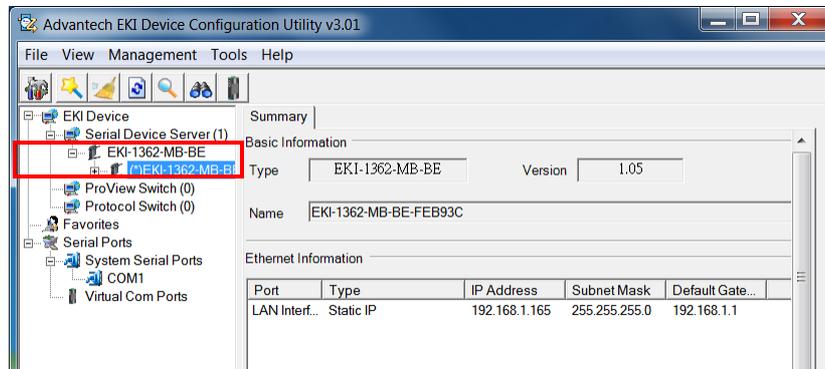


Figure 3.8 Selecting a Device

Click to enter the configuration page to change the setting. The configuration will be introduced on following sections.

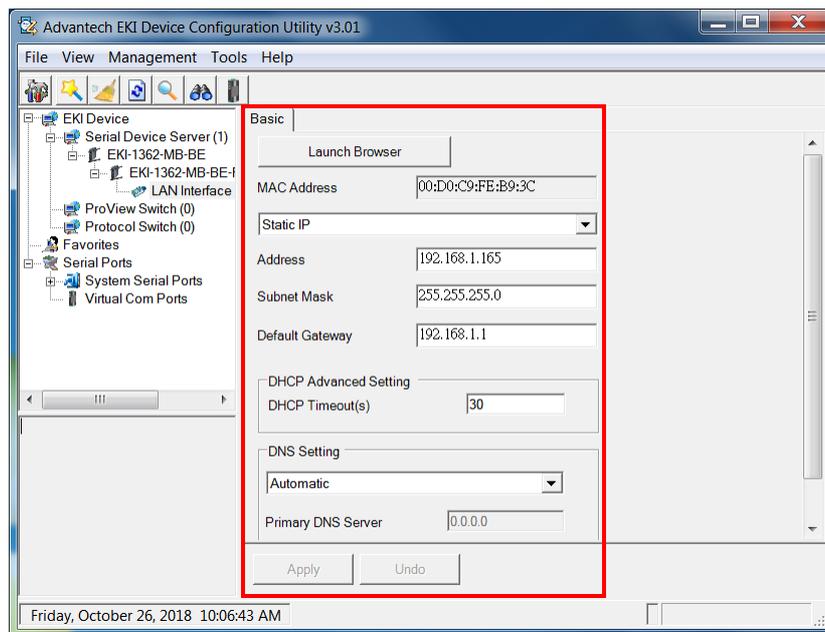


Figure 3.9 Viewing Basic Settings

3.4 Network Settings

Prior to setting up the server's IP address determine the IP address mode.

There are four mode types available:

- Static IP: mode to assign a specific assigned address
- DHCP / AutoIP: mode to automatically assign IP addresses through a DHCP server
- BOOTP / AutoIP: mode to automatically assign an IP address through the configuration server
- DHCP/BOOTP/AutoIP: mode to automatically assign an IP address using a Bootstrap Protocol or DHCP server.

The server is set with the following default IP configuration:

- 10.0.0.1

The EKI-136x-MB-BE Series includes a software utility option, which you can install on your system, for configuration through computer-based software. The EKI-136x-MB-BE Series also includes a web interface option for configuration through a standard web browser.

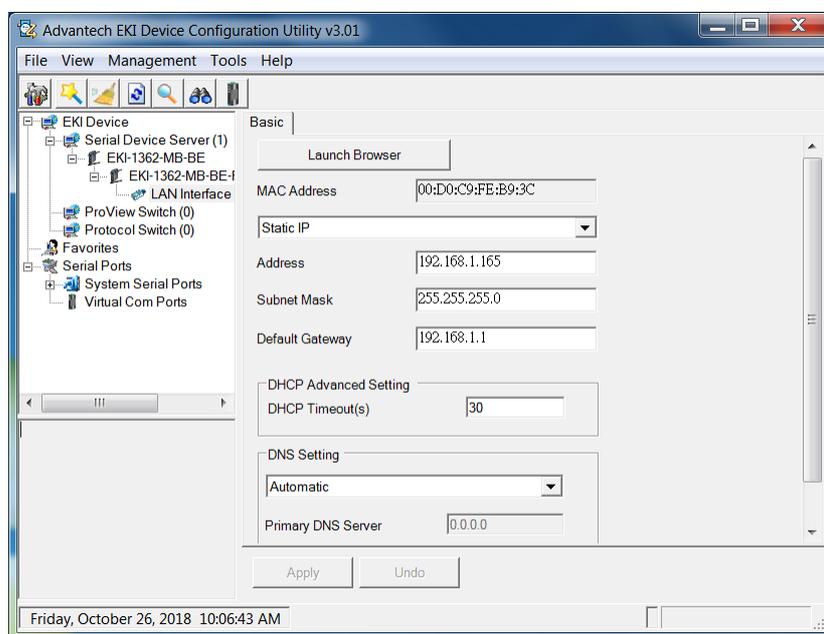


Figure 3.10 Utility Overview

You can choose from four possible IP Configuration modes --- Static, DHCP, BOOTP, and DHCP/BOOTP.

Figure 3.11 Network Settings Overview

Item	Description
Static IP	Static IP User defined IP address, Subnet Mask, and Default Gateway.
DHCP + Auto-IP	DHCP Server assigned IP address, Subnet Mask, Default Gateway, and DNS.
BOOTP + Auto-IP	BOOTP Server assigned IP address.
DHCP + BOOTP + Auto-IP	DHCP Server assigned IP address, Subnet Mask, Default Gateway, and DNS, or BOOTP Server assigned IP address. (If the DHCP Server does not respond)
DHCP Advanced Setting	When you enabling DHCP protocol to get IP address, it will be waited DHCP server to give IP within DHCP time out. The default value is 180 seconds.
DNS Setting	In order to use DNS feature, you need to set the IP address of the DNS server to be able to access the host with the domain name. The EKI-136x-MB-BE Series device provides Primary DNS Server and Secondary DNS Server configuration items to set the IP address of the DNS server. Secondary DNS Server is included for use when Primary DNS server is unavailable.

Note!  When you have finished the configuration of these settings for each category, please press the “Apply” button in order to make these settings effective on the device.

3.5 Administrator Settings

3.5.1 Locate the Device

When devices are connected to the network, identification of a specific serial device is possible through the Locate function.

To locate the device:

1. From the device list frame, locate the desired device and right-click on it to display the settings menu.
2. Select **Locate** from the menu.

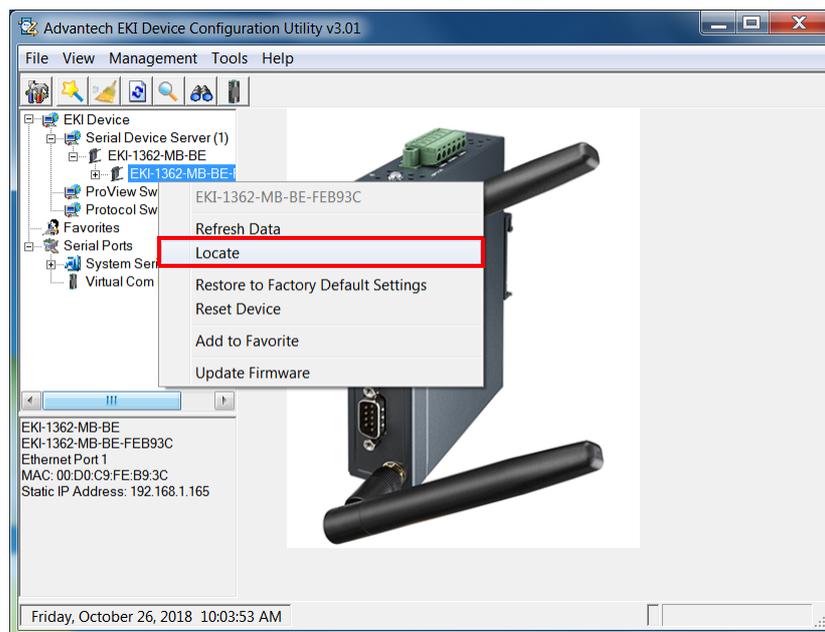


Figure 3.12 Locate the Device

The unit's Status LED will turn solid amber and the buzzer will sound until you click **Stop Locate**.

3.5.2 Restore to Factory Default Settings

The configuration utility provides the function to restore the device to factory default settings.

