Simply Better Connections

VK224 / VK236 / VK248 VK258

ATEN Expansion Box

User Manual

Compliance Statements

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

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

The 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 Caution

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

Warning

Operation of this equipment in a residential environment could cause radio interference.

Achtung

Der Gebrauch dieses Geräts in Wohnumgebung kann Funkstörungen verursachen.

KCC Statement

유선 제품용 / A 급 기기 (업무용 방송 통신 기기)
이 기기는 업무용 (A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 , 가정 외의 지역에서 사용하는 것을 목적으로 합니다 .

Industry Canada Statement

This Class A digital apparatus complies with Canadian ICES-003.

CAN ICES-003 (A) / NMB-003 (A)

RoHS

This product is RoHS compliant.

User Information

Online Registration

Be sure to register your product at our online support center:

International	http://eservice.aten.com

Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-400-810-0-810
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988 1-949-428-1111

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Product Information

For information about all ATEN products and how they can help you connect without limits, visit ATEN on the Web or contact an ATEN Authorized Reseller. Visit ATEN on the Web for a list of locations and telephone numbers:

International	http://www.aten.com
North America	http://www.aten-usa.com

Package Contents

Check to make sure that all the components are in working order. If you encounter any problem, please contact your dealer.

VK224

- 1 VK224 4-Port Serial Expansion Box
- 1 mounting kit
- 1 user instructions

VK236

- 1 VK236 6-Port IR/Serial Expansion Box
- 1 mounting kit
- 6 terminal blocks
- 1 user instructions

VK248

- 1 VK248 8-Channel Relay Expansion Box
- 1 mounting kit
- 9 terminal blocks
- 1 user instructions

VK258

- 1 VK258 8-Channel Digital I/O Expansion Box
- 1 rack mount kit
- 9 terminal blocks
- 1 user instructions

About this Manual

This user manual is provided to help you get the most from your ATEN Expansion Box. It covers all aspects of installation and configuration for the following models:

Model Number	Description
VK224	4-Port Serial Expansion Box
VK236	6-Port IR/Serial Expansion Box
VK248	8-Channel Relay Expansion Box
VK258	8-Channel Digital I/O Expansion Box

Note:

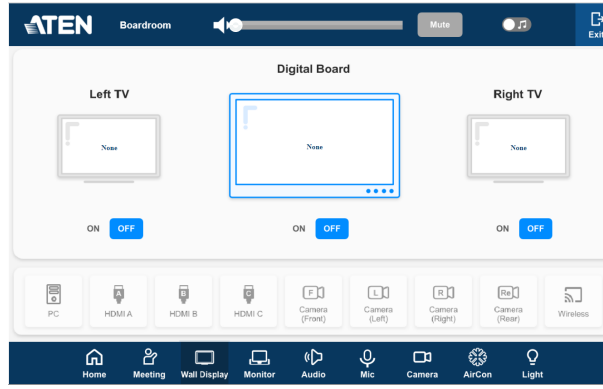
- Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit and/or connected devices.
- The product may be updated, with features and functions added, improved, or removed since the release of this manual. For an up-to-date user manual, visit http://www.aten.com/global/en/

Conventions

This manual uses the following conventions:

`Monospaced`	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
>	Indicates consecutive selecting options (such as on a menu or dialog box). For example, Start > Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

Terminology

Terminology	Description
controller	A controller refers to any model of ATEN Control Box Gen. 2 and Control Pad.
Viewer	A Viewer is a software control interface that system operators use to control and operate devices managed by ATEN control system. The Viewer is fully configurable and customizable using ATEN Configurator. For example: 
Project	A project is a configuration file, generated using ATEN Configurator to specify settings of an ATEN Control System, including one or multiple controllers, managed devices, and control interfaces.

Contents

Appendix

Chapter 1
Introduction

The ATEN Expansion Box provides an expansion of device connections through Ethernet. Depending on your model of Expansion Box, it can provide additional connectivity to bi-directional serial (RS-232, RS-422, RS-485), IR & serial, relay, and digital I/O. This chapter provides the following information of ATEN Expansion Box:

- *Features*
- *Compatible Products*

Features

- Provides an expansion to devices of different interfaces:

ATEN Expansion Box	Interface	No. of Ports / Channels
VK224	bi-directional RS-232 / 422 / 485	4
VK236	programmable IR / uni-directional RS-232	6
VK248	normally-open relay	8
VK258	digital I/O	8

- Supports Power over Ethernet (PoE) or DC power supply
- Supports IEEE 802.1x authentication protocol for enhanced network security
- Supports Modbus protocol—enables integration with Modbus devices, including TCP, RTU, and its checksum data (applicable to VK224 only)
- Supports Telnet CLI (command-line interface) mode for third-party system integration
- Supports Pronto formatted IR codes- IR command codes can be entered in Hex format (applicable to VK236 only)
- Web UI provides system information, including firmware upgrade
- Flexible deployment via Ethernet connection

- Works with a connected ATEN controller with ID Switch through instant configuration

Compatible Products

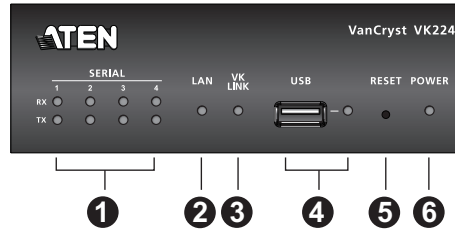
The ATEN Expansion Box is compatible with a wide range of the ATEN Pro AV products. For more information on these products, visit the official product page of your Expansion Box model.

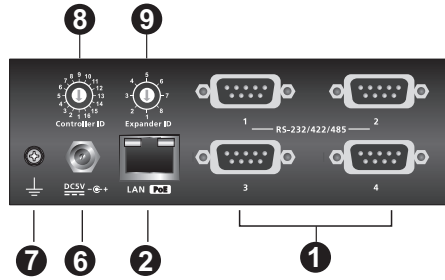
Chapter 2
Hardware Setup

This chapter provides an overview of the device panel and installation information of the ATEN Expansion Box.

