

CARDINAL CLiC HC-108 NETWORK CONTROLLER INSTALLATION MANUAL



PRECAUTIONS

IMPORTANT SAFETY INSTRUCTIONS

Read Instructions: Read all safety and operating instructions before using the device.

Retain Instructions: Keep safety and operating instructions for future reference.

Heed Warnings: Adhere to all warnings on the device and in the operating instructions.

Follow Instructions: Follow operating instructions and installation instructions. Failure to follow these instructions may damage the product or void the product warranty.

Heat: Keep the device away from heat sources such as radiators, heat registers, stoves, etc.

Power Sources: Connect only to a standard 120V outlet.

Power Cord Protection: Route power supply cords so that they are not likely to be stepped on or pinched by items placed on or against them. Paying particular attention to the cords at plugs, receptacles, and at the point at which they connect to the device.

Water and Moisture: Do not use the device in an environment where water may be present; for example, near a sink, in a wet basement, near a swimming pool, near an open window, in a damp mechanical room, etc.

Object and Liquid Entry: Do not allow objects to fall or liquids to spill into the enclosure through openings.

Indoor Use Only: The device is intended to be installed and used indoors in a climate-controlled environment only. Do not use the device outdoors.

Servicing: There are no user serviceable parts inside of the device. Do not attempt to open the enclosure or perform any service beyond that described in the operating instructions. Refer all other service needs to qualified service personnel.

WARNING – RISK OF ELECTRIC SHOCK – CONNECT THIS FURNISHING TO A PROPERLY GROUNDED BUILDING SUPPLY ONLY, OR THE EQUIVALENT. FAILURE TO DO SO MAY RESULT IN ELECTRIC SHOCK OR OTHER HAZARDS.

Damage: Discontinue use of the device if any of these have occurred:

- Objects have fallen or liquid has been spilled into the device.
- The power supply cord or the plug has been damaged.
- The device does not appear to operate normally or exhibits a marked change in performance.
- The device has been dropped or the enclosure has been damaged.

WARNING!

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THE NETWORK CONTROLLER TO RAIN OR MOISTURE.
ALL PROTECTIVE FILMS MUST BE REMOVED FROM THE CLiC GLASS PANEL WITH CLiC WIRING DISCONNECTED FROM THE DEVICE!**



DISCLAIMER

FCC INFORMATION TO USERS

FCC Information to Users

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in commercial, industrial, and residential installations. This equipment generates, 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. 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 or more 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

Warning: Changes or modifications not expressly approved by Cardinal IG Company could void the user's authority to operate the equipment.



CONTENTS

TABLE OF CONTENTS

Important Safety Instructions2

FCC Information to Users3

Overview5

Important Notes5

Compatibility5

What’s In The Box?5

Unpacking and Inspection6

HC-108 Network Controller Layout7

Network Connection Terminals7

Glass Output Channels8

Trigger Input9

Global Override9

Display10

Internal Webpage13

Site Wiring and Preparation16

Glass Output Load Limits17

System Layout Examples18

Specifications19

Common Symptoms and Solutions20

Error Codes22

Contacting Us23



CHAPTER 1 - INTRODUCTION

OVERVIEW

This guide pertains to the Cardinal CLiC HC-108 Network Controller. This device and the associated CLiC Glass Panel(s) have been designed as a NEC Class-3 electrical system. The purpose of this document is to provide guidance on how to set up and install the device in a residential, commercial, or industrial environment. This document includes installation site requirements, wiring requirements, system connection instructions, and basic troubleshooting.

IMPORTANT NOTES

Please read these important notes about the CLiC HC-108 Network Controller:

- The device must be installed within a dry, ventilated area that maintains a normal room temperature between 50°F (10°C) to 104°F (40°C).
- Avoid installing the device in a location where it will have exposure to prolonged direct sunlight.
- Do not let the device get wet. It should not be handled with wet hands or placed in an area where it could get wet.
- All wiring and installation shall be in accordance with the National Electrical Code (NEC), Canadian Electrical Code (CEC) or applicable local codes.
- Do not disassemble the device. Only authorized personnel should perform service.
- Completely disconnect glass wiring from device before removing protective films from glass panels.

COMPATIBILITY

The HC-108 Network Controller is specifically designed for use only with CLiC Glass panels. Use this device only for its intended use as described in these instructions. Do not use unauthorized attachments. Connecting the output to products other than CLiC Glass panels may damage the device or the unauthorized products. Cardinal IG Company will not be responsible for any damage caused by inappropriate usage of this device.