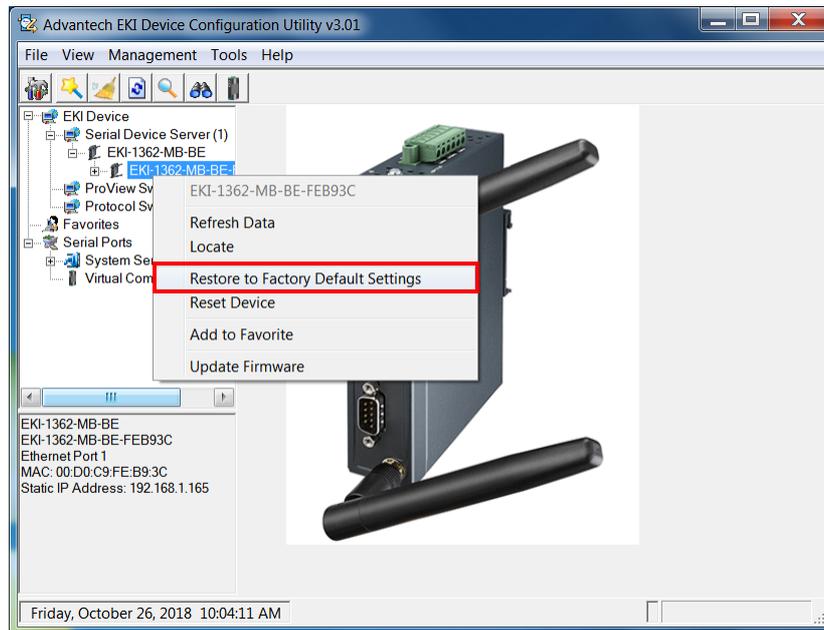


Figure 3.13 Restore to Factory Default Settings

The confirm message will display after clicking **Restore to Factory Default Settings**. If you really want to restore the serial device server to factory default settings, please click **Yes** button to continue.

Power off the device within ten seconds. After reconnecting the power, all settings will be reset to the factory default. If the power supply remains connected for more than ten seconds, the device will not be changed.

3.5.3 Resetting the Device

The **Reset Device** is available to allow you to reset the device. The function disconnects both the ethernet and serial connections.

The function also allows the device to save new configuration settings to flash memory. Once a new setting is changed, you can use the Save function to accept the changes. You will need to reset the device to save the settings to flash memory.

To reset the device:

1. Right-click a desired device to display the settings menu.
2. Select **Reset Device**.

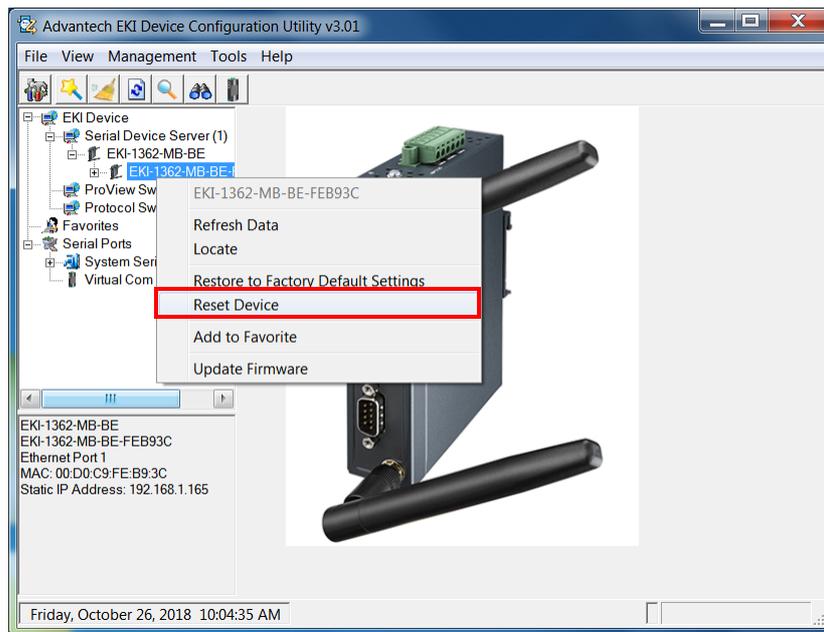


Figure 3.14 Reset Device

The device resets. Once the process is complete, the device displays under the Device List Area listing once again.

3.5.4 Add to Favorite

The Add to Favorite function allows to easily map available devices to Favorite's. By bookmarking specific devices, you can create quickly accessible shortcuts for existing critical devices from the vast pool of locally or remotely networked EKI-136x-MB-BE Series devices.

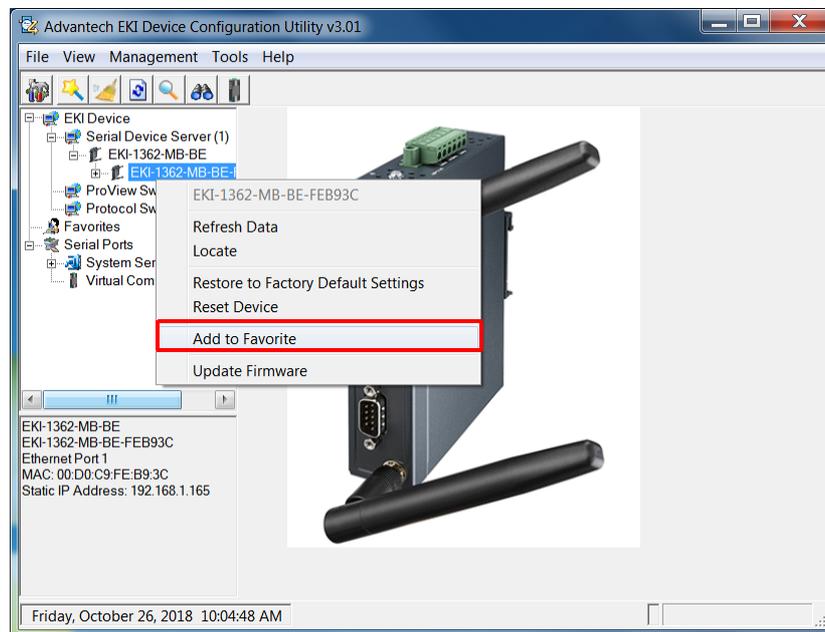


Figure 3.15 Add to Favorite

3.5.5 Update Firmware

Advantech continually upgrades its firmware to keep up with the ever-expanding world of computing. You can use the update firmware function in the utility to carry out the upgrade procedure. Please access Advantech's website: <http://www.advantech.com> to download the latest version of the firmware. Before updating the firmware, make sure that your host's Network domain is as same as the device or the host can establish the TCP connection to the device.

To update firmware:

1. Right-click a desired device to display the settings menu.
2. Select **Update Firmware**.

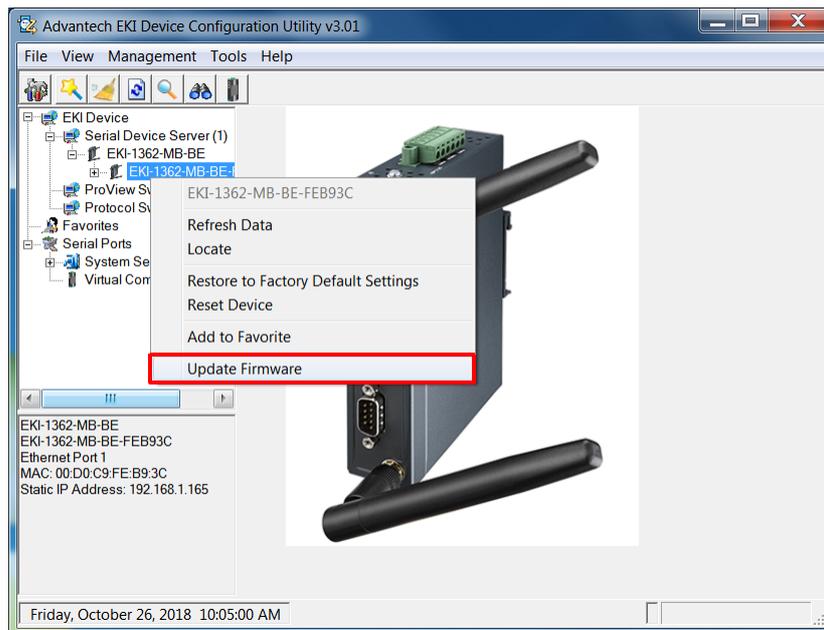


Figure 3.16 Update Firmware

3. Select the firmware file you want to update.

Wait for a few seconds for the firmware to finish updating. After the update has completed, click on the **OK** button. The device will restart automatically.

Note! *Be sure that the host PC Ethernet network domain is as same as the EKI-136x-MB-BE Series device or the host PC can establish the TCP connection with the device while doing the updating firmware process.*



Chapter 4

Web Interface

4.1 Overview

EKI-136x-MB-BE Series device can be configured through a web interface. By using a standard web browser, the same procedure as with the Windows configuration utility can be used. In the browser's address field, enter the IP Address of your EKI-136x-MB-BE Series device. The default IP setting is 10.0.0.1, but you should use the IP which you have previously assigned for this device. Once the IP is entered, you will be presented with the following windows.

