



Hardware Installation Guide

GB406 NETGEAR Align Controller Hardware Installation Guide

Model: GB406

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Introduction

This hardware installation guide is for the GB406 NETGEAR Align controller, referred to as the *controller* throughout this guide. The controller is a half-width network management device designed to simplify the deployment, monitoring, and management of AV-over-IP and enterprise network environments. You can install the controller on a flat surface using rubber footpads or mounted in a rack.

You can access the NETGEAR Engage App and manage the controller entirely through GearBox, NETGEAR's web browser interface, removing the requirement for a computer. The controller includes an on-device App Store, which supports the installation of containerized applications.

For more information about the controller, see the Installation Guide and User Manual, which you can download by visiting netgear.com/support/enterprise.

For a complete description of the features and capabilities of the controller, see the NETGEAR Engage controller User Manual, which you can download by visiting netgear.com/support/enterprise.

This chapter includes the following sections:

- [Features](#)
- [Safety Instructions and Warnings](#)

Features

The controller supports the following features:

- **Integrated Engage application:** The controller runs the NETGEAR Engage network management platform directly on the device, eliminating the need for a dedicated PC or laptop. Any authorized user on the network can access and manage all Engage-manageable devices through a web browser. The Engage app on the controller:
 - Automatically detects all Engage-manageable devices connected to the network.
 - Lets you centrally trigger firmware updates for all managed devices on the network.
 - Lets you configure network profiles and assign them to switch ports and VLANs across all onboarded switches.
- **Always-on network management:** Using the controller lets Engage run on the controller itself rather than on a computer. Engage is available 24 hours a day, 7 days a week, without requiring any workstation to be switched on.
- **Centralized device management:** The controller lets you onboard, configure, and manage NETGEAR switches, wireless access points, and routers across your site from a single interface.
- **Unified user and password management:** The controller and Engage share a common set of user accounts and passwords. Changes made on the controller are automatically

synchronized to Engage.

- Supports the admin, site-admin, and guest (view-only) roles.
 - A single admin password governs both the controller and the Engage application.
- **Built-in network services:** The controller runs a suite of background services to support device management and network operation, including DHCP, DNS, NTP, HTTP, Syslog, mDNS, and PTP servers.
- **App Store:** The controller provides a centralized platform for managing applications installed on the controller.
 - Supports cloud-based installation and manual installation by USB or web upload.
 - Validates all application packages using cryptographic signature verification before installation.
 - Each application runs in an isolated Docker container, preventing interference with other applications or the controller operating system.
- **LCD touchscreen display:** A 480x128 pixel front-panel touchscreen provides at-a-glance system status, port activity, hardware statistics, and notifications without requiring a browser login.
- **Internal SSD storage:** The controller provides local storage for logs accessible through a built-in file manager in the web interface.
- **Secure onboarding:** A guided first-time setup wizard configures the site name, administrator credentials, IP addressing, DHCP settings, and wireless SSID in a single workflow.
- **Support for firmware updates through USB:** You can manually apply firmware using a USB drive connected directly to the controller, without requiring internet access.

Safety Instructions and Warnings

Use the following safety guidelines to ensure your own personal safety and to help protect your system from potential damage.

To reduce the risk of bodily injury, electrical shock, fire, and damage to the equipment, observe the following precautions:

- This product is designed for indoor use only in a temperature-controlled (0–45°C or 32–113°F) and humidity-controlled (90 percent maximum relative humidity, noncondensing) environment. Any device that is located outdoors and connected to this product must be properly grounded and surge protected. To the extent permissible by applicable law, failure to follow these guidelines can result in damage to your NETGEAR product, which might not be covered by NETGEAR's warranty.
- **Observe and follow service markings:**
 - Do not service any product except as explained in your system documentation.
 - Opening or removing covers that are marked with the triangular symbol with a lightning bolt can expose you to electrical shock. We recommend that only a trained technician services components inside these compartments.

- If any of the following conditions occur, unplug the product from the power outlet and replace the part or contact your trained service provider:
 - The power cable, extension cable, or plug is damaged.
 - An object fell into the product.
 - The product was exposed to water.
 - The product was dropped or damaged.
 - The product does not operate correctly when you follow the operating instructions.
- Keep your system away from radiators and heat sources. Also, do not block cooling vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment. If the system gets wet, see the appropriate section in your troubleshooting guide, or contact your trained service provider.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Use the product only with approved equipment.
- Allow the product to cool before removing covers or touching internal components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.
- To avoid damaging your system, be sure that the voltage selection switch (if provided) on the power supply is set to match the power at your location:
 - 115V, 60 Hz in most of North and South America and some Far Eastern countries such as South Korea and Taiwan
 - 100V, 50 Hz in eastern Japan and 100V, 60 Hz in western Japan
 - 230V, 50 Hz in most of Europe, the Middle East, and the Far East
- Be sure that attached devices are electrically rated to operate with the power available in your location.
- Use only approved power cables. If you were not provided with a power cable for your system or for any AC-powered option intended for your system, purchase a power cable approved for your country. The power cable must be rated for the product and for the voltage and current marked on the product electrical ratings label. The voltage and current rating of the cable must be greater than the ratings marked on the product.
- To help prevent electric shock, plug the system and peripheral power cables into properly grounded power outlets.
- The peripheral power cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a three-wire cable with properly grounded plugs.
- Observe extension cable and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.
- To help protect your system from sudden, transient increases and decreases in electrical

power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).