WHAT'S IN THE BOX?

The following items are included with the HC-108 Network Controller:

- Quick Start Guide
- 7' Power Cord
- 6' CAT 5e Ethernet Cable
- 4x 10-32 Rack Mount Screws

The following items are pre-attached to the HC-108 Network Controller:

- 8x 4-Position Connectors
- 9x 2-Position Connectors
- 125V 6A 5mm x 20mm Bussmann Fuse
- Rack Ears



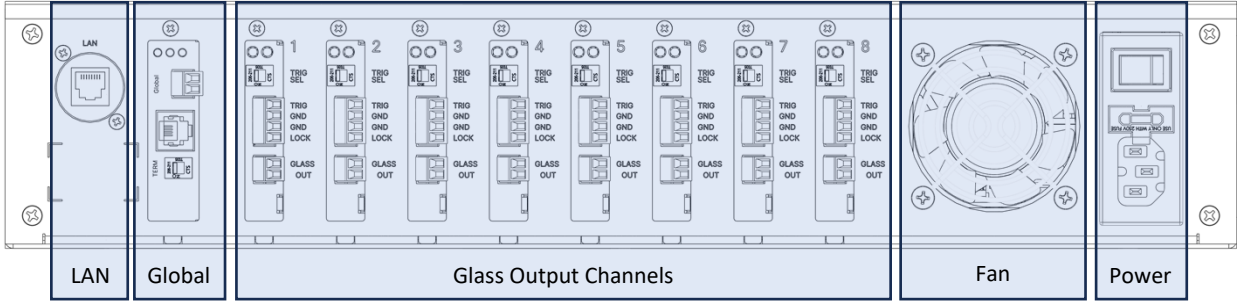
UNPACKING AND INSPECTION

After opening the HC-108 Network Controller package, save all the packaging material in case you ever need to ship the unit. Thoroughly inspect and make sure the device is in good condition and there is no visible damage. If you have any doubt about the product's integrity, please contact your reseller or an authorized support center immediately.



CHAPTER 2 - FEATURES

HC-108 NETWORK CONTROLLER LAYOUT



NETWORK CONNECTION TERMINALS

1. Local Area Network (LAN)

Connection to the network for web browser control, setting the global override functionality and connection to other systems via the API.

2. Network and Device Status LEDs [left to right]

Left	Network Activity	This LED flashes when the device is actively transmitting or receiving data.
Middle	Network Link	This LED is lit when the device is connected to the LAN
Right	Device Status	This LED conveys the status/error state of the device. Slow blinking green means there are no errors.

3. Global (Override)

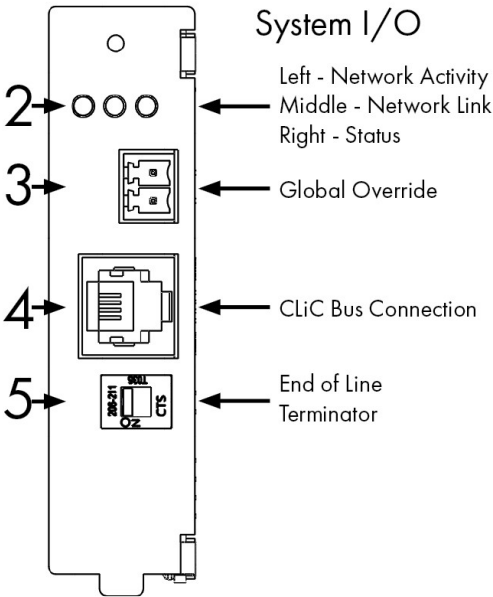
Dry Contact Input. See Global Override section for more information.

4. CLiC Bus Connection

For future use.

5. TERM (End of Line Terminator)

For future use.



GLASS OUTPUT CHANNELS

Note: Each Glass Out operates independently. The global override will transition all panels together.

1. Channel Output Status LEDs

Red LED (Left)	Green LED (Right)	Description
On	On	Glass State is Clear, as determined by Local Lockout, Trigger, or Network Command
Off	On	Glass State is Private, as determined by Local Lockout, Trigger, or Network Command
On	Flashing	Glass State is Clear, as determined by Global Override
Off	Flashing	Glass State is Private, as determined by Global Override
Flashing	Flashing	<i>Error condition. See troubleshooting section on page 20.</i>

2. TRIG SEL (Trigger Mode Select) – see *Trigger Input for details* – *Only change with HC-108 Network Controller powered off.*