Note! *Before using the web-based configuration, make sure your host PC Ethernet network IP domain is as same as the device, or it can establish the TCP connection with the device.*



Note! *It is recommended that you use Microsoft Internet Explorer 7.0 or higher.*



4.2 Accessing the Web Page

4.2.1 Accessing the Web Page via Configuration Utility

To access the web page via configuration utility:

1. Select Ethernet under the desired device.
2. Click **Launch Browser**.

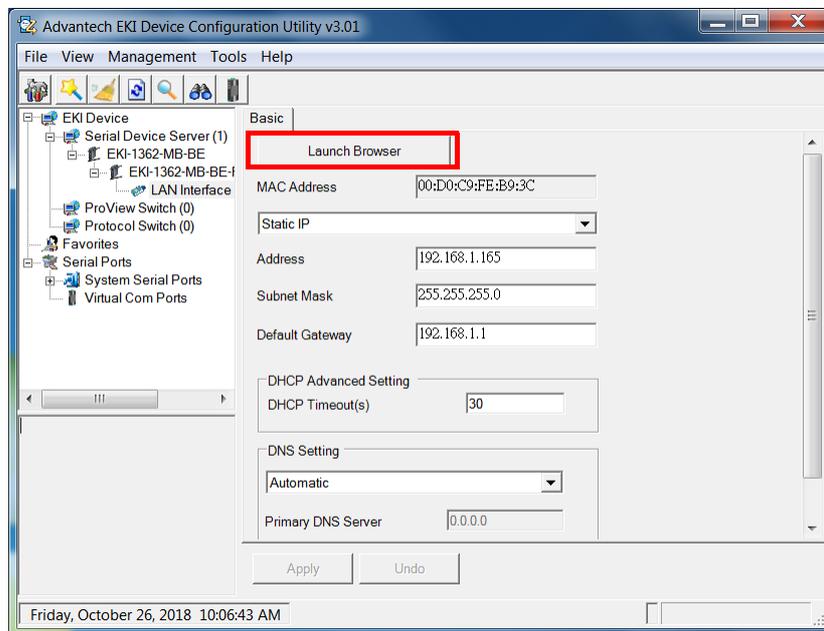


Figure 4.1 Accessing the Web Page via Configuration Utility

4.2.2 Accessing the Web Page via Web Browser

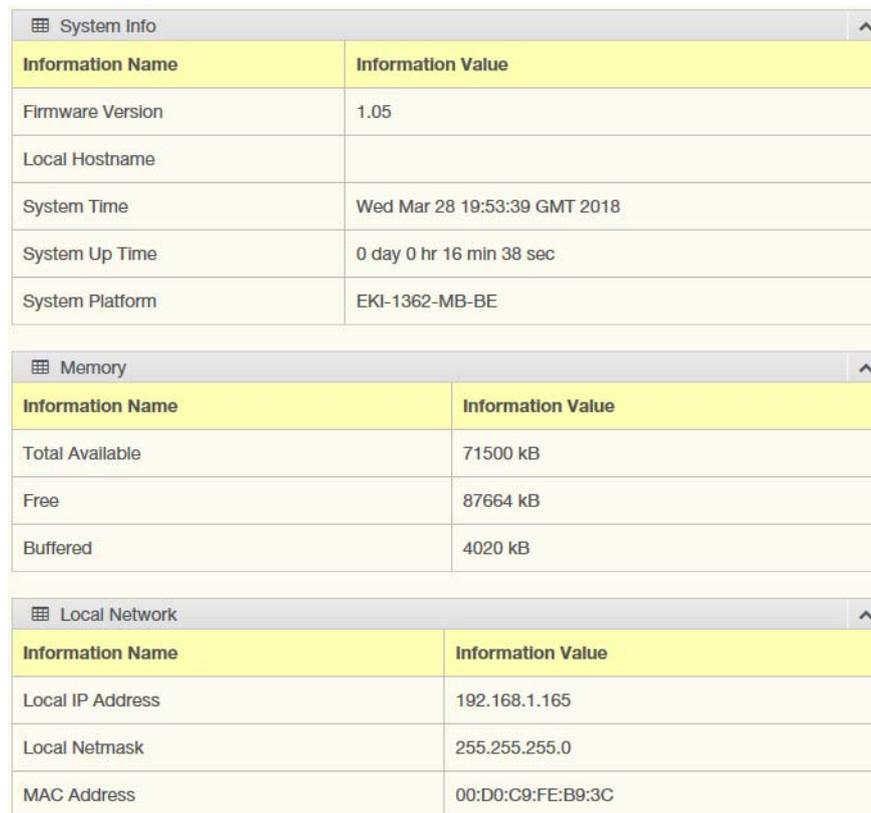
Once the device is installed and connected, power on the device. The following information guides you through the logging in process.

1. Launch your web browser on the PC.
2. In the browser's address bar, type the device's default IP address (LAN Interface 1: 10.0.0.1).

The main menu is shown.

4.3 Overview

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



The screenshot displays three expandable sections of system information:

- System Info:**

Information Name	Information Value
Firmware Version	1.05
Local Hostname	
System Time	Wed Mar 28 19:53:39 GMT 2018
System Up Time	0 day 0 hr 16 min 38 sec
System Platform	EKI-1362-MB-BE
- Memory:**

Information Name	Information Value
Total Available	71500 kB
Free	87664 kB
Buffered	4020 kB
- Local Network:**

Information Name	Information Value
Local IP Address	192.168.1.165
Local Netmask	255.255.255.0
MAC Address	00:D0:C9:FE:B9:3C

Figure 4.2 System

The following table describes the items in the previous figure.

Item	Description
System Info	
Firmware Version	Display the current firmware version of the device.
Local Hostname	Display 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.
Memory	
Total Available	Displays the total amount of physical memory installed RAM in kiloBytes (kB) on the device.
Free	Displays the currently unused RAM in kiloBytes (kB) on the device.
Buffered	Displays the RAM in kiloBytes (kB) set aside as a temporary holding place for data.

Item	Description
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.

4.4 Network Settings

4.4.1 LAN

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

The screenshot shows the 'LAN Interface Setup' window. It contains the following fields and options:

- Local Hostname:** An empty text input field.
- Network mode:** A dropdown menu currently set to 'Static IP'.
- IP Address:** A text input field containing '192.168.1.165'.
- Subnet Mask:** A text input field containing '255.255.255.0'.
- Default Gateway:** A text input field containing '192.168.1.1'.
- DNS:** Two radio buttons, 'Automatic' (selected) and 'Specific'.
- MAC Address:** A text input field containing '00:D0:C9:FE:B9:3C'.
- Apply:** A blue button at the bottom center.

Figure 4.3 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, DHCP/AutoIP, BOOTP/AutoIP or DHCP/BOOTP/AutoIP.
IP Address	Enter a value to specify the IP address of the interface. The default is 10.0.0.1.
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.
DNS	Click the radio button to select the DNS mode: Automatic or Specific.
DNS 1	Enter a value to specify the default DNS 1 for the interface.
DNS 2	Enter a value to specify the default DNS 2 for the interface.
DHCP Timeout	Enter a value to specify the timeout for getting response from DHCP server, the device will give up the request and take next action.
MAC Address	Display the MAC address to which packets are statically forwarded.
Apply	Click Apply 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**.



4.5 Wireless Settings

4.5.1 Basic

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

Figure 4.4 Wireless Settings > Basic

The following table describes the items in the previous figure.

Item	Description
Wireless Network	
Operation Mode	Click the drop-down menu to select an operation 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. The function is only enabled when Operation Mode is set to Access Point.
AP Isolation	Click the drop-down menu to enable or disable the AP Isolation function. The function is only enabled when Operation Mode is set to Access Point.
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. Available options: US (United States), Germany, France, China and Japan. Some specific channels and/or operational frequency bands are country dependent.

Item	Description
Channel Selection	Click the drop-down menu to select Auto (default) or Manual. The Auto selection allows the device to select a band. The Manual selection provides access to a selection of the option band (2.4G / 5G).
Band	Click the drop-down menu to select the band channel. The function is only enabled when Channel Selection is set to Manual.
Channel bandwidth or Band / 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.
Apply	Click Apply to save the values and update the screen.

4.5.2 Advanced

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

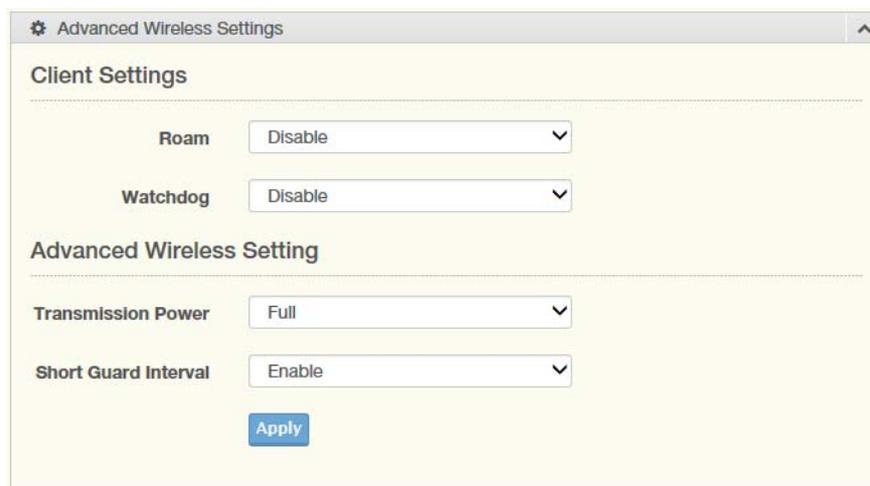


Figure 4.5 Wireless Settings > Advanced

The following table describes the items in the previous figure.

Item	Description
Client Settings	
Roam	Click the drop-down menu to enable/disable the roaming function (default: Disable). The function allows client devices to gateway between one access point (AP) to another.
Watchdog	The function is used to monitor specific events, which are triggered upon meeting set conditions. <ul style="list-style-type: none"> ■ Disable: Disable the watchdog function. ■ Disassociation: Once set conditions are met within the defined Disassociate Timer setting, one of the following watchdog actions is triggered: Restart WiFi, Reboot, Force or Re-association. ■ Ping: The feature pings a specified IP address.
Watchdog Action	Click the drop-down menu to associate a response to the Watchdog event, options: Restart WiFi, Reboot, Force Re-association.