- Position system cables and power cables carefully. Route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications.
- Always follow your local and national wiring rules.

Hardware Overview

This chapter describes the hardware features and interfaces of the controller.

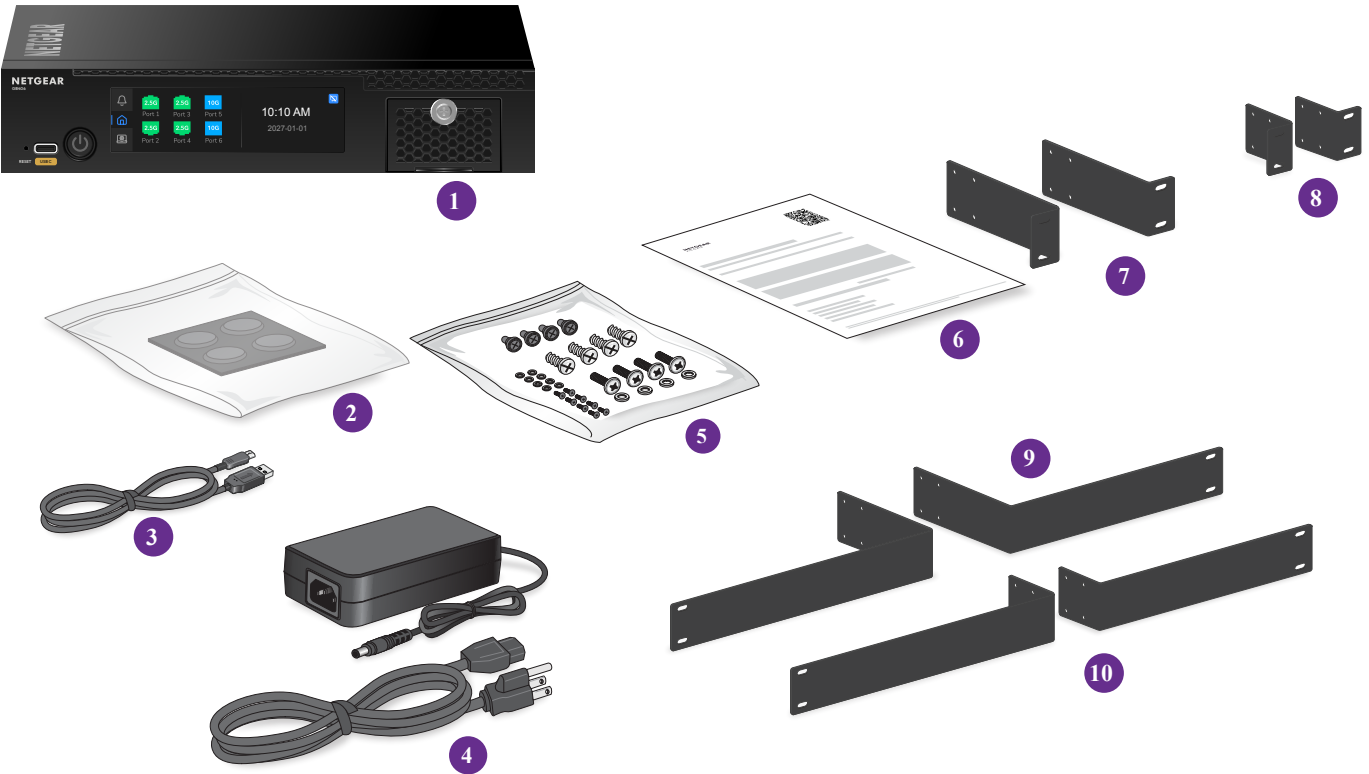
This chapter includes the following sections:

- [Package contents](#)
- [Front panel](#)
- [Controller LEDs](#)
- [Back panel](#)
- [Gigabit and Multispeed Gigabit RJ-45 copper ports](#)
- [Fiber transceiver modules and cables for SFP+ ports](#)
- [Dual-function Reset button](#)
- [USB Type-C console port](#)

Package contents

The following figure shows the package contents for the controller:

Figure 1. GB406 Align controller package contents



Number	Description
1	GB406 Align controller
2	Rubber feet for desktop or table installation

Number	Description
3	Type-C USB console cable
4	DC power adapter and AC power cable (varies by region)
5	A bag with the following screws and washers for mounting:
	 Eight small black screws to attach the brackets to the Align controller (four small screws for each side).
	 Eight washers for use with the small black screws.
	 Four medium-sized screws to attach the brackets to the rack (two screws for each side).
	 Four medium-sized washers for use with the medium-sized screws.
	 Four large screws to attach the brackets to the rack or to mount to a table or a wall (two screws for each side).
	 Four shoulder screws.
6	QR code flyer. Scan the QR code on this flyer to access product documentation from the NETGEAR Download Center at netgear.com/support/enterprise/downloads.
7	Two medium-sized brackets with a depth of 4.75 in. Use one bracket in combination with a large bracket with a depth of 4.75 in. to mount a single half-width controller at the left or right side of the rack. The combination of these brackets is for set-back mounting.
8	Two small brackets with a depth of 2.75 in. • Use one bracket in combination with a large bracket with a depth of 2.75 in. to mount a single half-width controller at the left or right side of the rack. The combination of these brackets is for flush mounting. • Use both of these brackets to mount two connected half-width controllers in a rack. These brackets are for flush mounting.