Hardware Overview

VK224

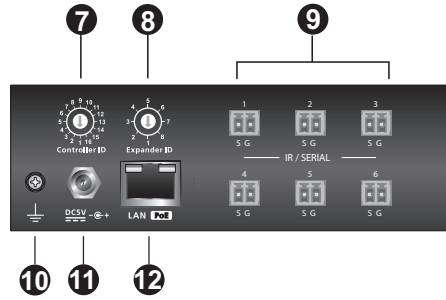


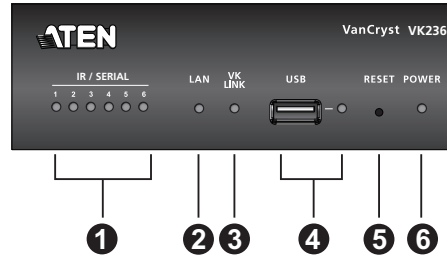


No.	Component	Description
1	RS-232 / RS-422 / RS-485 Ports and Serial LEDs	◆ Four ports with supported RS-232/422/485 conversion by pin assignment and RTS/CTS flow control. The RS232, RS422, or RS485 connection is defined by pin. The RX/TX LED (1~4) lights green to indicate serial signals are being received and transmitted.
2	Ethernet port and LED	◆ Plug one end of an Ethernet cable into this port to provide network access. To supply both network access and power through this cable, plug the other end of the cable to a PoE switch or a PoE injector connected to a standard network switch or router. ◆ LINK: The LED blinks green to indicate the VK224 has connected to the network successfully.
3	VK link LED	◆ The VK Link LED lights green when the VK224 establishes a connection to the controller. ◆ To establish a connection, the VK224 must be connected to the network and configured in the Configurator software.
4	USB port / LED	◆ This is where a USB drive plugs in to upgrade the firmware. ◆ The LED blinks green to indicate the firmware is being installed, and lights solid green to indicate a successful installation. ◆ The LED lights orange to indicate the firmware upgrade failed.

No.	Component	Description
5	reset pushbutton	This semi-recessed pushbutton can be pressed to reset the network settings.
6	power jack and LED	◆ This standard power jack is where the power adapter plugs in. ◆ The LED lights green when power is being supplied by the power adapter or Power over Ethernet (PoE).
7	grounding terminal	This is where the grounding wire attaches.
8	controller ID switch	Set this 16-segment switch to the controller ID of the controller that it connects to over the network.
9	expander ID switch	Set this 8-segment switch to a unique ID for the unit and use it to configure the VK224 in the Configurator.

VK236

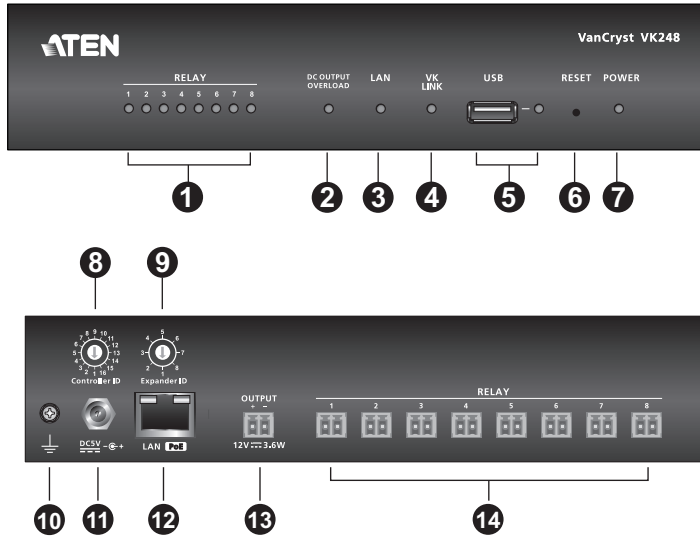




No.	Component	Description
1	IR / serial LEDs	The six LEDs light green to indicate signals are being transmitted between a connected device and the controller, for each port.
2	LAN LED	The LED lights green to indicate the VK236 has connected to the network.
3	VK link LED	The LED lights green when the VK236 establishes a connection with the controller. To establish a connection, the VK236 must be connected to the network and configured with the Configurator software.
4	USB port and LED	This is where a USB drive plugs in to upgrade the firmware.
5	reset pushbutton	◆ This semi-recessed pushbutton can be pressed to reset the network settings. The LAN LED will turn off and then light green when the network connection is reestablished. ◆ If the reset pushbutton is pressed for 8 seconds it will reboot the VK236, and all IR/Serial LEDs will light (on/off) once in unison to indicate the device is shutting down. After 5 seconds, all IR/Serial LEDs will light solid green while the device is booting up, and then turn off when the reset is complete.
6	power LED	The LED lights green when power is being supplied by the power adapter or the LAN port via Power over Ethernet (PoE).
7	controller ID	Set this 16-segment switch to the controller ID of the target controller that the unit connects to over the network.
8	expander ID	Set this 8-segment switch to a unique ID for the unit and use the ID to configure the VK236 in the Configurator software.
9	IR / Serial ports	Six IR ports that can also be configured as RS-232 TX ports. pin1: Signal / pin2: Ground.

No.	Component	Description
10	grounding terminal	This is where the grounding wire attaches. Always ground the unit with a proper grounding wire and suitable grounded object.
11	power jack	This standard power jack is where the power adapter plugs in.
12	LAN (PoE) port	Plug one end of an Ethernet cable into this port to provide network access. To supply both network access and power through this cable, plug the other end of the cable to a PoE switch or a PoE injector connected to a standard network switch or router.

VK248

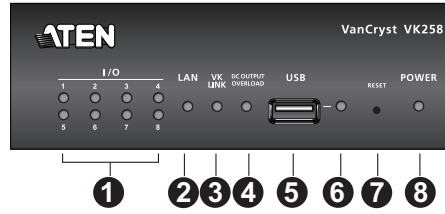


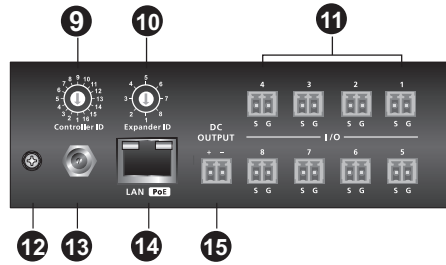
No.	Component	Description
1	relay LEDs	The eight LEDs light Green to indicate signals are being transmitted (closed loop) between a connected device and a controller, for each port.