Left (On) – Dry Contact Trigger Mode
Right (Off) – DC Voltage Trigger Mode

3. Trigger Input and Local Lockout Input

These inputs control the Glass Output

a. TRIG

Trigger input that is used to allow external devices to control the state of the CLiC Glass panel. See Trigger Input below.

b. GND

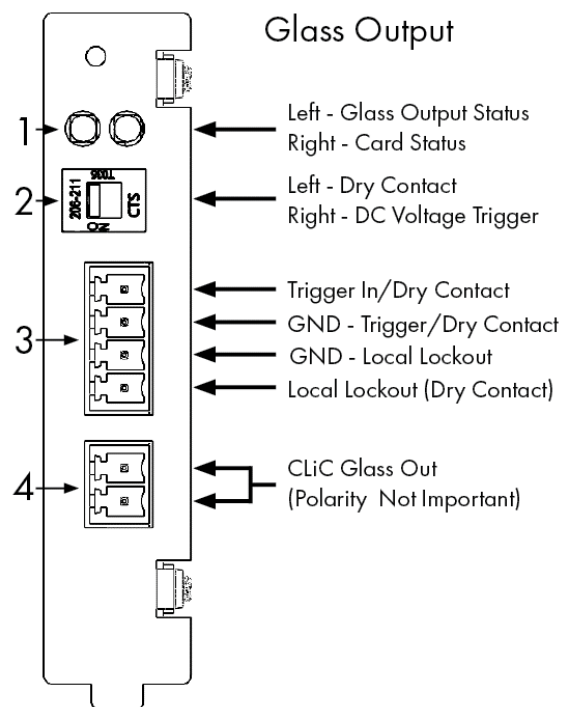
Common ground connection. Use this ground reference for Trigger ground connections.

c. GND

Common ground connection. Use this ground reference for Lockout ground connections.

d. LOCK

Lockout input disables switching the glass to the clear state with the trigger input. This input only accepts a dry contact input.



4. CLiC GLASS OUT

This is the Class 3 output used to directly connect the CLiC Glass panel. Both connections on the glass out must be connected to the CLiC Glass panel. There is no polarity in these connections. Do not *short the outputs or add/remove CLiC glass while powered on. Removing the protective film on the glass with these outputs connected may damage the HC-108 Network Controller and must be avoided.*

5. Power Switch

Ensure this is off during wire termination and connection.

6. Power Inlet

Power input connection for an IEC Cord (IEC-60320 C13) to a 120V receptacle. Contains a Bussmann GMA-6A fuse.



TRIGGER INPUT

The HC-108 Network Controller has been designed to accommodate many installation configurations and scenarios by utilizing a custom engineered Trigger Input Circuit. This circuit allows a wide variety of switch devices, relays, contact closures, or other automation controllers to provide end user control of the CLiC Glass panel. There is a separate input for each Glass Out for a total of 8 trigger inputs. The triggering device can be configured to as either a dry contact or a direct current (DC) voltage trigger.

The trigger circuit supports wiring the trigger input of multiple channels together in a parallel circuit to allow a single switch device to control multiple glass outputs. **Note: Only daisy chain channels that are set to the same trigger mode.**

The CLiC Glass panel will go to the private state when the dry contact is open, or the voltage trigger is below +2.4VDC. The CLiC Glass panel will go to the clear state when the dry contact is either shorted to the common ground pin, or when the voltage trigger is above +2.8VDC. The maximum input voltage shall not exceed +25VDC when set to voltage trigger. Do not apply voltage to the trigger input when the Trigger Select is set to dry contact mode.

Contact Closure devices can include, but are not limited to:

- Standard light switches **NOTE: USED FOR LOW-VOLTAGE CONTACT CLOSURE ONLY AND NOT CONNECTED TO AC POWER**
- Occupancy Sensors
- Relays, Switch outputs, or voltage triggers from automation controllers or remote-control systems
- Doorjamb Plunger Switches
- Magnetic Security Style Door Switches
- Home Automation or Building Management Systems

GLOBAL OVERRIDE

The Global Override input accepts a **dry contact** switching device. When the circuit is closed, the Global Override will be activated. This will override every trigger input and force the CLiC glass panels to the state configured on the internal webpage, the default state is private. This can be configured using the internal webpage. See *Internal Webpage* section for more information.

This input can be used in conjunction with another control system, such as an alarm system. The alarm system could trigger the HC-108 Network Controller to turn all the windows private in the event of an emergency.



DISPLAY

The HC-108 Network Controller includes a front panel display that allows quick access to several functions. Once the device has finished its boot sequence, it will display the following.



Main Tab

The 'Main' screen displays the system status and the firmware version.