Number	Description
9	Two large brackets with a depth of 4.75 in. (12 cm) for mounting a single half-width controller in a rack. These brackets are for set-back mounting. Use one of these brackets to mount the controller at the left or right side of the rack.
10	Two large brackets with a depth of 2.75 in. (7 cm) for mounting a single half-width controller in a rack. These brackets are for flush mounting. Use one of these brackets to mount the controller at the left or right side of the rack.



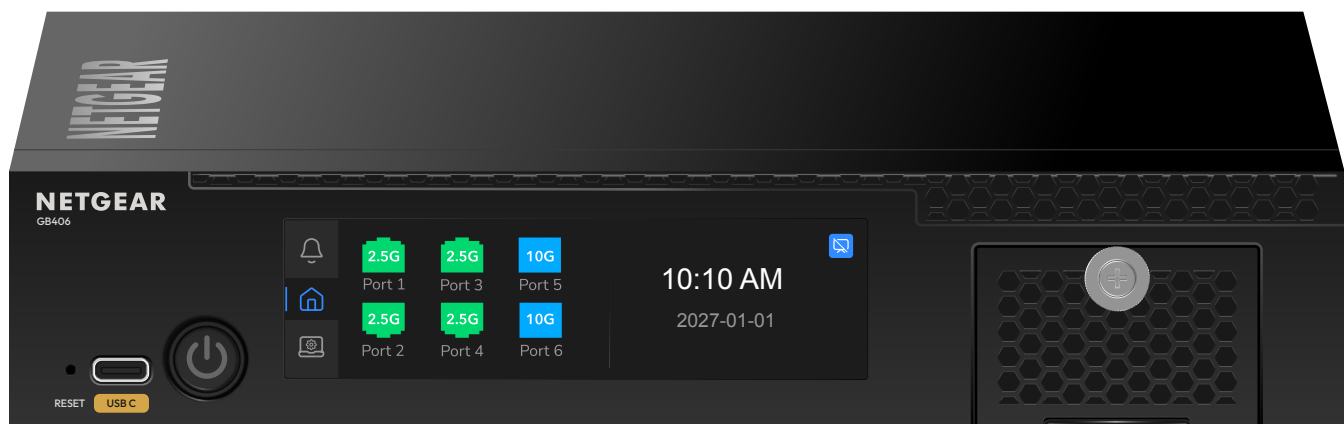
NOTE: To install, use No. 1 and No. 2 Phillips screwdrivers. These screwdrivers are not included in the package contents.



NOTE: If any item is missing or damaged, contact your local NETGEAR reseller for replacement.

Front panel

Figure 2. Front panel view



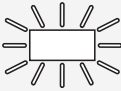
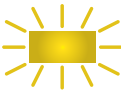
From left to right, the front panel of the controller provides the following components, which are clearly named or numbered on the front panel:

- **RESET:** Recessed dual-function **Reset** button, see [Dual-function Reset button](#) on page 11.
- **USB C:** One USB Type-C console port, see [USB Type-C console port](#) on page 11.
- **POWER:** **Power** button to turn the controller on or off.
- **LCD display:** The LCD touchscreen, see [LCD Display](#) on page 13.
- **SSD card slot:** The SSD card compartment, see [Optional Step 5: Install an SSD card](#) on page 25.

Controller LEDs

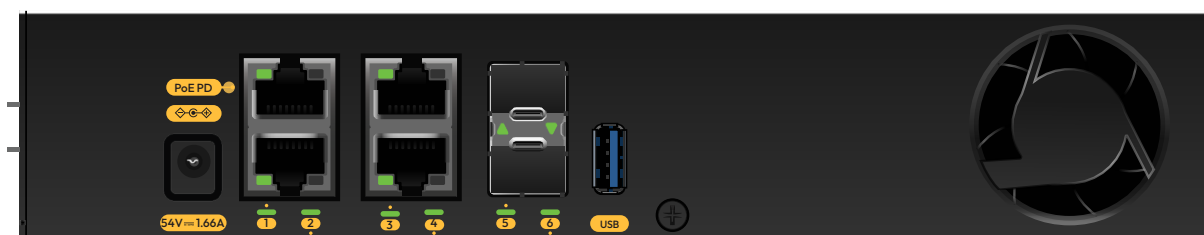
When you connect the power cord to the controller and plug it into a power outlet, the LEDs

indicate the status.

LED	Status	Description
Power		Solid white: The controller is powered on and operating normally.
		White, fading in and out: The controller is rebooting or updating firmware.
		Amber, fading in and out: The controller reboot failed or an error occurred.
		Off: Power is not supplied to the controller.
2.5G port LED		Solid green: 2.5G link on this port.
		Blinking green: 2.5G activity on this port.
		Solid yellow: 100 Mbps or 1G link on this port.
		Blinking yellow: 100 Mbps or 1G activity on this port.
		Off: No link is detected on this port.
10G SFP+ Port LED		Solid green: The fiber port established a 10G link.
		Blinking green: The fiber port is transmitting or receiving packets at 10G.
		Solid yellow: The fiber port established a 1 Gbps link.
		Blinking yellow: The fiber port is transmitting or receiving packets at 1 Gbps.
		Off: No SFP+ module link is established on the fiber port.