No.	Component	Description
2	DC oputput overload LED	The LED lights orange to indicate the DC output exceeds the maximum output allowable. When the LED lights orange, disconnect any of the connected devices to keep the total output under 3.6 W, and then press and hold the reset button for at least 8 seconds, until all Relay LEDs light (on/off) once in unison to indicate the device is shutting down. After 5 seconds, all Relay LEDs will light solid Green while the device is booting up, and then turn off when the reset is complete.
3	LAN LED	The LED blinks green to indicate the VK248 has connected to the network.
4	VK link LED	The LED lights green when the VK248 establishes a connection to the controller. To establish a connection, the VK248 must be connected to the network and configured in the Configurator software.
5	USB LED and port	This is where a USB drive plugs in to upgrade the firmware. The USB LED blinks green to indicate the firmware is being installed, and lights solid green to indicate a successful installation. The LED lights orange to indicate the firmware upgrade failed.
6	reset pushbutton	This semi-recessed pushbutton can be pressed to reset the network settings. The LAN LED will turn off and then light green when the network connection is reestablished. If the reset pushbutton is pressed for 8 seconds it will reboot the VK248, and all Relay LEDs will light (on/off) once in unison to indicate the device is shutting down. After 5 seconds, all Relay LEDs will light solid Green while the device is booting up, and then turn off when the reset is complete.
7	power LED	The LED lights green when power is being supplied by the power adapter or the LAN port via Power over Ethernet (PoE).
8	controller ID	Set this 16-segment switch to the same controller ID of the controller that it connects to over the network.

No.	Component	Description
9	expander ID	Set this 8-segment switch to a unique ID for the unit and use it to configure the VK248 in the VK6000 software.
10	grounding terminal	This is where the grounding wire attaches. Always ground the unit with a proper grounding wire and suitable grounded object.
11	power jack	This standard power jack is where the power adapter plugs in.
12	LAN (PoE) port	Plug one end of an Ethernet cable into this port to provide network access. To supply both network access and power through this cable, plug the other end of the cable to a PoE switch or a PoE injector connected to a standard network switch or router.
13	DC output ports	This DC output connector provides a total power output of 12 VDC / 300 mA max.
14	relay channels	Eight channels; normally open, isolated relays with a contact rating of 24 VDC, 2A max.

VK258





No.	Component	Description
1	I/O LEDs	Light green to indicate that signals are being transmitted between an I/O device and an ATEN controller. Blink green to indicate that a firmware upgrade is in progress.
2	LAN LED	Lights green when the VK258 is connected to the network.
3	VK Link LED	Lights green when the VK258 has established a connection with the connected ATEN controller.
4	USB Port	Receives a USB drive to upgrade the firmware.
5	USB LED	Lights green to indicate that a firmware upgrade is in progress via a USB device and turns off when the upgrade is complete. Lights orange to indicate that the upgrade was unsuccessful.
6	Reset Button	Press once to reset the network settings. The LAN LED turns off and lights green again to indicate that the settings are reset. To reboot the unit, press and hold the button for 8 seconds, until all I/O LEDs light once in unison. In about 5 seconds, all I/O LEDs light green to indicate that the unit is booting up. The reboot is complete when the I/O LEDs turn off.
7	Power LED	Lights green to indicate that the unit is receiving power.
8	Power LED	Lights green to indicate that the unit is receiving power.
9	Controller ID Switch	Sets the ID of the ATEN controller to which the unit connects.
10	Expander ID Switch	Sets an ID for the unit; the ID will be required when configuring the unit in ATEN Configurator (VK6000).

No.	Component	Description
11	I/O Channels	Connect up to eight I/O devices. ◆ Digital input: programmable input range 1 – 24VDC or contact closure with +12 VDC pull-up ◆ Digital output: 300 mA sink from 24 VDC
12	Grounding Terminal	Receives a grounding wire.
13	Power Jack	Receives a power adapter wire.
14	Ethernet Port	Plug one end of an Ethernet cable into this port to provide network access. To supply both network access and power through this cable, plug the other end of the cable to a PoE switch or a PoE injector connected to a standard network switch or router.
15	DC Output Port	Supplies a total power output of 12 VDC/300mA max to the connected I/O devices.

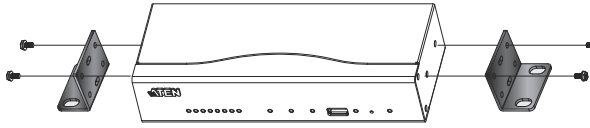
Installing ATEN Expansion Box

- Important safety information regarding the placement of this device is provided on *Safety Instructions*, page 27. Please review it before proceeding.
- Make sure that the power to all devices connected to the installation are turned off.

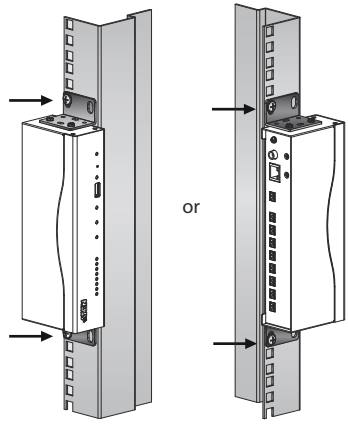
Rack Mount

Follow the procedure below to mount your expansion box to a rack. The VK248 is used as an example in this procedure.