Item	Description
Disassociate Timer	The set value in seconds defining the disassociation period. Once the condition is met, the defined watchdog action is triggered.
Ping target	Enter the IP address to ping when Watchdog Ping is selected.
Ping Waittime	Enter a value in seconds to designate the interval between pings.
Ping Loss Counter	Enter a value to activate the Watchdog function when the configured number of ping failure time is reached.
Advanced Wireless Setting	
Transmission Power	Click the drop-down menu to set the transmission power of the WiFi. By default the AP transmits at full power: Full, Half or Quarter.
Short Guard Interval	Click the drop-down menu to enable/disable the short guard interval. In 802.11 operation, the guard interval is 800ns. The short guard interval time is 400ns to allow for an increased throughput.
Apply	Click Apply to save the values and update the screen.

4.5.3 Security

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



Figure 4.6 Wireless Settings > 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 or 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.
Apply	Click Apply to save the values and update the screen.

4.5.4 Statistics

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

Overview	
Information Name	Information Value
Mode	Client
SSID	EKI-1362-MB
Channel / Frequency	

Receive Statistics	
Information Name	Information Value
BSSID	
Signal Level	dBm

Wlan status	
Information Name	Information Value
TX packets	0
TX bytes	0
RX packets	0
RX bytes	0

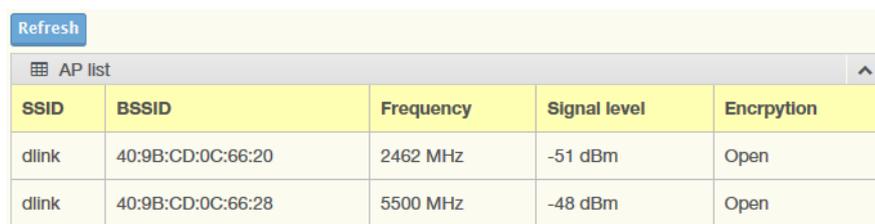
Figure 4.7 Wireless Settings > Statistics

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.
Receive Statistics	
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.
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.
Apply	Click Apply to save the values and update the screen.

4.5.5 Site Survey

To access this page, click **Wireless Settings > Site Survey**.



The screenshot shows a web interface with a 'Refresh' button at the top left. Below it is a table titled 'AP list' with the following columns: SSID, BSSID, Frequency, Signal level, and Encryption. Two rows of data are visible, both for 'dlink' SSID.

SSID	BSSID	Frequency	Signal level	Encryption
dlink	40:9B:CD:0C:66:20	2462 MHz	-51 dBm	Open
dlink	40:9B:CD:0C:66:28	5500 MHz	-48 dBm	Open

Figure 4.8 Wireless Settings > Site Survey

The following table describes the items in the previous figure.

Item	Description
Refresh	Click Refresh to update the screen.

4.5.6 Access Control

The Access Control feature is only available when the wireless mode of the device is set to AP, see “Basic” on page 40.

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 > Access Control**.



The screenshot shows a configuration window titled 'Access Control Method'. It contains a label 'Access Control Method' next to a drop-down menu currently set to 'Disable'. Below the menu is an 'Apply' button.

Figure 4.9 Wireless Settings > 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.
Apply	Click Apply to save the values and update the screen.

4.5.7 Log

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

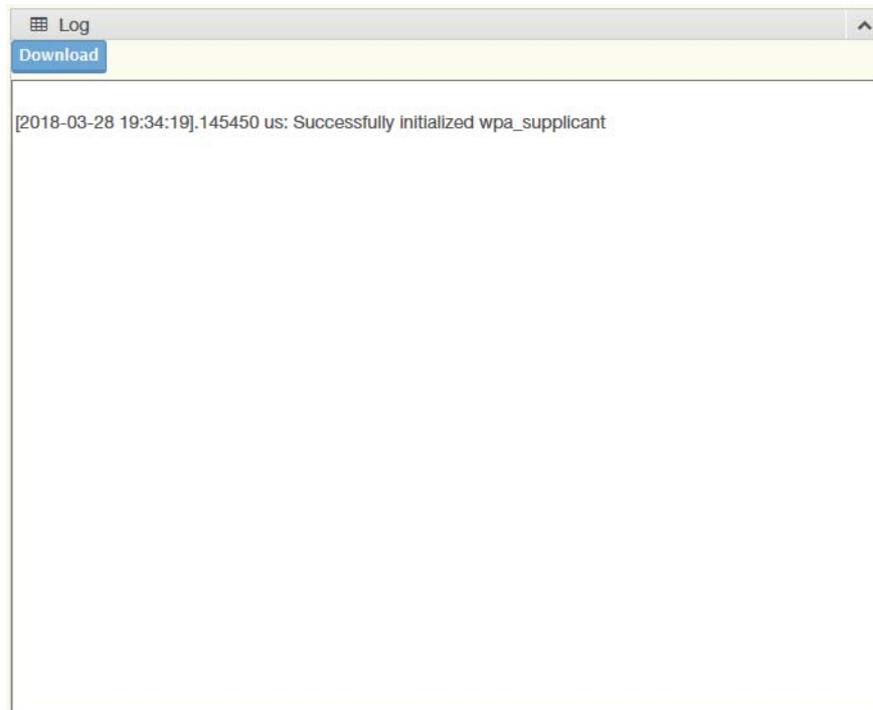


Figure 4.10 Wireless Settings > Log

The following table describes the items in the previous figure.

Item	Description
Download	Click Download to download the log file.

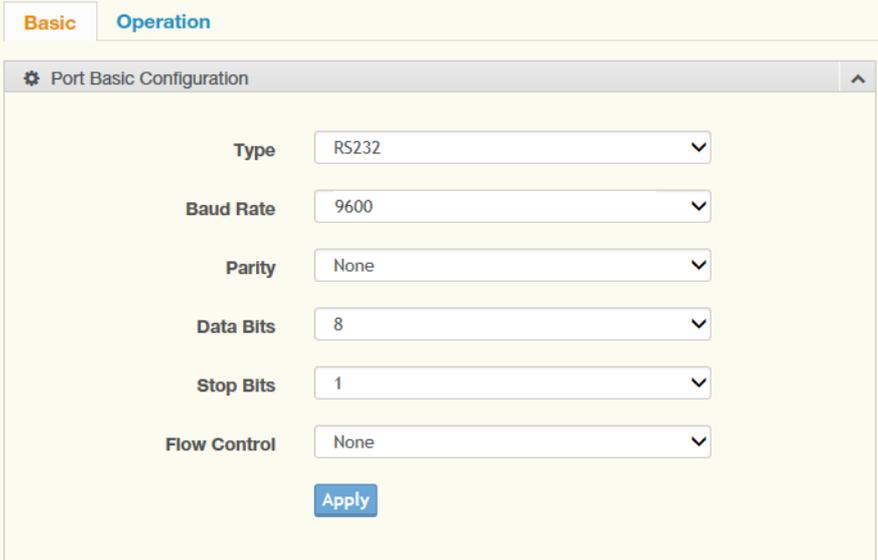
4.6 Port Configuration

The serial port configuration menu has Basic, Operation Mode, and Advanced Settings.

4.6.1 Basic

The Basic menu allows for the configuration of the serial interface type, baud rate, parity, data / stop bits, and flow control for port configuration.

To access this page, click **Port Configuration > Basic**.



The screenshot shows a web interface for 'Port Basic Configuration'. At the top, there are two tabs: 'Basic' (selected) and 'Operation'. Below the tabs is a title bar with a gear icon and the text 'Port Basic Configuration'. The main area contains six configuration items, each with a label and a drop-down menu:

- Type: RS232
- Baud Rate: 9600
- Parity: None
- Data Bits: 8
- Stop Bits: 1
- Flow Control: None

At the bottom of the configuration area is a blue 'Apply' button.

Figure 4.11 Port Configuration > Basic

The following table describes the items in the previous figure.

Item	Description
Type	Click the drop-down menu to select a serial interface: RS232, RS422 or RS485.
Baud Rate	Enter a value to specify the baud rate. The value should conform to the current transmission speeds of connected devices when setting the baud rate.
Parity	Click the drop-down menu to select the parity: None, Odd, Even, Mark or Space.
Data Bits	Click the drop-down menu to select the data bits: 5, 6, 7, or 8.
Stop Bits	Click the drop-down menu to select the stop bits: 1, 1.5 or 2.
Flow Control	Click the drop-down menu to select the flow control mode: None, Xon/Xoff or RTS/CTS
Apply	Click Apply to save the values and update the screen.

4.6.2 Operation

The Operation menu allows for the configuration of the mode type and related attributes for port configuration.

To access this page, click **Port Configuration > Operation**. Use this menu to select the port configuration mode: Modbus Slave Mode or Modbus Master Mode.

To translate RTU/ASCII to TCP, use Master Mode.