Back panel

Figure 3. Back panel view



From left to right, the back panel of the controller provides the following components, which are clearly named or numbered on the back panel:

- **Power receptacle:** The power receptacle can accept 54V, 1.66A.
- **4 multispeed Ethernet ports, numbered 1 through 4:** Four 2.5G/1G/100M autosensing RJ-45 ports, each with a left LED and a right LED, see [Controller LEDs](#) on page 7.
- **2 SFP+ ports, numbered 5 and 6:** Two 10G/1G SFP+ fiber uplink ports, each with a combined speed and activity LED, see [Controller LEDs](#) on page 7.
- **USB:** One USB Type-A port for connecting an external USB storage drive.
- **Fan:** One fan.



NOTE: The controller supports two power sources: a PoE++ connection (IEEE 802.3bt Type 4 Class 8) and the included 54V power adapter. The power adapter takes priority. If the power adapter is connected, the controller draws power from it and uses the PoE++ connection as a secondary power source. If the power adapter is disconnected, the controller draws power from the PoE++ connection automatically.



NOTE: When using PoE++ as the power source, make sure that the connected PSE supports IEEE 802.3bt Type 4 (PoE++), Class 8, with a port capable of delivering up to 90W to the controller.

Gigabit and Multispeed Gigabit RJ-45 copper ports

All 1 Gbps and multispeed Gigabit RJ-45 copper ports support autosensing. When you insert a cable into an RJ-45 port, the controller automatically detects the attached device's maximum speed: 100 Mbps, 1 Gbps, and 2.5 Gbps. For 100 Mbps, the controller automatically detects the duplex mode (half-duplex or full-duplex).

We recommend using a Category 5e (Cat 5e) or higher-rated cable for a copper port at 1 Gbps or 2.5 Gbps.

To simplify the procedure for attaching devices, all RJ-45 ports support Auto Uplink technology. This technology allows attaching devices to the RJ-45 ports with either straight-through or crossover cables.

When you insert a cable into the controller's RJ-45 port, the controller automatically performs the following actions:

- Senses whether the cable is a straight-through or crossover cable.
- Determines whether the link to the attached device requires a normal connection (such as when you are connecting the port to a computer) or an uplink connection (such as when you are connecting the port to a router, switch, or hub).
- Automatically configures the RJ-45 port to enable communications with the attached device. The Auto Uplink technology compensates for setting uplink connections while eliminating concern about whether to use crossover or straight-through cables when you attach devices.

Fiber transceiver modules and cables for SFP+ ports

To enable high-speed fiber and Gigabit Ethernet, short- and long-distance connections on the controller, the two SFP+ fiber ports can accommodate standard 1G SFP and 10G SFP+ transceiver modules and direct attach cables (DACs), all of which are sold separately.

The controller supports the following NETGEAR SFP and SFP+ transceiver modules and cables:

- Short-reach fiber transceiver modules:
 - **AGM731F**: SFP transceiver 1000BASE-SX, SFP multimode LC GBIC
 - **AXM761**: SFP+ transceiver 10GBASE-SR, SFP+ multimode LC GBIC
- Long-reach fiber transceiver modules:
 - **AGM732F**: SFP transceiver 1000BASE-LX, SFP single mode LC GBIC
 - **AXM762**: SFP+ transceiver 10GBASE-LR, SFP+ single mode LC GBIC
 - **AXM764**: SFP+ transceiver 10GBASE-LR Lite, SFP+ single mode LC GBIC
- Gigabit transceiver modules:
 - **AGM734**: SFP transceiver 1000BASE-T, SFP copper RJ-45 GBIC
 - **AXM765**: SFP+ transceiver 10GBASE-T, SFP+ copper RJ-45 GBIC
- Direct attach cables (DAC):
 - **AXC761**: 1 m (about 3.3 ft) 10GSFP+ DAC with Cu (passive) SFP+ connectors
 - **AXC763**: 3 m (about 9.8 ft) 10GSFP+ DAC with Cu (passive) SFP+ connectors
 - **AXC7610**: 10 m (about 32.8 ft) 10GSFP+ DAC with Cu (passive) SFP+ connectors
 - **AXC7615**: SFP+ 15 m (about 49.2 ft) 10GSFP+ DAC with duplex fiber optic SFP+ connectors
 - **AXC7620**: SFP+ 20 m (about 65.6 ft) 10GSFP+ DAC with duplex fiber optic SFP+ connectors

For more information about NETGEAR SFP and SFP+ transceiver modules and cables, visit netgear.com/business/wired/switches/accessories. If purchased, transceiver modules and cables

are shipped separately from the controller.

Dual-function Reset button

The controller provides a recessed, dual-function **Reset** button on the front panel. Depending on how long you press the button, this button lets you restart (power-cycle) the controller or reset it to factory defaults.



NOTE: Before you restart or reset the controller, be sure to first export and save the configuration file, so that you can restore the current controller configuration settings if needed.