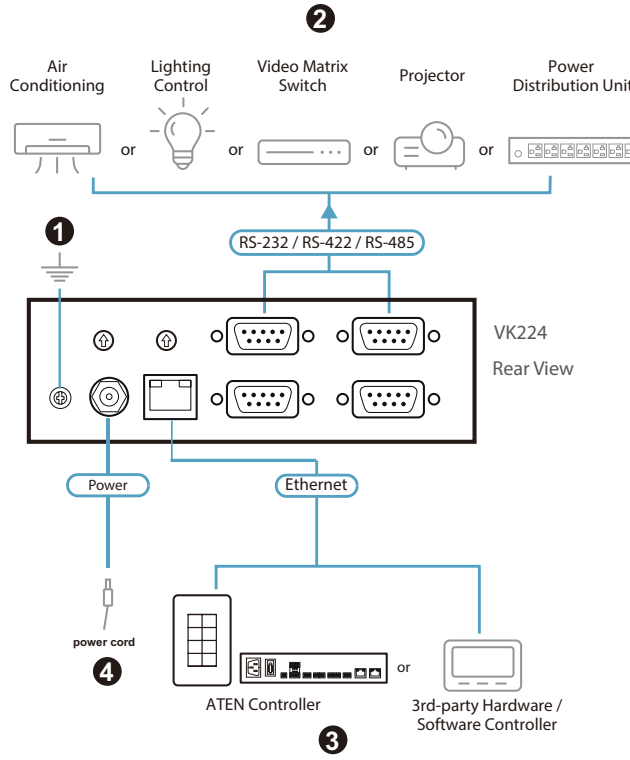
1. Use the supplied screws to attach the brackets to both sides of the unit.



2. Screw the brackets to the rack.

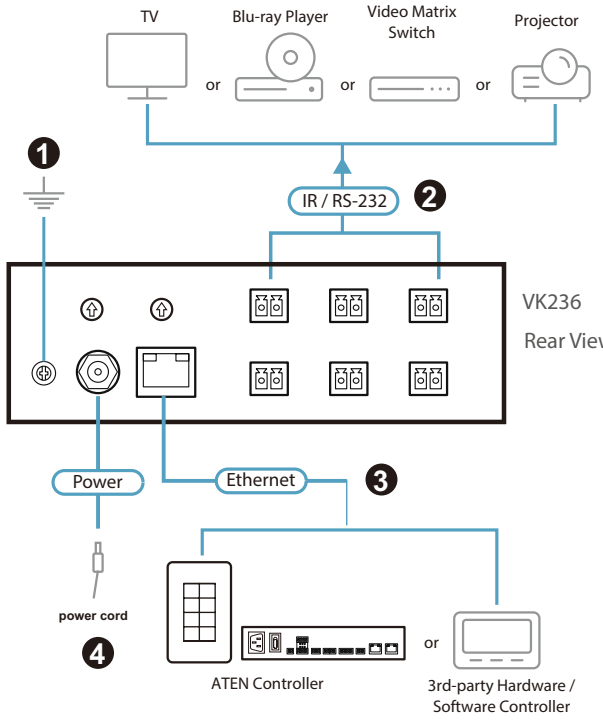


Installing the VK224



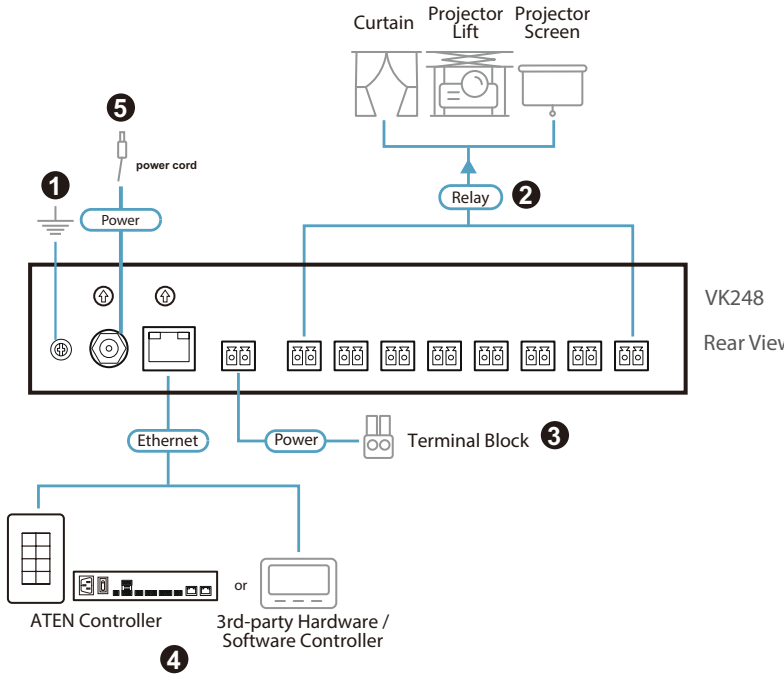
1. Use a grounding wire to ground the unit by connecting one end to the grounding terminal, and the other end to a suitable grounded object. Note: Do not omit this step. Proper grounding helps prevent damage to the unit from power surges or static electricity.
2. Connect the hardware devices to the serial ports.
3. Use an Ethernet cable to connect the unit's LAN Port to a PoE switch. This connects the unit to the network and receives power at the same time.
4. (Optional) To supply power via a power adapter (not provided), plug the power adapter into the unit's power jack and to an AC power source.
5. Use the Controller ID Switch to specify the ID of the ATEN Controller to which the expansion box connects.
6. Use the Expander ID Switch to assign a unique ID for the unit.