Main Tab with Errors Present

If an error is present, an 'Errors Present' button is shown. Press this button to view error codes present on the system.



Error Screen

The 'Error Screen' displays details about errors present on the system. See *Troubleshooting* section for more information about these errors.





Control Tab

Pressing the 'Control' tab allows you to change the glass states. Always select 'Main Controller' from this screen. The rest of this screen is reserved for future use.



Control Tab – All Channels Private

The 'Control' screen allows you to control each CLiC output directly from the front panel. The blank grey box is the Private state and the Teal box with angled lines is the Clear state.

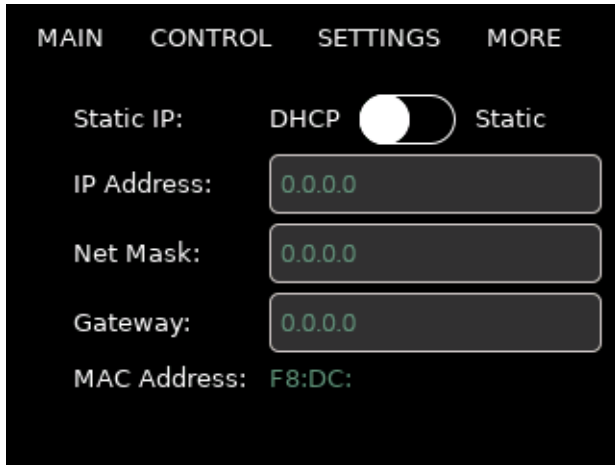
Note: Activating an output without a CLiC Glass panel connected will result in an error state for that channel. To clear this error, connect a CLiC Glass panel to the errored channel, then reboot device. The system will verify the error state of each channel during initial startup. You may then return the CLiC Glass panel to its original channel.



Control Tab – Channel 1 in Clear State

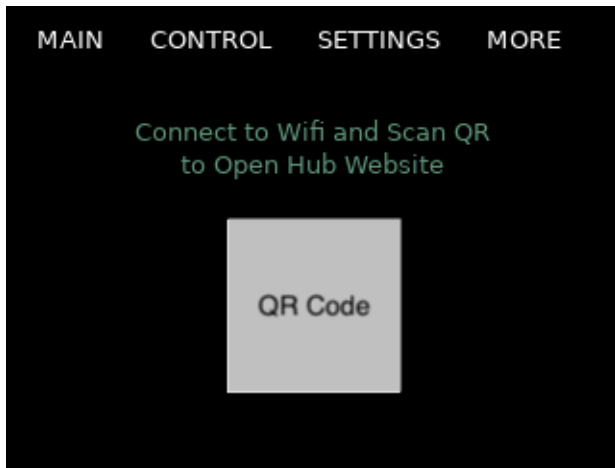
The small rectangles under the boxes indicate the state of each CLiC glass output. In this example, Channel 1 has been switched to the Clear State.





Settings Tab

The 'Settings' tab allows you to change the network settings between dynamic (DHCP) and Static IP modes. The screen will display the IP address, Network Mask, Gateway IP, and the MAC address of the device when connected to a local area network (LAN).



More Tab

The 'More' screen displays a QR code that will open the internal webpage on a mobile tablet or phone when it is connected to the same network as the HC-108 Network Controller.

INTERNAL WEBPAGE

To access the internal webpage, connect the HC-108 Network Controller to the local area network (LAN) and navigate to the IP Address shown in the 'Settings' tab on the front display. You can also scan the QR Code on the front display, provided both devices are on the same local area network (LAN).

Login Credentials:

Username: admin

Password: admin

Every page includes the Firmware Version at the bottom of the page.

Admin Web Portal

Start - [Hardware](#) - [Settings](#) - [Links](#) - [LogOut](#)



CLiCTM

On-demand Privacy Glass

Thu 21 Nov 2024 20:21:53 UTC BSP Version: 0.1.11

Start Page



The 'Hardware' page allows you to see the status of each part of the device. You can see the status of the various triggers and output for each individual output, as well as being able to set the CLiC glass output directly.