Use the Reset button to reset the controller to factory default settings

To use the Reset button to reset your controller to factory default settings:

1. On the front of the controller, locate the recessed **Reset** button.
2. Using a straightened paper clip, press and hold the **Reset** button for more than 5 seconds.
The Power LED blinks amber.
3. Release the button.
The Power LED changes to a white fade slow blink, indicating the controller is rebooting.
The Power LED turns solid white once the controller is back to the factory default setting.

Use the Reset button to reboot the controller

To use the Reset button to reboot your controller:

1. On the front of the controller, locate the recessed **Reset** button.
2. Using a straightened paper clip, press and hold the **Reset** button for less than 5 seconds.
3. Release the button.
The Power LED changes to a white fade slow blink, indicating the controller is rebooting.
The Power LED turns solid white once the controller has rebooted.

USB Type-C console port

The controller provides one USB Type-C console port for console access only. The product package includes one USB console cable with a USB-A connector and a USB-C connector. You can use this cable to connect the USB Type-C console port on the controller to a USB port on a VT100-compatible terminal or a Windows-based computer that runs VT100 terminal emulation software.



NOTE: To use the USB Type-C port and access the controller from a Windows-based computer that runs VT100 terminal emulation software, you must install the USB driver on the computer. To download the VT100 terminal emulation software and Windows USB driver, visit netgear.com/support/enterprise/.

LCD Display

You can manage and configure the settings on the controller from the front LCD display. If the controller is on and the screen is off, touch anywhere on the LCD display to wake it.

This chapter covers the following topics:

- [LCD display overview](#)
- [View the LCD display main screen](#)
- [View system information on the LCD display](#)
- [View network usage on the LCD display](#)
- [View notifications on the LCD display](#)
- [Configure the LCD auto-screen display settings](#)
- [Set the date and time on the LCD display](#)

LCD display overview

The controller includes a front-panel LCD touchscreen that displays the current system status and lets you view information, configure settings, and view notifications directly on the device.

The LCD display shows one of the following screens depending on the current state of the controller:

Table 1. LCD display screens

Screen	Description
Main screen	The controller is fully operational. The LCD display shows the port dashboard with link status, link speed, and connection indicators. Use the touch icons to navigate to Information, Settings, and Notifications.
Setup Required	The controller has not been configured yet. Visit 192.168.1.250 to complete the setup.
Booting	The controller is booting up and applying its configuration. User interaction with the LCD display is not possible during this time.
Firmware Upgrade	A firmware update is being installed. Do not power off the controller during this process.
Critical Error	A system error has occurred. Check the LCD display for details. Possible errors include: • Secure Boot is disabled. • The Secure Boot keys are not provisioned with NETGEAR. • An invalid firmware signature was detected.

When the screen turns off, touch anywhere on the screen to reactivate it and return to the main

screen.

View the LCD display main screen

The main screen displays the port dashboard and provides access to all other sections of the LCD display. To navigate the LCD display main screen on your controller:

1. If the screen is off, touch anywhere on the screen to wake it.

The main screen displays.

2. The port area displays the status of each port. The following indicators are shown for each port:

- A green outline around the port indicates a connected link.
- A blue outline around the port indicates the connected device is powered by PoE.
- The port displays the link speed when connected: **1G**, **2.5G**, or **10G**.
- The port color corresponds to the network profile assigned to that port.

3. To view the IP address and details for a specific port, tap the **port** icon.

The port details display in the information area.

4. The date and time display in the information area when no port is selected.

5. To navigate to a section of the LCD display, tap one of the following icons in the navigation area:

- **Home** icon: Returns to the main screen.
- **Information** icon: Displays system information, hardware metrics, network usage, and a support QR code.
- **Settings** icon: Displays display and date and time settings.
- **Notification** icon: Displays unread notifications.

Swipe the navigation area up or down to scroll through the available icons.

6. To turn off the screen, tap the screen off icon in the upper-right corner of the display.

View system information on the LCD display

The Information section displays system details, hardware metrics, and network usage for the controller. To view system information on the LCD display of your controller:

1. If the screen is off, touch anywhere on the screen to wake it.

The main screen displays.

2. Tap the **Information** icon in the navigation area.

The System Information page displays. Swipe left or right to move between the following pages.

3. The System Information page displays the following details. Scroll up or down to view all information:
 - Firmware version
 - Engage version
 - LCD firmware version
 - MAC address
 - Uptime
 - Serial number
 - Model name
4. Swipe left to view the hardware metrics page, which displays the following information, refreshed every two seconds:
 - **CPU**: CPU loading as a percentage.
 - **RAM**: Memory usage as a percentage.
 - **Sensor 1, 2, 3**: Temperature readings from each sensor in degrees Celsius.
 - **Fan**: Fan speed in RPM. If the fan speed is 0 RPM, the display shows IDLE.
5. Swipe left again to view the Network Usage page. For more information, see [View network usage on the LCD display](#) on page 15.
6. Swipe left again to view the About page, which displays a QR code. Scan the QR code to access the NETGEAR support site at netgear.com/support/enterprise.