Installing the VK236



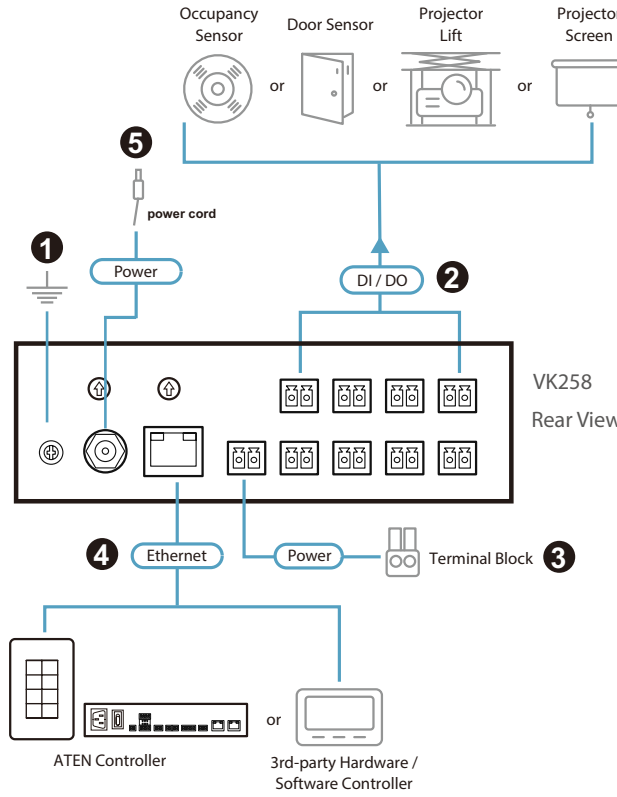
1. Use a grounding wire to ground the unit by connecting one end to the grounding terminal, and the other end to a suitable grounded object. Note: Do not omit this step. Proper grounding helps prevent damage to the unit from power surges or static electricity.
2. Connect the hardware devices to the IR / RS-232 serial ports.
3. Use an Ethernet cable to connect the unit's LAN Port to a PoE switch. This connects the unit to the network and receives power at the same time.
4. (Optional) To supply power via a power adapter (not provided), plug the power adapter into the unit's power jack and to an AC power source.
5. Use the Controller ID Switch to specify the ID of the ATEN Controller to which the expansion box connects.
6. Use the Expander ID Switch to assign a unique ID for the unit.

Installing the VK248



1. Use a grounding wire to ground the unit by connecting one end to the grounding terminal, and the other end to a suitable grounded object. Note: Do not omit this step. Proper grounding helps prevent damage to the unit from power surges or static electricity.
2. Connect the hardware devices to the relay ports.
3. (Optional) If the connected devices do not have their own power supply, connect the devices to the DC output port using the supplied terminal block.
4. Use an Ethernet cable to connect the unit's LAN Port to a PoE switch. This connects the unit to the network and receives power at the same time.
5. (Optional) To supply power via a power adapter (not provided), plug the power adapter into the unit's power jack and to an AC power source.
6. Use the Controller ID Switch to specify the ID of the ATEN Controller to which the expansion box connects.
7. Use the Expander ID Switch to assign a unique ID for the unit.

Connecting the VK258



1. Use a grounding wire to ground the unit by connecting one end to the grounding terminal, and the other end to a suitable grounded object. Note: Do not omit this step. Proper grounding helps prevent damage to the unit from power surges or static electricity.
2. Connect up to eight digital I/O devices using the supplied terminal blocks.
3. (Optional) If the connected I/O devices do not have their own power supply, connect the I/O devices to the DC Output Port using the supplied terminal block.
4. Use an Ethernet cable to connect the unit's LAN Port to a PoE switch. This connects the unit to the network and receives power at the same time.
5. (Optional) To supply power via a power adapter (not provided), plug a power adapter into the unit's Power Jack and to an AC power source.

6. Use the Controller ID Switch to specify the ID of the ATEN Controller to which the expansion box connects.
7. Use the Expander ID Switch to assign a unique ID for the unit.

Chapter 3
Web-based Configuration

The ATEN Expansion Box allows configuration of several system settings through its web interface, including IP address assignment, access key setup, log download, security settings, and firmware upgrade. This chapter provides an overview of these features.

- *IP Address*
  - *IP Address Assignment*
  - *Determining the IP Address*
- *Login*
- *System Settings*
  - *General*
  - *Network*
  - *System Log*
  - *Access*

IP Address

IP Address Assignment

When connected to a DHCP network, the ATEN Expansion Box is automatically assigned with an IP address upon startup.

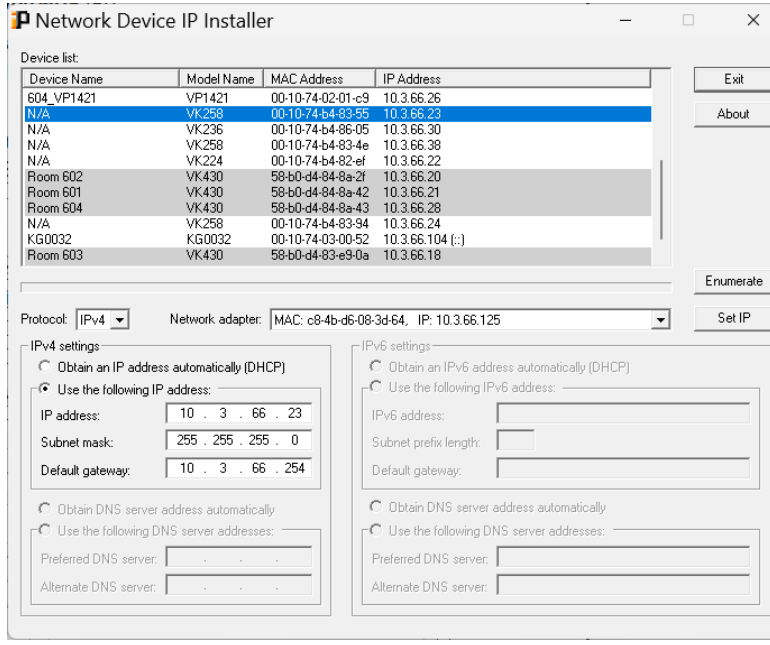
- **DHCP:** To determine its IP address, see *Determining the IP Address*.
- **Non-DHCP:** When no dynamic IP address is assigned to the expansion box within 30 seconds after network connection, the default IP address **192.168.0.60** will be applied.

Determining the IP Address

To determine the IP address of an Expansion Box, follow the steps below to install and use an utility software, IP Installer.

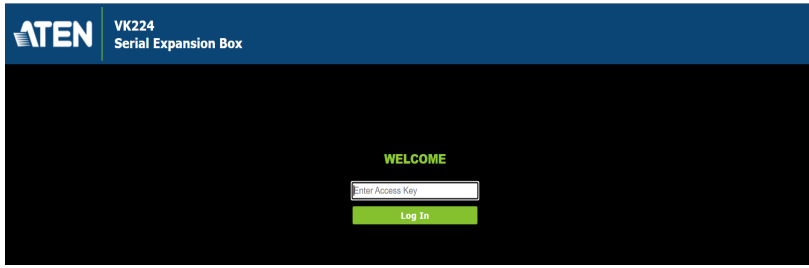
1. Using a Windows PC, go to the product page of the Expansion Box.