CLiC
On-demand Privacy Glass

Admin Web Portal

[Start](#) - [Hardware](#) - [Settings](#) - [Links](#) - [LogOut](#)

Page load will wait up to 10 seconds to verify updates: [REFRESH](#)

Glass Control Devices:

Current 10 devices:

DTSTAMP	HUB	CHANNEL	GLOBAL STATUS	LOCKOUT STATUS	TRIGGER STATUS	CHANGE OUTPUT	GLASS OUT STATUS
2024-11-25 15:46:10 UTC / -4	0	0	0				
2024-11-25 15:45:52 UTC / -22	0	Backplane					
2024-11-25 15:46:10 UTC / -4	0	Glass Out 1	0	0	0	<input checked="" type="checkbox"/> On	0
2024-11-25 15:46:09 UTC / -5	0	Glass Out 2	0	0	0	<input type="checkbox"/> Off	0
2024-11-25 15:46:10 UTC / -4	0	Glass Out 3	0	0	0	<input checked="" type="checkbox"/> On	1
2024-11-25 15:46:09 UTC / -5	0	Glass Out 4	0	0	0	<input type="checkbox"/> Off	0
2024-11-25 15:46:09 UTC / -5	0	Glass Out 5	0	0	0	<input type="checkbox"/> Off	0
2024-11-25 15:46:09 UTC / -5	0	Glass Out 6	0	0	0	<input type="checkbox"/> Off	0
2024-11-25 15:46:09 UTC / -5	0	Glass Out 7	0	0	0	<input type="checkbox"/> Off	0
2024-11-25 15:46:10 UTC / -4	0	Glass Out 8	0	0	0	<input type="checkbox"/> Off	0

Indicates the status of the Global Override input; 0 is off and 1 is enabled.

Indicates the status of the Local Lockout input for each channel; 0 is off and 1 is enabled.


Indicates the status of the Trigger input for each channel; 0 is off and 1 is enabled.

This column shows the requested state of the CLiC Glass output; Off is private and On is clear. The toggle is also used to directly control the state of the CLiC Glass.

Indicates the actual output for the CLiC Glass output; 0 is private and 1 is clear. This can also indicate an error if the Glass Out Status doesn't match the Change Output column; as shown for Channel 1



The 'Settings' page allows you to set the desired state for the Global Override trigger. This indicates the state every CLiC Glass output will transition to when the Global Override Input is active.



The screenshot shows the CLiC Admin Web Portal interface. At the top left is the CLiC logo with the tagline "On-demand Privacy Glass". Below the logo is the text "Admin Web Portal". To the right of the logo area is a navigation menu with links: "Start - Hardware - Settings - Links - LogOut". The main content area is titled "System Settings" in green. It contains a form with a label "Global Override Target" and a radio button set with "Private" selected. Below the form is a "Submit" button. At the bottom left of the page, the timestamp "Thu 21 Nov 2024 20:22:11 UTC" is displayed, and at the bottom right, "BSP Version: 0.1.11" is shown.

Settings Page

The Links page allows you to access the documentation for the API access of the device. The 'API Routes Specifications' link opens an interactive page documenting the Rest API endpoints that are available to interface from your external programs. The 'Python API SDK' link opens a plaintext Python 3 script that illustrates how to communicate with the HC-108 Network Controller from an external Python program.



The screenshot shows the CLiC Admin Web Portal interface. At the top left is the CLiC logo with the tagline "On-demand Privacy Glass". Below the logo is the text "Admin Web Portal". To the right of the logo area is a navigation menu with links: "Start - Hardware - Settings - Links - LogOut". The main content area contains two links with descriptions: "API Routes Specifications" with the description "Full route specifications for the Fog Layer API. Locally hosted." and "Python API SDK" with the description "A local copy of the Python 3 Software Development Kit for the Fog Layer." At the bottom left of the page, the timestamp "Thu 21 Nov 2024 20:22:26 UTC" is displayed, and at the bottom right, "BSP Version: 0.1.11" is shown.

Links Page



CHAPTER 3 – INSTALLATION

SITE WIRING AND PREPARATION

Wiring from the HC-108 Network Controller to the CLiC Glass panel(s) should be run prior to the CLiC Glass panel installation. All wiring must be performed in accordance with the applicable building codes and electrical wiring requirements as denoted for Class 3 systems of the National Electric Code (NEC), Canadian Electrical Code (CEC), or applicable local codes. All wiring should be completed by a qualified and experienced technician. Protective films must be removed from CLiC Glass panels with the glass panel wiring disconnected from the HC-108 Network Controller.