View network usage on the LCD display

The Network Usage page displays real-time traffic statistics for each port on the controller, refreshed every second. To view network usage on the LCD display of your controller:

1. If the screen is off, touch anywhere on the screen to wake it.
The main screen displays.
2. Tap the **Information** icon in the navigation area.
The System Information page displays.
3. Swipe left to navigate to the Network Usage page.
The Network Usage page displays traffic statistics for the selected port.
4. To view the statistics for a different port, tap the port number in the upper-right corner of the page and select the port you want to view.

View notifications on the LCD display

The Notifications section displays unread notifications on the controller, with the most recent notification first. The controller supports up to 2,000 unread notifications. To view notifications on the LCD display of your controller:

1. If the screen is off, touch anywhere on the screen to wake it.
The main screen displays.
2. Tap the **Notification** icon in the navigation area.
The Device Notification page displays a list of unread notifications. The total number of unread notifications displays in the upper-right corner of the page.
3. Scroll up or down to browse the notification list.
4. To view the details of a notification, tap the notification.
The notification details display.
5. Tap **OK** to return to the notification list.
6. To refresh the notification list, tap the **Refresh** icon in the upper-right corner of the page.

Configure the LCD auto-screen display settings

You can configure the auto screen off time for the LCD display. To configure the LCD display settings on your controller:

1. If the screen is off, touch anywhere on the screen to wake it.
The main screen displays.
2. Tap the **Settings** icon in the navigation area.
The Display Settings page displays.
3. Tap the auto screen off time and select one of the following options:
 - **5 Mins**
 - **10 Mins**
 - **15 Mins** (default)
 - **30 Mins**
 - **1 Hour**
 - **2 Hours**
 - **4 Hours**

The auto screen off timer resets each time you touch the screen.

Set the date and time on the LCD display

You can set the system date, time, and time zone directly from the LCD display. To set the date and time on the LCD display of your controller:

1. If the screen is off, touch anywhere on the screen to wake it.
The main screen displays.
2. Tap the **Settings** icon in the navigation area.
The Display Settings page displays.

3. Swipe left to navigate to the Date and Time Settings page.
4. To set the date, tap the **Date** field or icon.
A scroll selector displays. The date format is YYYY-MM-DD.
5. Scroll to select the year, month, and day, then confirm your selection.
6. To set the time, tap the **Time** field or icon.
A scroll selector displays. The time format is HH:MM AM/PM.
7. Scroll to select the hour, minute, and AM or PM, then confirm your selection.
8. To set the time zone, tap the **Time zone** field or icon and scroll to select the correct UTC offset.

Installation

This chapter describes the installation procedures for the controller.

Installation involves the steps that are described in the following sections:

- [Step 1: Prepare the site](#)
- [Step 2: Protect against electrostatic discharge](#)
- [Step 3: Unpack the controller](#)
- [Step 4: Mount or place the controller](#)
- [Optional Step 5: Install an SSD card](#)
- [Step 6: Connect devices to the controller](#)
- [Step 7: Check the installation](#)
- [Step 8: Apply power and check the LEDs](#)

Step 1: Prepare the site

Before you install the controller, make sure that the operating environment meets the site requirements that are listed in the following table.

Table 2.Site requirements

Characteristics	Requirements
Mounting	Desktop installations: Provide a flat table or shelf surface. Rack-mount installations: Use a 19 in. (48.3 cm) EIA standard equipment rack that is grounded and physically secure. You also need the rack-mount kit that is supplied with the controller.
Access	Locate the controller in a position that allows you to access the rear ports, view the front panel LCD screen, access the power connector, and access the SSD card slot.
Power source	Use the AC power cable that is supplied with the controller. Make sure that the AC outlet is not controlled by a wall controller, which can accidentally turn off power to the outlet and the controller.
Cabling	Route cables to avoid sources of electrical noise such as radio transmitters, broadcast amplifiers, power lines, and fluorescent lighting fixtures.
Environmental	Temperature: Install the controller in a dry area with an ambient temperature that is between 32°F and 113°F (0°C and 45°C). Keep the controller away from heat sources such as direct sunlight, warm-air exhausts, hot-air vents, and heaters. Operating humidity: The maximum relative humidity of the installation location

Characteristics	Requirements
	must not exceed 90%, noncondensing. Ventilation: Do not restrict airflow by covering or obstructing air inlets on the sides of the controller. Keep at least 2 in. (5.08 cm) free on all sides for cooling. The room or wiring closet in which you install the controller must provide adequate airflow. Operating conditions: Keep the controller at least 6 ft (1.83 m) away from the nearest source of electromagnetic noise, such as a photocopy machine.

Step 2: Protect against electrostatic discharge



WARNING: Static electricity can harm delicate components inside your system. To prevent static damage, discharge static electricity from your body before you touch any of the electronic components, such as the microprocessor. You can do so by periodically touching an unpainted metal surface on the controller.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, leave it in the antistatic package until you are ready to install it. Just before unwrapping the antistatic package, discharge static electricity from your body.
- Before moving a sensitive component, place it in an antistatic container or package.
- Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads, workbench pads, and an antistatic grounding strap.

Step 3: Unpack the controller

To check the package contents:

1. Place the container on a clean flat surface, and cut all straps securing the container.
2. Unpack the hardware from the box by carefully removing the hardware and placing it on a secure and clean surface.
3. Remove all packing material.
4. Verify that the package contains the items described in [Package contents](#) on page 5.
5. If any item is missing or damaged, contact your local NETGEAR reseller for replacement.