2. Go to the **Support and Downloads** tab.
3. From the Software & Drivers table, download the **IP Installer** zip file. Then extract and execute **IPInstaller.exe**. A window similar to the one below appears.
4. Make sure the proper network adapter is selected and click **Enumerate** to search for and display your Expansion Box within the *Device List*.



Login

To access the GUI, type the IP address of the Expansion Box into the address bar of any browser. If a Security Alert dialog box appears, accept the certificate — it can be trusted. The Welcome screen appears:

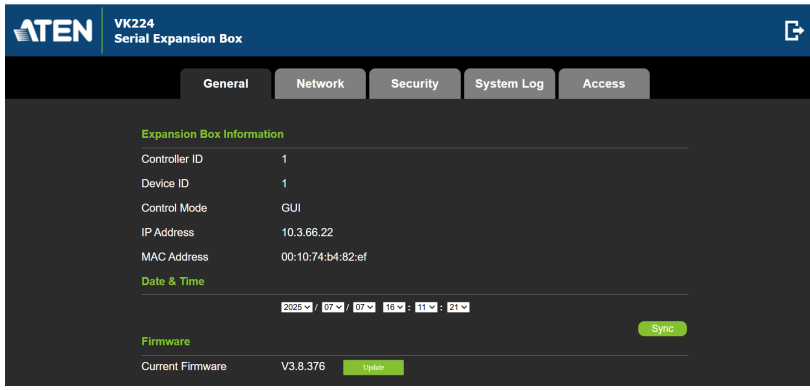


- The default access key is: **password**
- Access key requirements:
  - can be of 30 characters or fewer in length
  - supports the following special characters: hashtag (#), at (@), dot (.), and underscore (_)

System Settings

General

The General tab indicates firmware version and provides network and identification information pertaining to the Expansion Box. See the table below for details.



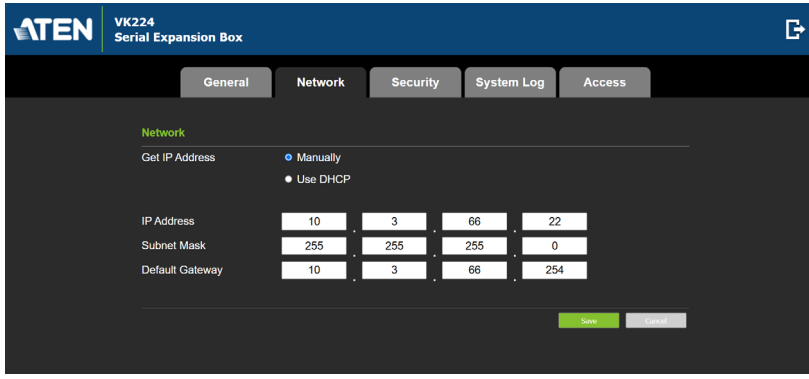
Setting	Descriptions
Controller ID	Identifies the ID number of the ATEN controller to which the Expansion Box connects. This ID is set on the rear panel of the controller.
Expander ID	Identifies the ID number of this Expansion Box. This ID is set on the Expansion Box using the expander ID switch.
Control Mode	Indicates the current configuration mode for the Expansion Box. Note that when the control mode changes from command-line to GUI mode, I/O configurations made through CLI will be lost. ◆ **GUI mode:** When the Expansion Box is in GUI mode, it means that the last configuration was made by uploading a Viewer to the Control Box or by resetting the Control Box. ◆ **Command-line mode:** When the Expansion Box is in command-line mode, it means that the last configuration was made via the command line interface.
IP Address	Indicates the IP address of the Expansion Box.
MAC Address	Indicates the MAC address of the Expansion Box.

Setting	Descriptions
Current Firmware	◆ Displays the current firmware version of the Expansion Box. ◆ To upgrade/downgrade the firmware, click **Update**. **Important:** To upgrade the Expansion Box to firmware v4.0 or later, first upgrade to v3.8, as v3.8 restructures the system to improve performance and may cause compatibility issues if you upgrade directly to v4.0 or later.

Network

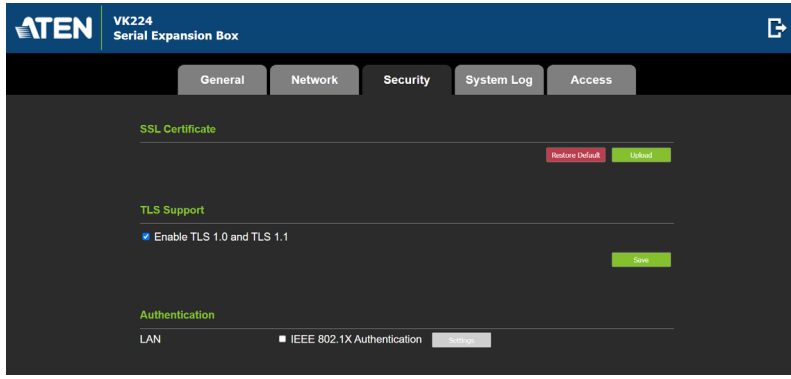
The Network tab allows you to view and configure the Expansion Box's network settings. Select **Manually (DHCP off)** to set a static *IP Address*, *Subnet Mask*, and *Default Gateway*, or **Use DHCP** to have the server assign an IP address to the Expansion Box.

Note: Make sure to set the IP address and default gateway to the same subnet.



Security

The Security tab allows you to set up security mechanisms to secure the browsing sessions between your computer and the Expansion Box's web console.



- **SSL Certificate:** To enable SSL encryption on the Expansion Box, purchase and obtain an SSL certificate from a trusted certifying authority and click **Upload** to apply the certificate.
- **TLS Support:** Each Expansion Box supports TLS 1.0, 1.1, and 1.2 to allow communications with devices supporting different versions of the TLS. If you have any security concerns, disable the **Enable TLS 1.0 and TLS 1.1** setting to only allow communications among devices that support TLS 1.2 and click **Save**.
- **IEEE 802.1X Authentication:** To enable the 802.1X authentication on the Expansion Box, click this checkbox and then click the **Settings** button to configure the required settings.