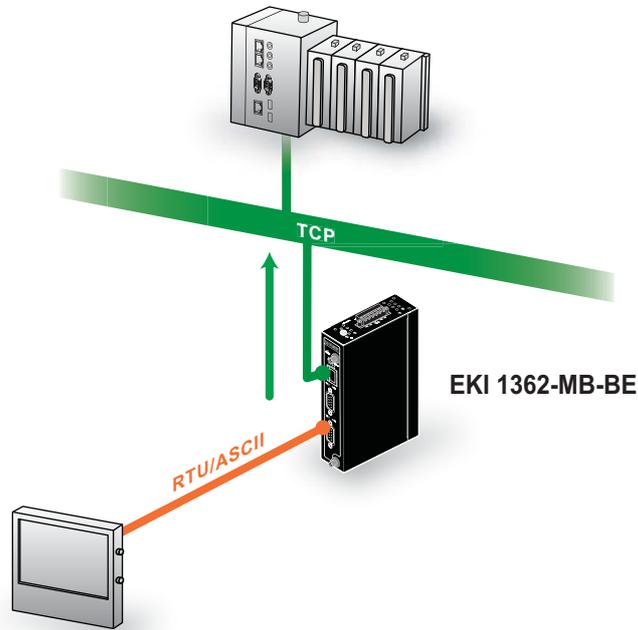


Figure 4.12 Master Mode

To translate TCP to RTU/ASCII, use Slave Mode.

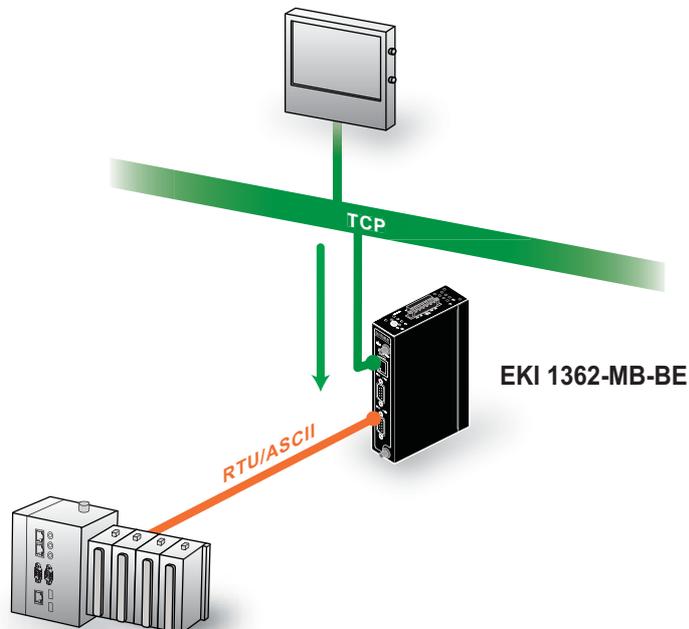


Figure 4.13 Slave Mode

These are the options for Modbus Slave Mode.

The screenshot shows the 'Port Operation Configuration' window with the 'Operation' tab selected. The settings are as follows:

- Mode:** Modbus Slave Mode (dropdown menu)
- Protocol:** RTU (dropdown menu)
- Slave Timeout(ms):** 3000 (range: 0 - 60000)
- Delay Time(ms):** 0 (range: 0 - 60000)
- ASCII Timeout(ms):** (disabled, range: 0 - 60000)
- Peer for Receiving Data:**
 - Peer Number:** 0 (dropdown menu)

An 'Apply' button is located at the bottom of the configuration area.

Figure 4.14 Port Configuration > Operation > Modbus Slave Mode

The following table describes the items in the previous figure.

Item	Description
Mode	Click the drop-down menu to select the port configuration mode: Modbus Slave Mode or Modbus Master Mode.
Protocol	Click the drop-down menu to select the protocol of the Slave Mode: RTU or ASCII.
Slave Timeout (ms)	Specify the time duration in milliseconds for the EKI-136x-MB-BE Series to wait for a response after it has issued a command while using Modbus/RTU or Modbus ASCII. After the timeout is expired and no response is received, the EKI-136x-MB-BE Series will regard the command as failed. Note that the timeout for the host PC must be greater than the timeout setting here specified, otherwise an error will occur.
Delay Timeout (ms)	Enter a value to specify the delay timeout.
ASCII Timeout (ms)	Enter a value to specify the ASCII timeout.
Peer for Receiving Data	
Peer Number	Click the drop-down menu to select the number of network device which you want to connect.
Apply	Click Apply to save the values and update the screen.

These are the options for Modbus Master Mode.

Figure 4.15 Port Configuration > Operation > Modbus Master Mode

The following table describes the items in the previous figure.

Item	Description
Mode	Click the drop-down menu to select the port configuration mode: Modbus Slave Mode or Modbus Master Mode.
Protocol	Click the drop-down menu to select the protocol of the Master Mode: RTU or ASCII.
Master Timeout (ms)	Specify the time duration in milliseconds for the EKI-136x-MB-BE Series to wait for a response after it has issued a command while using Modbus/RTU or Modbus ASCII. After the timeout is expired and no response is received, the EKI-136x-MB-BE Series will regard the command as failed. Note that the timeout for the host PC must be greater than the timeout setting here specified, otherwise an error will occur.
Frame Break (ms)	Enter a value to specify the frame break time.
Peer for Receiving Data	
Peer Number	Click the drop-down menu to select the number of network device which you want to connect.
Apply	Click Apply to save the values and update the screen.

4.7 Monitor

The EKI-136x-MB-BE Series device allows monitoring of the serial ports' status. The serial port's operation mode and status is available for display. The IP address of the host PC which is communicating with serial port is also displayed.

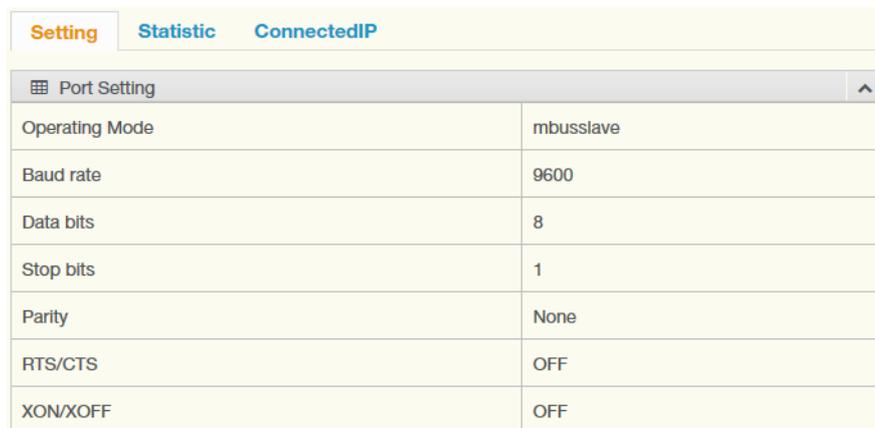
The Monitor function provides a method to monitor the device's status (operation mode, baud rate, data bits, stop bits, parity and RTS/XON/DTR).

Monitoring information is divided into three main message types: Setting/Statistic/Connected IP.

4.7.1 Setting

The Monitor Setting page allows for easy viewing of the port's statistics.

To access this page, click **Monitor > Setting**.



The screenshot shows a web interface with three tabs: 'Setting' (selected), 'Statistic', and 'ConnectedIP'. Below the tabs is a table titled 'Port Setting' with the following data:

Port Setting	
Operating Mode	mbuslave
Baud rate	9600
Data bits	8
Stop bits	1
Parity	None
RTS/CTS	OFF
XON/XOFF	OFF

Figure 4.16 Monitor > Setting

The following table describes the items in the previous figure.

Item	Description
Operation Mode	Display the current operation mode of the selected port.
Baud Rate	Display the current baud rate of the selected port.
Data Bits	Display the current data bits of the selected port.
Stop Bits	Display the current stop bits of the selected port.
Parity	Display the current parity of the selected port.
RTS/CTS	Display the current RTS/CTS status of the selected port.
XON/XOFF	Display the current XON/OFF status of the selected port.

4.7.2 Statistic

The Monitor Statistic page allows for easy viewing of the port's TX/RX data count. To access this page, click **Monitor > Statistic**.



The screenshot shows a web interface with three tabs: 'Setting', 'Statistic', and 'ConnectedIP'. The 'Statistic' tab is active. Below the tabs is a table titled 'Port Statistic' with a collapse icon. The table contains the following data:

Port Statistic	
Tx Count	0
Rx Count	0
Total Tx Count	0
Total Rx Count	0
RTS	ON
CTS	OFF
DTR	ON
DSR	OFF
DCD	OFF