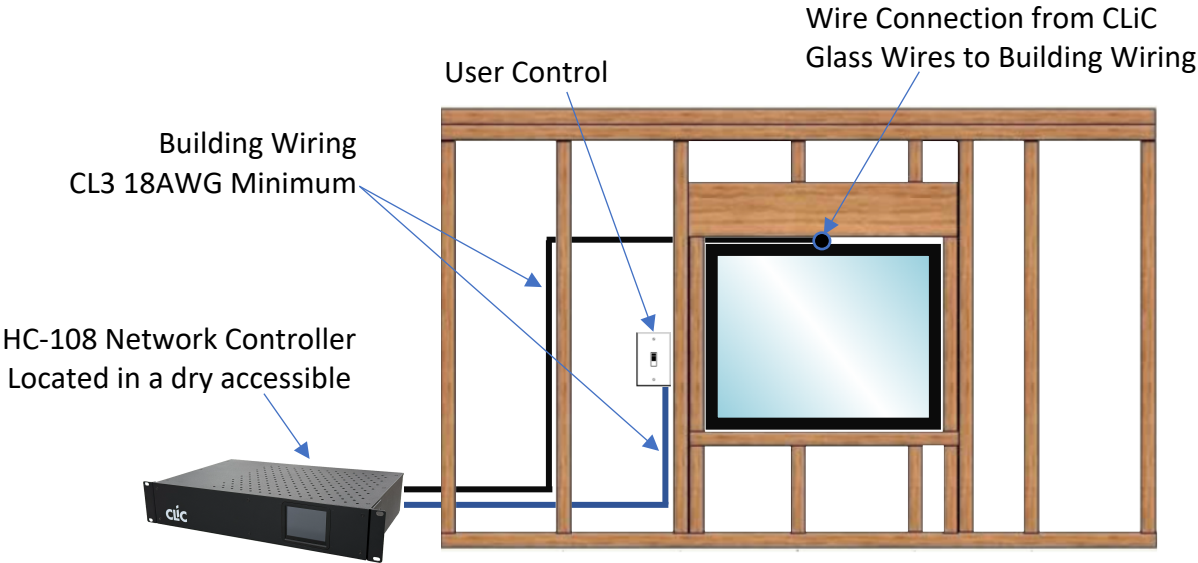
Placement

The HC-108 Network Controller has detachable rack ears that can be used to mount it within a standard 19-inch audio/video rack. The device does not need to be mounted near the CLiC Glass panel. The CLiC Glass outputs and the trigger inputs can be extended up to 328 feet (100 meters). Use the provided power cord to connect the device to a standard 120V receptacle.

Wire Size and Maximum Length

The wire utilized for trigger inputs and glass connections on the HC-108 Network Controller shall be stranded 18 AWG CL3 wiring. It is important that the correct gauge wire is used to ensure the correct voltage and signal reaches the CLiC Glass panel. The maximum wire distance between the device and the CLiC Glass panel is 328 feet (100 meters). Wiring with CL3P wire may be required if it passes through a plenum airspace. Consult your local building codes for details.

NOTE: CLiC Glass panels can arrive in a Window or Door frame, or as a standalone panel. There will be 2 wires to connect to the building wiring going to the Glass Output of the HC-108 Network Controller. Polarity is not important, and both wires must be connected.



IMPORTANT: REMOVAL OF PROTECTIVE FILMS CAN PRODUCE ELECTRIC SHOCKS AND SPARKS WHICH COULD CAUSE DAMAGE TO THE CONNECTED ELECTRONICS! ALL PROTECTIVE FILMS MUST BE REMOVED WITH WIRING DISCONNECTED FROM THE GLASS CONTROLLER!

DO NOT APPLY POWER PRIOR TO COMPLETING ALL WIRING CONNECTIONS AND TERMINATIONS!

GLASS OUTPUT LOAD LIMITS

The HC-108 Network Controller provides the ability to combine up to four (4) CLiC Glass panels to a single glass output channel. The restrictions for this are a maximum of four (4) CLiC Glass panels shall be connected to the channel's glass output and the total square footage of all panels combined shall be 40 square feet or less. **DO NOT exceed either of these restrictions. Exceeding these restrictions can cause damage and will void the warranty.**

CLiC Glass panels must be wired in parallel when wiring more than one CLiC Glass panel to the same channel. It is recommended to run separate wires from the glass panels to the HC-108 Network Controller and then combine them in parallel at the glass output. This allows for much more flexibility if when troubleshooting the installation if an issue occurs. Do not wire the panels in series. Wiring multiple CLiC Glass panels in series can cause damage and will void the warranty.