Note: Make sure that your network switch is IEEE 802.1X compliant.

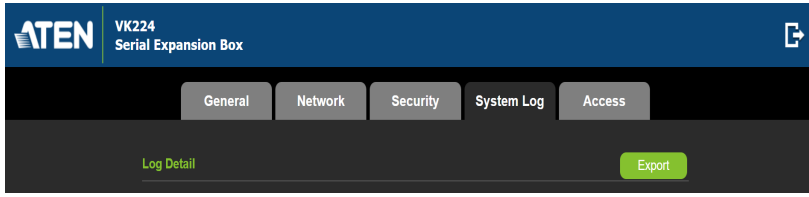
Refer to the table below for the details of configuration applicable to each authentication method.

Authentication Method	Setup
PEAP	◆ **CA Certification:** Validate the server certificate by enabling **Verification of Service Certificate**, and then upload a CA certificate. ◆ **User Name & Password:** Enter the credentials required by the authentication server.

Authentication Method	Setup
EAP-TTLS	◆ **CA Certification:** Validate the server certificate by enabling **Verification of Service Certificate**, and then upload a CA certificate. ◆ **Inner Authentication:** Based on your network administrator' requirement, select an inner authentication method (**MSCHAPv2**, **CHAP**, or **PAP**). ◆ **User Name & Password:** Enter the credentials required by the authentication server.
EAP-TLS	◆ **CA Certification:** Validate the server certificate by enabling **Verification of Service Certificate**, and then upload a CA certificate. ◆ **Identity:** Enter the identity of the Control Box. ◆ **Client Certificate:** Browse to upload a client certificate. ◆ **Client Private Key:** Browse to upload a client private key. ◆ **Private Password:** Enable this setting to add a private password.

System Log

The ATEN Expansion Box keeps logs its connection status and setting changes. Click **Export** to download the logs.

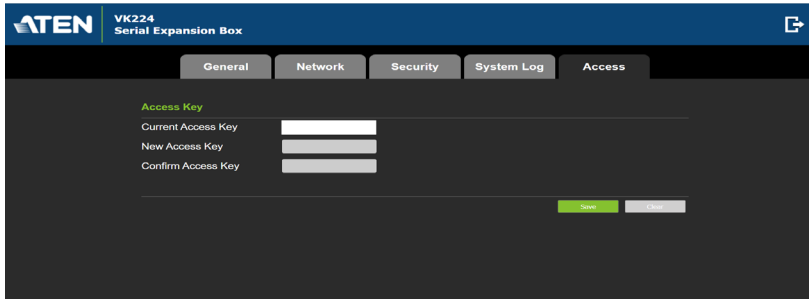


Access

Use the access page to configure the Expansion Box's access key—password for web interface login.

- The default access key is **password**.
- A valid password should contain 30 characters or fewer in length, and supports special characters, including hashtag (#), at (@), dot (.), and underscore (_).

Note: For security reasons, you will be prompted to modify the access key with your first web interface login.



Appendix

Safety Instructions

General

- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- This product is for indoor use only.
- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- Caution: Risk of explosion if the battery is replaced by an incorrect type. Always dispose of used batteries according to the proper instructions.
- Do not use the device near water.
- Do not place the device near, or over, radiators or heat registers.
- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- Never spill liquid of any kind on the device.
- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- To prevent damage to your installation it is important that all devices are properly grounded.
- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.
- Position system cables and power cables carefully; Be sure that nothing rests on any cables.

- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.
- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.
- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
  - The power cord or plug has become damaged or frayed.
  - Liquid has been spilled into the device.
  - The device has been exposed to rain or water.
  - The device has been dropped, or the cabinet has been damaged.
  - The device exhibits a distinct change in performance, indicating a need for service.
  - The device does not operate normally when the operating instructions are followed.
- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- Avoid circuit overloads. Before connecting equipment to a circuit, know the power supply’s limit and never exceed it. Always review the electrical specifications of a circuit to ensure that you are not creating a dangerous condition or that one doesn’t already exist. Circuit overloads can cause a fire and destroy equipment.

Technical Support

International

- For online technical support – including troubleshooting, documentation, and software updates: **http://eservice.aten.com**
- For telephone support, see *Telephone Support*, page iv:

North America

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	https://eservice.aten.com
Telephone Support		1-888-999-ATEN ext 4988

When you contact us, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase.
- Your computer configuration, including operating system, revision level, expansion cards, and software.
- Any error messages displayed at the time the error occurred.
- The sequence of operations that led up to the error.
- Any other information you feel may be of help.

Specifications

VK224

interfaces	
Serial	4 x Programmable Bi-directional RS-232/422/485 Port (4 x DB9 Male Connector, configurable via pin assignments); – Baud Rate: 300 to 115200 (default: 9600); – Data Bit: 8 (default) or 7; – Stop Bit: 1 (default) or 2; – Parity: None (default), Even or Odd; – Flow Control: None (default) RTS/CTS For pin assignment information, see
Ethernet	◆ 1 x RJ-45 Female, 10/100 Base-T ◆ Supported protocol: ARP, ICMP, TCP/IP, DHCP, HTTPS, SSH ◆ DHCP-enabled: If no IP address is assigned to the unit within 30 seconds of connecting to the network, the following default IP settings will be applied. ◆ IP address: **192.168.0.60** ◆ Subnet Mask: **255.255.255.0**
Switches	
Controller ID	1 x 16-segment Switch
Expander ID	1 x 8-segment Switch
Reset Button	
1 x semi-recessed pushbutton	
USB	
1 x USB Type A	
Power	
Power Consumption	DC5V:3.8W:28BTU/h DCPoE:4.75W:33BTU/h **Note:** ◆ The measurement in Watts indicates the typical power consumption of the device with no external loading. ◆ The measurement in BTU/h indicates the power consumption of the device when it is fully loaded.
Environmental	

Operating Temperature	0 – 50 ºC
Storage Temperature	-20 – 60 ºC
Humidity	0 – 80% RH, Non-condensing
Physical Properties	
Housing	Metal
Weight	0.45 kg (0.99 lb)
Dimensions (L x W x H)	13.00 x 7.58 x 4.20 cm (5.12 x 2.98 x 1.65 in.)