Figure 4.17 Monitor > Statistic

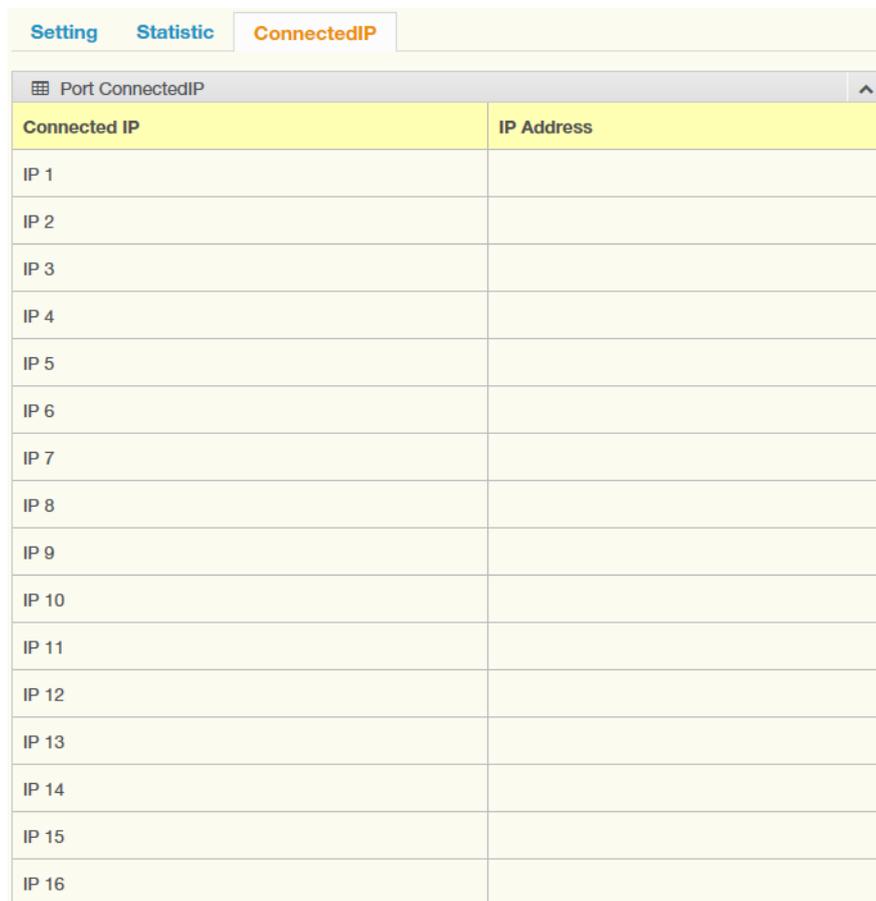
The following table describes the items in the previous figure.

Item	Description
Tx Count	Display the current Tx count of the selected port.
Rx Count	Display the current Rx count of the selected port.
Total Tx Count	Display the current total Tx count of the selected port.
Total Rx Count	Display the current total Rx count of the selected port.
RTS	Display the current RTS status of the selected port.
CTS	Display the current CTS status of the selected port.
DTR	Display the current DTR status of the selected port.
DSR	Display the current DSR status of the selected port.
DCD	Display the current DCD status of the selected port.

4.7.3 Connected IP

The Monitor Connected IP page allows for easy viewing of all connected device's IP address.

To access this page, click **Monitor > Connected IP**.



The screenshot shows a web interface with three tabs: 'Setting', 'Statistic', and 'ConnectedIP'. The 'ConnectedIP' tab is active. Below the tabs is a header 'Port ConnectedIP' with a grid icon and an upward arrow. The main content is a table with two columns: 'Connected IP' and 'IP Address'. The table contains 16 rows, each labeled 'IP 1' through 'IP 16' in the 'Connected IP' column, and the 'IP Address' column is currently empty.

Figure 4.18 Monitor > Connected IP

The following table describes the items in the previous figure.

Item	Description
Connected IP	Display the IP designation for the device.
IP Address	Display the current connected IP address of the selected port.

4.8 Alarm

You can set the e-mail server and SNMP Trap server in the Setting page, and set the event type in the Event page.

4.8.1 Setting

The Alarm Setting menu includes three alarm setting menus for event notification: Mail Sever, SNMP Trap Server, and the SNMP Agent Setting.

At the top of the list is the Mail Server setting which allows you to specify the mail server to be used by the device in order to deliver notifications to selected Email accounts.

The SNMP Trap Server settings allows you to specify the management station of a significant event by way of an unsolicited SNMP message.

The Simple Network Management Protocol (SNMP) is used by the device to collect detailed information about the device.

To access this page, click **Alarm > Setting**.

The screenshot shows the 'Alarm Setting' configuration page. It is divided into three main sections:

- Mail Server:** Includes a 'Mail Server' field, a 'From Email address' field with the value 'admin@advantech.com', and four 'Email address' fields (1 through 4).
- SNMP Trap Server:** Includes a 'Trap Server' field, a 'Trap Server Port' field with the value '162' (with a note '(1 - 65535)'), a 'Trap Version' section with radio buttons for 'v1' (selected) and 'v2c', and a 'Trap Community' field with the value 'public'.
- SNMP Agent Setting:** Includes fields for 'Read Community', 'Write Community', 'Contact', and 'Location'.

An 'Apply' button is located at the bottom of the form.

Figure 4.19 Alarm > Setting

The following table describes the items in the previous figure.

Item	Description
Mail Server	
Mail Server	Enter the SMTP mail server.
From Email address	Enter the email address.
Email address 1	Enter the email address 1 to receive alarm emails.
Email address 2	Enter the email address 2 to receive alarm emails.
Email address 3	Enter the email address 3 to receive alarm emails.
Email address 4	Enter the email address 4 to receive alarm emails.
SNMP Trap Server	
Trap Server	Enter the SNMP Trap server address.
Trap Server Port	Enter the SNMP Trap server port.
Trap Version	Click the radio button to select the SNMP version credentials: v1 or v2c.
Trap Community	Enter the community string to be passed for the specified event.
SNMP Agent Setting	
Read Community	Enter the read-only, public, community string.
Write Community	Enter the write-only, private, community string.
Contact	Enter the individual designated the contact point for this event.
Location	Enter the designated location/department of the setting.
Apply	Click Apply to save the values and update the screen.

4.8.2 Event

The Alarm Event page allows the selection of triggers for system, DCD and DSR events for the alarm function.

To access this page, click **Alarm > Event**.

Figure 4.20 Alarm > Event

The following table describes the items in the previous figure.

Item	Description
System Event	
Cold Start	Click the option to select a warning type when the device's power is cut off and reconnected.
Warm Start	Click the option to select a warning type when the device is reboot.
Authentication failure	Click the option to select a warning type when an incorrect password is entered.
IP address changed	Click the option to select a warning type when the IP address is changed.
Password changed	Click the option to select a warning type when the password is changed.
LAN Interface 1 link down	Click the option to select a warning type when the LAN Interface 1 port is disconnected.
DCD changed	
Port	Click the option to select a warning type of the selected port when a change in the DCD (Data Carrier Detect) signal indicates that the modem connection status has changed.
DSR changed	
Port	Click the option to select a warning type of the selected port when a change in the DSR (Data Set Ready) signal indicates that the data communication equipment is powered off.
Apply	Click Apply to save the values and update the screen.

4.8.3 LogFile

To access this page, click **Alarm > LogFile**.



Figure 4.21 Alarm > LogFile

The following table describes the items in the previous figure.

Item	Description
Log File	Click the drop-down menu to select a specific action for the system log file. Available options: Download Log File, Remove Log File, Download and Remove Log File.
Export	Click Export to download the log file.

4.9 Administration

4.9.1 System

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

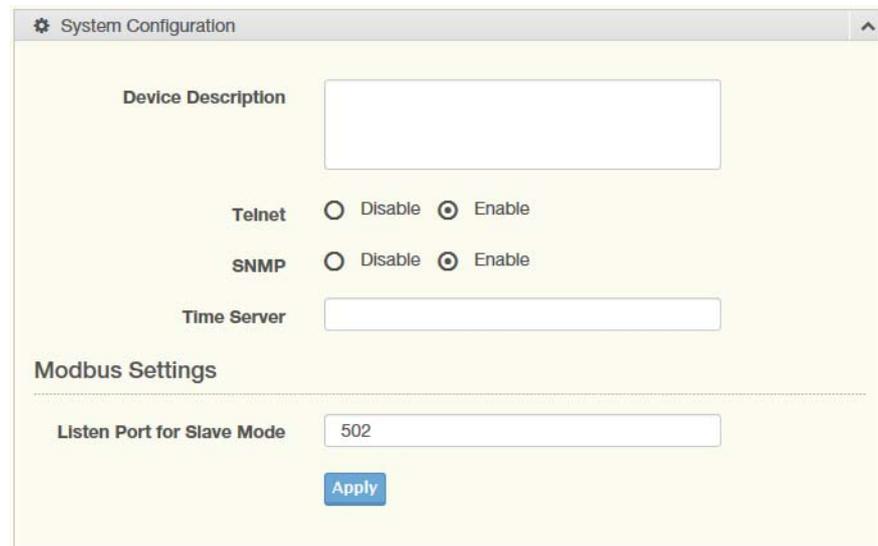


Figure 4.22 Administration > System

The following table describes the items in the previous figure.

Item	Description
Device Description	Enter the device description.
Telnet	Click Enabled or Disabled to set remote access through the Telnet Service function.
SNMP	Click Enabled or Disabled to define the SNMP daemon.

Item	Description
Time Server	Enter the address of the SNTP server. This is a text string of up to 64 characters containing the encoded unicast IP address or hostname of a SNTP server. Unicast SNTP requests will be sent to this address. If this address is a DNS hostname, then that hostname should be resolved into an IP address each time a SNTP request is sent to it.
Modbus Settings	
Listen Port for Slave Mode	Enter a value to identify the channel for remote initiating connections. The default value is 502.
Apply	Click Apply to save the values and update the screen.

4.9.2 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 > Syslogd**.

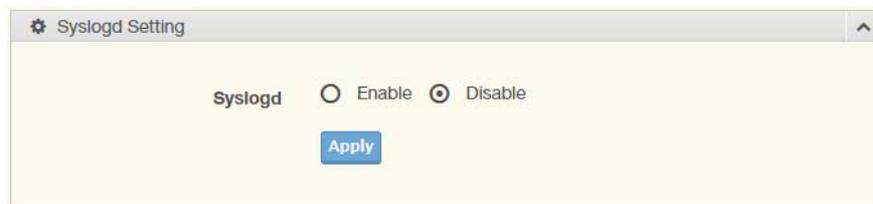


Figure 4.23 Administration > Syslogd

The following table describes the items in the previous figure.