Step 4: Mount or place the controller

You can mount the controller in a standard 19 in. (48.26 cm) network equipment rack with a 19 in. depth or 24 in. depth. You can also place the controller on a flat surface.

Install a single half-width controller in a rack

To install a single half-width controller in a single rack space, you need the rack-mount kit supplied with the controller. Depending on the depth of the rack, you can install the controller with flush-mounting or set-back mounting in a standard 19 in. wide rack.

You can install the single controller at the left or right side of the rack. The following procedure shows how to install the controller at the right side.

To install a single half-width controller in a single rack space:

1. Attach the supplied small or medium-sized brackets and large brackets to the controller, using the supplied small screws:
 - **Flush-mounting example:** On one side, use a small bracket with a depth of 2.75 in. (7 cm), on the other side use a large bracket with a depth of 2.75 in. and the small screws.



- **Set-back mounting example:** On one side, use a medium-sized bracket with a depth of 4.75 in. (12 cm), on the other side use a large bracket with a depth of 4.75 in. and the small screws.



2. Tighten the screws with a No. 1 Phillips screwdriver to secure each bracket to the controller.

- Align the mounting holes in the brackets with the holes in the rack, and depending on the rack, insert the medium-sized or large screws through each bracket and into the rack.

- **Flush-mounting example:**



- **Set-back mounting example**



- Tighten the screws with a No. 2 Phillips screwdriver to secure the brackets to the rack.

Install two half-width controllers in a rack

To install two half-width controllers in a single rack space, you need the rack-mount kit supplied with one of the controllers. Depending on the depth of the rack, you can install the controllers with flush-mounting or set-back mounting in a standard 19 in. wide rack.

To install two half-width controllers in a single rack space:

1. On the controller at the right side of the rack space, do the following:
 - a. On the left side of the controller, insert the washers and four shoulder screws provided in the package contents.



- b. Tighten the screws with a No. 2 Phillips screwdriver to secure them to the controller. When secured, the screw heads stick out.
2. On the controller at the left side of the rack space, align the holes on the right side of the controller with the screw heads on the left side of the controller at the right side of the rack.



3. Insert the screw heads into the holes and slide the left controller back until the two controllers are locked and aligned.



4. Attach the brackets supplied in the mounting kit to the left side of the left controller and to the right side of the right controller by inserting the small screws through each bracket and into the mounting holes in the controllers.
 - **Flush-mounting example:** Use the small brackets with a depth of 2.75 in. (7 cm) and the small screws.
 - **Set-back mounting example:** Use the medium-sized brackets with a depth of 4.75 in. (12 cm) and the small screws.
5. Tighten the screws with a No. 1 Phillips screwdriver to secure each bracket to the controller.

6. Align the mounting holes in the brackets (on the left of the left controller and on the right of the right controller) with the holes in the rack, and depending on the rack, insert the medium-sized or large screws through each bracket and into the rack.

- **Flush-mounting example**



- **Set-back mounting example**



7. Tighten the screws with a No. 2 Phillips screwdriver to secure the brackets to the rack.

Detach two connected half-width controllers

After you detach and remove two connected half-width controllers from a rack, follow the steps in this procedure to detach the controllers from each other.

To detach two connected half-width controllers:

1. Disconnect the controllers from the power sources and other devices.
2. If the controllers are mounted in a rack, remove the controllers from the rack.
3. Place the connected controllers on a flat surface.
4. Slide the controllers apart until the screws at the side of one controller align with the holes on the side of the other controller.

5. Pull the screws from the holes and detach the controllers.



CAUTION: After unlocking the controllers, be careful with the metal hooks that extend from the side of one of the controllers. Although the hooks are not sharp, they stand out from the side.



Place the controller on a flat surface

The controller ships with four self-adhesive rubber footpads.

To place the controller on a flat surface:

Stick one rubber footpad on each of the four concave spaces on the bottom of the controller. The rubber footpads cushion the controller against shock and vibrations. They also provide ventilation space between stacked controllers.

Optional Step 5: Install an SSD card

This procedure is optional.

To install an SSD card in your controller:

1. Power off the controller.
2. The SSD card compartment is located at the front of the controller. Using the thumb screw on the compartment, unscrew the compartment and release it from the controller.

3. Insert a compatible M.2 2242 SATA III SSD into the SSD slot on the right side of the controller.

The following SSD drives are compatible with the controller:

- Transcend MTS430S 128GB M.2 2242 SATA III
- Transcend MTS430S 256GB M.2 2242 SATA III
- Transcend MTS430S 512GB M.2 2242 SATA III
- Transcend MTS430S 1TB M.2 2242 SATA III
- Transcend MTS425S 250GB M.2 2242 SATA III
- Transcend MTS425S 500GB M.2 2242 SATA III
- TEAM MS30 256GB M.2 2242 SATA III



NOTE: The SSD slot does not support hot-plugging. You must power off the controller before installing or removing an SSD.

4. Return the SSD slot to the compartment in the controller. Tighten the thumb screw to secure the SSD card.
5. Power on the controller.
When the SSD is detected, the SSD icon on the dashboard turns green. If the SSD icon does not turn green, power off the controller and check that the SSD is correctly seated in the slot.
6. To configure the SSD, select **Storage Manager** in the sidebar.
The Storage Manager page displays the SSD health status and partition table. For more information, see the GB406 Align Controller User Manual which you can download by visiting netgear.com/support/enterprise.