VK224 Pin Assignment

RS-232	RS-422	RS-485
Pin 2: Rx	Pin 1: Rx-	Pin 3: D+
Pin 3: Tx	Pin 2: Rx+	Pin 4: D-
Pin 5: GND	Pin 3: Tx+	Pin 5: GND
Pin 7: RTS	Pin 4: Tx-	**Note:** Connecting the ground terminal is recommended for enhanced electrical safety and surge protection, but it is not required for basic operation.
Pin 8: CTS	Pin 5: GND	

VK236

Interfaces	
IR/Serial	6 x Programmable IR / Unidirectional RS-232 Ports 6 x 2-Pole Terminal Block Connectors
	IR: ◆ Carrier Frequency: 10 ~ 455 kHz ◆ Signal Level: TTL (0 ~ 5 V DC)
	Uni-directional RS-232: ◆ Baud Rate: 300 ~ 115200 (default: 9600) ◆ Data Bit: 8 (default) or 7 ◆ Stop Bit: 1 (default) or 2 ◆ Parity: None (default), Even, or Odd ◆ Signal Level: TTL (0 ~ 5 V DC)
Ethernet	◆ 1 x RJ-45 Female, 10/100 Base-T ◆ Supported protocol: ARP, ICMP, TCP/IP, DHCP, HTTPS, SSH ◆ DHCP-enabled: If no IP address is assigned to the unit within 30 seconds of connecting to the network, the following default IP settings will be applied. ◆ IP address: **192.168.0.60** ◆ Subnet Mask: **255.255.255.0**
Switches	
Controller ID	1 x 16-segment Switch
Expander ID	1 x 8-segment Switch
Reset Button	
1 x semi-recessed pushbutton	
USB	
1 x USB Type A (Firmware upgrade only)	
Power Consumption	
DC5V:1.31W:17BTU/h DC48V:1.64W:18BTU/h **Note:** ◆ The measurement in Watts indicates the typical power consumption of the device with no external loading. ◆ The measurement in BTU/h indicates the power consumption of the device when it is fully loaded.	
Environmental	

Operating Temperature	0 – 50 ºC
Storage Temperature	-20 – 60 ºC
Humidity	0 – 80% RH, Non-condensing
Physical Properties	
Housing	Metal
Weight	0.45 kg (0.99 lb)
Dimensions (L x W x H)	13.00 x 7.58 x 4.20 cm (5.12 x 2.98 x 1.65 in.)

VK248

Interfaces	
Relay	◆ 8 x normally open relays (8 x 2-pole terminal block) ◆ Contact Rating: Max 24 V DC, 2 A
Ethernet	◆ 1 x RJ-45 Female, 10/100 Base-T ◆ Supported protocol: ARP, ICMP, TCP/IP, DHCP, HTTPS, SSH ◆ DHCP-enabled: If no IP address is assigned to the unit within 30 seconds of connecting to the network, the following default IP settings will be applied. ◆ IP address: **192.168.0.60** ◆ Subnet Mask: **255.255.255.0**
Switches	
Controller ID	1 x 16-segment Switch
Expander ID	1 x 8-segment Switch
Reset Button	
1 x semi-recessed pushbutton	
USB	
1 x USB Type A (Firmware upgrade only)	
Power	
power output	12 VDC, 300 mA
power consumption	DC5V:2.82W:24BTU/h DC48V:3.53W:27BTU/h **Note:** ◆ The measurement in Watts indicates the typical power consumption of the device with no external loading. ◆ The measurement in BTU/h indicates the power consumption of the device when it is fully loaded.
Environmental	
Operating Temperature	0 – 50 ºC
Storage Temperature	-20 – 60 ºC
Humidity	0 – 80% RH, Non-condensing
Physical Properties	
Housing	Metal
Weight	0.45 kg (0.99 lb)
Dimensions (L x W x H)	13.00 x 7.58 x 4.20 cm (5.12 x 2.98 x 1.65 in.)

VK258

Interfaces	
I/O	8 x Programmable Digital Input / Output Channels (8 x 2-Pole Terminal Block Connector)
	Digital Output: 300 mA sink from 24 V DC
	Digital Input: VDC Mode ◆ Input Voltage Range: 0 ~ 24 V DC ◆ Programmable Range: 1 ~ 24 V DC Dry Contact Mode ◆ Pull-up 2 kΩ to +12 V DC
Ethernet	◆ 1 x RJ-45 Female, 10/100 Base-T ◆ Supported protocol: ARP, ICMP, TCP/IP, DHCP, HTTPS, SSH ◆ DHCP-enabled: If no IP address is assigned to the unit within 30 seconds of connecting to the network, the following default IP settings will be applied. ◆ IP address: **192.168.0.60** ◆ Subnet Mask: **255.255.255.0**
Switches	
Controller ID	1 x 16-segment Switch
Expander ID	1 x 8-segment Switch
Reset Button	
1 x semi-recessed pushbutton	
USB	
1 x USB Type A (Firmware upgrade only)	
Power	
power output	12 VDC, 300 mA
power consumption	DC5V:2.2W:36BTU/h PoE:2.75W:39BTU/h **Note:** ◆ The measurement in Watts indicates the typical power consumption of the device with no external loading. ◆ The measurement in BTU/h indicates the power consumption of the device when it is fully loaded.
Environmental	

Operating Temperature	0 – 50 ºC
Storage Temperature	-20 – 60 ºC
Humidity	0 – 80% RH, Non-condensing
Physical Properties	
Housing	Metal
Weight	0.46 kg (1.01 lb)
Dimensions (L x W x H)	13.00 x 7.58 x 4.20 cm (5.12 x 2.98 x 1.65 in.)

ATEN Standard Warranty Policy

The warranty policy may vary by product category and region of purchase. For details, please visit ATEN's official website, select your purchase counties/ regions and then go to the Support Center, or contact your local ATEN sales representative for further assistance.