Item	Description
Syslogd	Click Enabled or Disabled to set the logging service status.
Apply	Click Apply to save the values and update the screen.

4.9.3 Modbus IP Mapping

To access this page, click **Administration > Modbus IP Mapping**.

IP Address	Port	Dropped Packets
	-	-

Figure 4.24 Administration > Modbus IP Mapping

4.9.4 Modbus Port Mapping

To access this page, click **Administration > Modbus Port Mapping**.

Unit ID	Port Number	Address	CRC Error	Timeout

Figure 4.25 Administration > Modbus Port Mapping

4.9.5 Modbus Slave Response Time

To access this page, click **Administration > Modbus Slave Response Time**.

ID	Response Time (msec)
Clear All	

Figure 4.26 Administration > Modbus Slave Response Time

The following table describes the items in the previous figure.

Item	Description
Clear All	Click Clear All to clear all information.

4.9.6 HTTP

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

Figure 4.27 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	Enter the name of the user entry.
Password	Enter the character set for the define password type.
Confirm Password	Retype the password entry to confirm the profile password.
Apply	Click Apply to save the values and update the screen.

4.9.7 Configuration

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

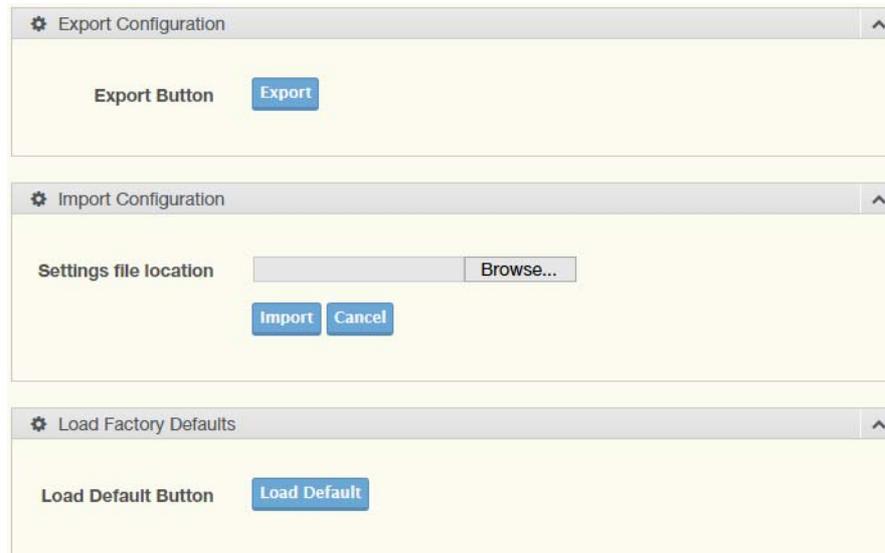


Figure 4.28 Administration > Configuration

The following table describes the items in the previous figure.

Item	Description
Export Configuration	
Export	Click Export to export the device settings.
Import Configuration	
Browse	Click Browse to select the configuration file.
Import	Click Import to import the configuration to the device.
Cancel	Click Cancel to cancel the import function.
Load Factory Defaults	
Load Default	Click Load Default 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.

4.9.8 Firmware Upgrade

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



Figure 4.29 Administration > Firmware Upgrade

The following table describes the items in the previous figure.

Item	Description
Browse	Click Browse to select the configuration file.
Upload	Click Upload to upload to the current version.

4.9.9 Tools

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



The screenshot shows two panels. The top panel is titled 'Reboot' and contains a 'Reboot' button. The bottom panel is titled 'Ping' and contains a text input field labeled 'IP Address / Name' and a 'Ping' button.

Figure 4.30 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.

Chapter 5

Telnet/Serial Console
Configuration

5.1 Overview

The purpose of the Console Configuration is to help you manage your device in console mode. One of the main functions of the console mode is to change the web configuration login password. You can use terminal software like Hyper Terminal, Telix and other related terminal software.

5.2 Telnet Console

5.2.1 Create a new connection

You can create a new Telnet connection and assign a connection name for the console configuration.

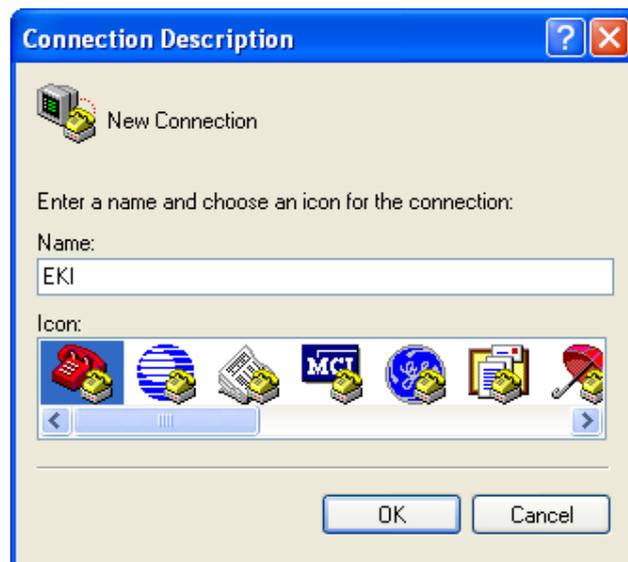


Figure 5.1 Creating a Telnet Connection

5.2.2 Input the IP address

Confirm that the Telnet console configuration works ok. Be sure that your host PC Ethernet network IP domain is as same as the EKI-136x-MB-BE Series device, and the Telnet TCP port number is “23”.

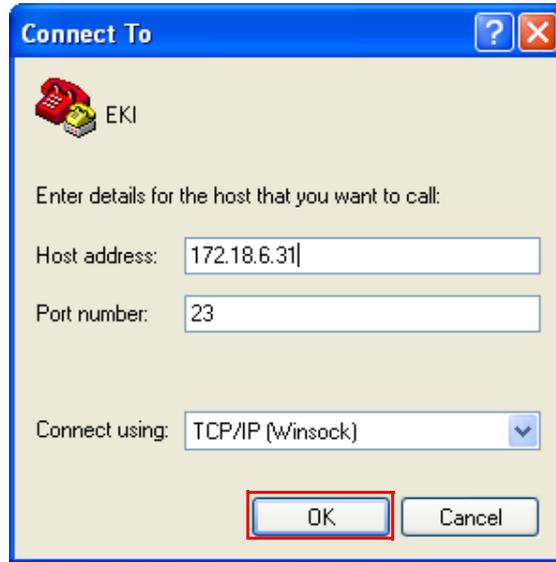


Figure 5.2 Creating a Telnet Connection

5.2.3 Connection Success

After connecting to the device in HyperTerminal console, a welcome greeting displays.

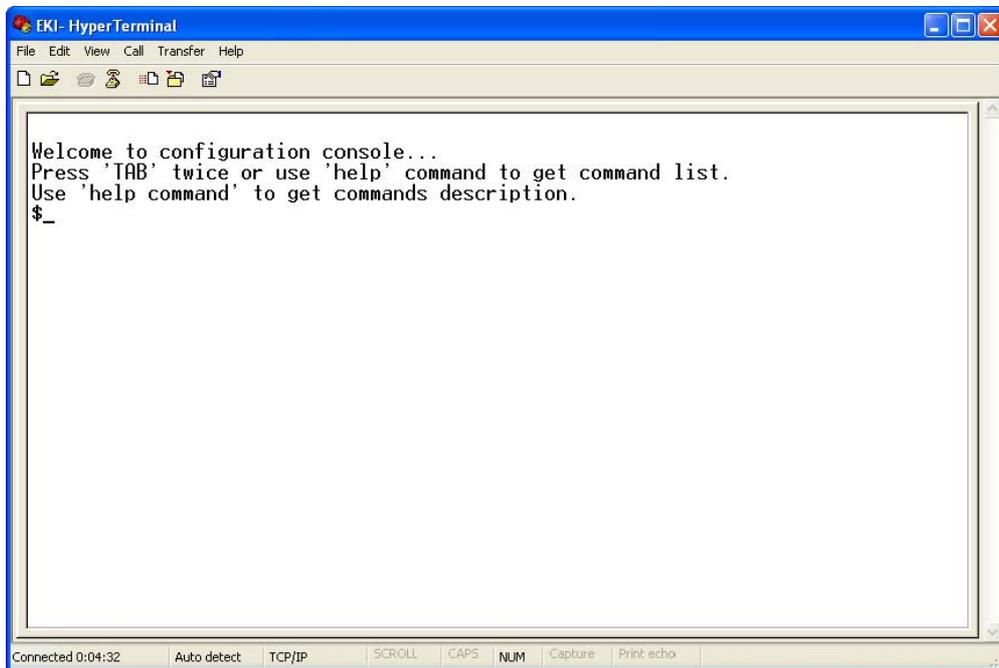


Figure 5.3 Telnet Connection Console

At the command prompt, you can type a “help” followed by the Enter button, or <Tab> twice, to display the command list.

You can toggle between the different command menu options.