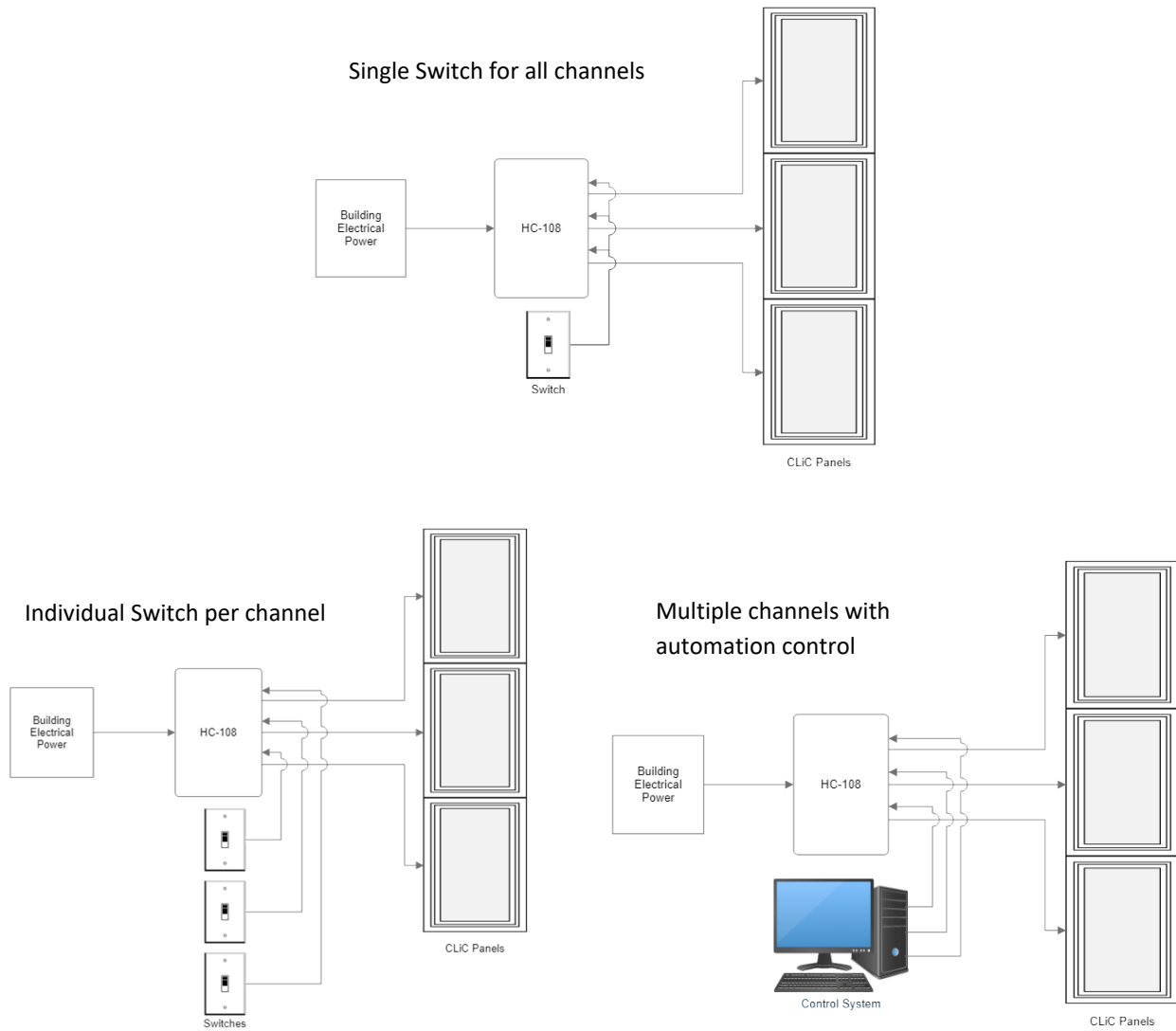
When multiple CLiC Glass panels are connected on a single output they will only be controllable as a group. This means every panel connected to that output will be in the same state (clear or private). You will not be able to control any of the panels individually from the group.



SYSTEM LAYOUT EXAMPLES

Please review the following diagrams for example wiring scenarios:

Note: The following diagrams demonstrate the usage of three (3) channels being used to connect three (3) separate CLiC Glass panels, but the same principles apply to all channels on the HC-108 Network Controller.