Step 6: Connect devices to the controller



WARNING: This controller is designed for indoor use only. If you want to connect it to a device located outdoors, the outdoor device must be properly grounded and surge protected, and you must install an Ethernet surge protector inline between the controller and the outdoor device. Failure to do so can damage the controller.



NOTE: Before connecting this controller to outdoor cables or devices, see <https://kb.netgear.com/000057103> for safety and warranty information.

The following procedure describes how to connect devices to the controller's RJ-45 ports. The controller supports Auto Uplink technology, which allows you to attach devices using either straight-through or crossover cables. Use a Category 5 (Cat 5), Cat 5e, or Cat 6 cable that is terminated with an RJ-45 connector.



NOTE: Ethernet specifications limit the cable length between the controller and the attached device to 328 feet (100 meters).

To connect devices to the controller's RJ-45 Ethernet ports:

1. Connect one RJ-45 Ethernet port with an Ethernet cable to your network.
The network connection can be to a hub, another controller, a router, or an Internet gateway.
2. Connect devices to the RJ-45 Ethernet ports on the controller.
3. Verify that all cables are installed correctly.
4. Launch a web browser and enter the controller's IP address into your browser's address bar to complete the initial setup.
The factory default IP address is 192.168.1.250. For more information, see the GB406 Align Controller User Manual which you can download by visiting netgear.com/support/enterprise.

Step 7: Check the installation

Before you apply power to the controller, perform the steps that are described in this section.

To check the installation:

1. Inspect the equipment thoroughly.
2. Verify again that all cables are installed correctly.
3. Check cable routing to make sure that cables are not damaged or creating a safety hazard.
4. Make sure that all equipment is mounted properly and securely.

Step 8: Apply power and check the LEDs

The controller provides a **Power** button that controls the power.

Before connecting the power cable or cables, select a power outlet that is not controlled by a wall switch, which can turn off power to the controller.

In the following procedure, the steps that apply to a single power cable apply to each power cable for the models that use more than one power cable.

To apply AC power:

1. Connect the DC power adapter to the power receptacle on the back of the controller.
2. Plug the AC power cable from the adapter into a wall socket or power strip.
3. Press the **Power** button.
4. Check to see that the LEDs light correctly.

When you apply power, the Power LED lights and the ports LEDs for attached devices light.

For more information, see [Controller LEDs](#) on page 7.

If the Power LED does not light, check to see that the **Power** button is on, the power cable is plugged in correctly, and the power source is good.

Troubleshooting

Use the following information to troubleshoot hardware issues with your controller.

Troubleshoot with the Power LED

The power LED on the front panel indicates the current state of the controller. Use the following table to identify the controller status.

Table 3. Power LED states

Power LED state	Description
White, fading in and out every 4 seconds	The controller is booting up or a firmware update is in progress.
Solid white	The controller has booted successfully and is operational.
Slow amber blink	The controller failed to boot. Check the LCD display for error details.
Fast amber blink	A factory reset is in progress. The controller reboots automatically when the reset is complete.

LCD display error messages

If the controller encounters a critical error during boot, the LCD display shows a Critical Error screen. Use the following table to identify the error and the recommended action.

Table 4. LCD display error messages

Error message	Cause	Recommended action
Secure Boot is disabled!	The Secure Boot feature is not enabled on the controller.	Contact NETGEAR support.
The Secure Boot keys are not provisioned with NETGEAR!	The Secure Boot keys on the controller are not valid NETGEAR keys.	Contact NETGEAR support.
Invalid firmware signature detected!	The installed firmware could not be verified. The firmware image may be corrupted or is not a valid NETGEAR image.	Contact NETGEAR support.

Troubleshooting chart

The following table lists symptoms, causes, and solutions for possible problems.

Table 5. Troubleshooting chart

Symptom	Cause	Solution
A Power LED is off.	The controller is not receiving power.	Check the power cable connections at the controller and the power source. Make sure that all cables are used correctly and comply with the Ethernet specifications.
The speed, activity, and link status LED is off when the port is connected to a device.	The port connection is not working.	Check the crimp on the connectors and make sure that the plug is properly inserted and locked into the port at both the controller and the connecting device. Make sure that all cables are used correctly and comply with the Ethernet specifications. Check for a defective port, cable, or module by testing them in an alternate environment where all products are functioning.

Additional troubleshooting suggestions

If the suggestions in the troubleshooting chart do not resolve the problem, see the following troubleshooting suggestions:

- **Network adapter cards:** Make sure that the network adapters that are installed in the computers are in working condition and the software driver was installed.
- **Configuration:** If problems occur after you alter the network configuration, restore the original connections and determine the problem by implementing the new changes one step at a time. Make sure that cable distances, repeater limits, and other physical aspects of the installation do not exceed the Ethernet limitations.
- **Controller integrity:** If necessary, verify the integrity of the controller by restarting it. To restart the controller, press the **Power** button, disconnect the AC cable, reconnect the AC cable, and then press the **Power** button once more. If the problem continues, contact NETGEAR Technical Support. For more information, visit the support website at netgear.com/support/enterprise.