5.3 Command List

Command	Function Description
system	Show or configure the system information
port	Show or configure the serial ports information
portadv	Show or configure the serial ports advanced settings
mvcom	Show or configure the serial ports in Virtual COM mode
mctrl	Show or configure the serial ports in Control mode (USDG)
mdata	Show or configure the serial ports in Data mode (USDG)
net	Show or configure the Ethernet ports settings
password	Set or change the password
alarm	Show or configure the auto warning functions including mail alarm and SNMP alarm
monitor	Monitor the serial ports status
time	Show or configure the time information
service	Enable or disable the web, Telnet and SNMP functions
apply	Write settings to the flash memory and reboot the system immediately
exit	Terminate the shell session
help	Display command list help information
import	Import the device all settings
export	Export the device all settings
wireless	Show or configure the wireless settings or informations
wirelessadv	Show or configure the advanced wireless settings or informations

5.3.1 system

Usage: system

Show firmware version, device name and description.

Usage: system name [Maximum length 31 bytes]

Set current device name.

Usage: system desc [Maximum length 127 bytes]

Set current device description.

5.3.2 port

Usage: port [nn|all]

Show the “nn”th port or all ports information.

Usage: port [nn] desc [Maximum length 127 bytes]

Set the “nn”th port’s description.

Usage: port [nn|all] type [232|422|485] flow [0|1|2|3]

Set serial ports’ type and flow control.

- flow 0: None.
- flow 1: XOn/XOff.
- flow 2: RTS/CTS.
- flow 3: DTR/DSR.

Usage: port [nn|all] baud [50-921600] parity [n|e|o|m|s] data [5-8] stop [1|1.5|2]

Set the serial ports' baud rate, parity, data bits, and stop bits.

Acceptable baud: 50, 75, 110, 150, 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 14400, 19200, 38400, 57600, 115200, 230400, 460800, and 921600

- parity n: None Parity.
- parity e: Even Parity.
- parity o: Odd Parity.
- parity m: Mark Parity.
- parity s: Space Parity.

Usage: port [nn|all] mode [vcom|ctrl|data]

Set the serial ports as virtual COM mode, control mode, or data mode.

5.3.3 portadv

\$ help portadv

Show port advanced setting.

Usage: portadv [nn|all] delayT []

Set delay time(ms).

Usage: portadv [nn|all] ignorepurge [TRUE|FALSE] dischato [TRUE|FALSE] dismulticon [TRUE|FALSE]

Enable or disable the feature of ignore purge,
Disable character timeout detection, and disable multiple connection.

Usage: portadv [nn|all] databuf []

Set databuffer threshold.

Usage: portadv [nn|all] timeout [] rtl [] ttl [] fcl [] fch []

Set port timeout, and set portrtl, portttl, portfcl, portfch.

Usage: portadv [nn|all] fifosize [size|null]

Set port Writed size of FIFO, null for disable

Usage: portadv [nn|all] rts []

Set port RTS status.

- value 0: None Setting.
- value 1: Setting power on.
- value 2: Setting accept on.
- value 4: Setting transmission on.

Usage: portadv [nn|all] dtr []

Set port DTR status.

- value 0: None Setting.
- value 1: Setting power on.
- value 2: Setting accept on.
- value 4: Setting transmission on.

5.3.4 mvcom

Usage: mvcom

Show all serial ports mode and related information.

Usage: mvcom [nn|all]

Set the “nn”th or all serial ports as the Virtual COM mode.

Usage: mvcom [nn|all] idleto []

Set the “nn”th or all serial ports host idle timeout(S).

Usage: mvcom [nn|all] respto [] framebk []

Set the “nn”th or all serial ports response timeout and frame break.

5.3.5 mctrl

Usage: mctrl

Show all serial ports mode and related information.

Usage: mctrl [nn|all]

Set the “nn”th or all serial ports as the control mode.

Usage: mctrl [nn|all] idleto [] guardt [] hangchr []

Set the “nn”th or all serial ports data idle timeout, guard time and hang character.

5.3.6 mdata

Usage: mdata

Show all serial ports mode and related information.

Usage: mdata [nn|all]

Set the “nn”th or all serial ports as the data mode.

Usage: mdata [nn|all] protocol [TCP|UDP]

Set the “nn”th or all serial ports’ transmit protocol as TCP or UDP.

Usage: mdata [nn|all] idleto [] lsport [] atport []

Set the “nn”th or all serial ports data idle timeout, listen port, and AT command port.

Usage: mdata [nn|all] respto [] framebk []

Set the “nn”th or all serial ports response timeout and frame break.

Usage: mdata [nn|all] peernum [1-16] peer [d.d.d.d:d] ...

Set the peer IP address and port for receive data.

5.3.7 net

Usage: net [1|2]

Show the first or second Ethernet port status and information.

Usage: net [1|2] mode [static|dhcp|boot|all]

Set the network operating mode.

Usage: net [1|2] ip [d.d.d.d] netmask [d.d.d.d] gw [d.d.d.d]

Set IP address, subnet mask, and default gateway.

Usage: net [1|2] dns [auto|specific]

Enable/Disable DNS.

Usage: net [1|2] dns1 [d.d.d.d]

Set network DNS1.

Usage: net [1|2] dns2 [d.d.d.d]

Set network DNS2.

5.3.8 password

Usage: password

Display two different Usage.

Usage: password new [1-31 characters]

Set new password.

Usage: password old [**...] new [1-31 characters]

Confirm the old password and set new password.

5.3.9 alarm

Usage: alarm

Show current alarm informations.

Usage: alarm mail server [null|address] from [null|address] to1 [null|address] to2 [null|address] to3 [null|address] to4 [null|address]

Set current mail server configuration.

Usage: alarm trap server [null|address] ver [1|2] community [null|name]

Set current trap server configuration.

Usage: alarm agent rcommunity [null|name] wcommunity [null|name] contact [null|name] location [null|name]

Set current snmp agent configuration.

Usage: alarm event mail [cstart] [wstart] [auth] [ip] [passwd] [eth1] [eth2]

Set current mail event configuration.

Usage: alarm event trap [cstart] [wstart] [auth] [eth1] [eth2]

Set current trap event configuration.

Usage: alarm port [1|2|..] dcd [none|mail|trap|all] dsr [none|mail|trap|all]

Set current port alarm configuration.

5.3.10 monitor

Usage: monitor port [1-16] setting

Monitor the serial ports settings.

Usage: monitor port [1-16] statistic

Monitor the serial ports statistic.

Usage: monitor port [1-16] ip

Monitor the serial ports connected IP address.

5.3.11 time

Usage: time

Show current time informations.

Usage: time [YYYYMMDDhhmmss]

Set current time configuration.

Usage: time timezone[-12|...|0|1..|12]

Set current time zone configuration.

Usage: time daylight [on|off] [begin [MMDD] end [MMDD]]

Set current daylight saving configuration.

Usage: time ntp [timeserver]

Set current time server configuration.

5.3.12 **service**

Usage: service web [enable|disable]

Enable/Disable web function.

Usage: service telnet [enable|disable]

Enable/Disable telnet function.

Usage: service snmp [enable|disable]

Enable/Disable SNMP function.

5.3.13 **apply**

Usage: apply

Save the settings to the flash memory and reboot the system immediately.

5.3.14 **exit**

Usage: exit

Terminate the shell session.

5.3.15 **help**

Usage: help

Display help information of command list.

Usage: help [cmd]

Show the usage of command.

5.3.16 **import**

Usage: import

Import the device settings' file.

5.3.17 **export**

Usage: export

Export the device settings' file.

5.3.18 **wireless**

Usage: wireless

Show or configure the wireless settings or informations.

Usage: wireless ssid []

Set SSID.

Usage: wireless country [us|de|fr|es|jp|kr|cn] channel [0|1|...|14]

Set country code and channel.

- us: United States
- de: Germany
- fr: France
- es: Spain
- jp: Japan
- kr: Korea
- cn: China
- channel 0: Auto

Usage: wireless encryption [none|wep|wpa-psk|wpa-enterprise]

Set encryption type.

Usage: wireless wepauth [on|off]

Set WEP authentication algorithm.

Usage: wireless wepidx [0|1|2|3]

Set WEP key index.

Usage: wireless wepkey [asc|hex] []

Set WEP key as [] in specific format.

Usage: wireless wpakey []

Set WPA-PSK key as [].

Usage: wireless wpaep [tls|ttls|peap]

Set WPA-Enterprise EAP method.

Usage: wirelesswpa11w [0|1|2]

Set WPA-Enterprise management frame protected.

– 0: Disable

– 1: Optional

– 2: Required

Usage: wireless wpaed []

Set WPA-Enterprise identity as [].

Usage: wireless wpaepw []

Set WPA-Enterprise as [].

Usage: wireless wpaephase [mschapv2|md5]

Set WPA-Enterprise inner authentication.

Usage: wireless capw []

Set private key as [].

Usage: wireless cacert

Import the CA certification from host PC to device.

Usage: wireless caclient

Import the Client certification from host PC to device.

Usage: wireless cakey

Import the private key from host PC to device.

5.3.19 wirelessadv

Usage: wirelessadv

Show device wireless advance informations.

Usage: wirelessadv rts [256|...|2347]

Set RTS threshold.

Usage: wirelessadv frag [256|...|2346]

Set fragmentation threshold.

Usage: wirelessadv roaming [on|off]

Enable/disable Roaming.

Usage: wirelessadv rssi [10|...|95]

Set connection quality monitor RSSI threshold.

Usage: wirelessadv preamble [short|long]

Set preamble.

Usage: wirelessadv scanint_high [10|...|600]

Set scan interval when received signal strength is better than RSSI threshold.

Usage: wirelessadv scanint_low [10|...|600]

Set scan interval when received signal strength is worse than RSSI threshold.

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