SPECIFICATIONS

CLiC Glass Output	75VAC Max, 1.1 Amps, Capacitive Load, NEC Class 3 AC Voltage	
Wiring Connector Ratings	Solid Core Stranded Wire	0.08 – 1.5 mm ² / AWG 28 – 16 0.08 – 1.5 mm ² / AWG 22 – 16
Power Output Circuit	Note that the outputs of this Controller are considered a power limited circuit, Class 3 circuit, in accordance with Article 725 of the National Electrical Code NFPA 70.	
Input Trigger Type	Open Collector; Shunt to Ground or DC Voltage	
HC-108 Network Controller Dimensions with Mounting Ears (without)	19.0" x 3.4" x 11.6" (17.0" x 3.4" x 11.6")	
Weight	12.2 LBs	
Operating Temperatures	+50°F to +104°F (+10°C to +40°C)	
Storage and Transportation	-40°F to 140°F (-40°C to 60°C)	
Certifications	NEC Class 3, FCC Part 15 Subpart B Class B	
Purpose of Control	Operating Control, Electronic Window Controller	
Construction of Control	Independently Mounted	
Pollution Degree	2	
Rated Impulse Voltage	1500V	
Overvoltage Category	II	
Protection Against Electric Shock	Class I	



TROUBLESHOOTING

COMMON SYMPTOMS AND SOLUTIONS

If you are experiencing problems with your HC-108 Network Controller or CLiC glass panel(s), please read the information below before contacting technical support. If you continue to experience problems, see the next chapter for more information on contacting Cardinal IG Company technical support.

Symptom	Troubleshooting Steps
Glass stuck in Clear State (Powered) It will not change state	<ol style="list-style-type: none"> 1. Check the display for any error codes. 2. Verify the switch and the CLiC glass panel are wired to the correct channel. 3. Verify global override is not being triggered. 4. Verify wiring from the switching device to the HC-108 Network Controller. 5. Verify the position of the trigger select switch. 6. Verify switching device is functioning properly and opening the circuit. 7. Verify the absence of voltage if using a voltage trigger. 8. Disconnect the network cable to verify that an external program or device is not using the API to direct the output to the clear state.
Glass stuck in Private State (Unpowered) It will not change state	<ol style="list-style-type: none"> 1. Check the display for any error codes. 2. Verify proper function of LEDs on the corresponding output channel. 3. Verify the switch and the CLiC glass panel are wired to the correct channel. 4. Verify the local lockout is not being triggered. 5. Verify the position of the trigger mode select switch. 6. Disconnect the network cable to verify that an external program or device is not using the API to direct the output to the private state. 7. Verify wiring from the HC-108 Network Controller to the CLiC glass panel. 8. Verify wiring from the switching device to the HC-108 Network Controller. 9. Verify the switching device is functioning properly and is activating the circuit. 10. Reboot the device. 11. See below <i>"HC-108 Network Controller does not power on"</i>
HC-108 Network Controller does not power on	<ol style="list-style-type: none"> 1. Verify the HC-108 Network Controller is plugged into a working wall outlet. 2. Verify the power switch is turned on. 3. Verify the Device Status light is on. 4. Verify the fuse in the power inlet is functional. 5. Contact technical support.
Clear state unstable	<ol style="list-style-type: none"> 1. Check the display for any error codes. 2. Verify wiring and connections from the HC-108 Network Controller to the CLiC Glass panel. 3. Contact technical support.



Glass triggered to the clear state when not triggered through the corresponding trigger input	<ol style="list-style-type: none"> 1. Verify global override is not being triggered. 2. Verify the control screen is not activating the glass. 3. Verify the internal webpage is not activating the glass. 4. Verify trigger select switch is set correctly on all trigger inputs connected in parallel. 5. Verify that an external program or network device is not using the API to transition the output. 6. Contact technical support.
Global Override is not functioning as expected	<ol style="list-style-type: none"> 1. Verify global override is being triggered by testing for a shorted circuit at the Global Override input on the device. 2. Verify wiring from the switching device to the HC-108 Network Controller. 3. Verify the switching device is wired to the correct contact closure input. 4. Verify the desired clear/private state was configured in the HC-108 Network Controller internal webpage. 5. Reboot the device. 6. Contact technical support.
Local Lockout is not functioning as expected	<ol style="list-style-type: none"> 1. Verify the switching device and the CLiC glass panel are wired to the correct channel. 2. Verify the correct local lockout is being triggered by testing for a shorted circuit at the local lockout input on the device. 3. Verify wiring from the switching device to the HC-108 Network Controller. 4. Verify the switching device is wired to the correct contact closure input. 5. Contact technical support.
Front Panel Display is not functioning as expected	<ol style="list-style-type: none"> 1. Verify the HC-108 Network Controller is plugged into a working wall outlet. 2. Verify the power switch is turned on. 3. Verify the Device Status light is on. 4. Verify the fuse in the power inlet is functional. 5. Reboot the device. 6. Contact technical support.
Unable to connect to the HC-108 Network Controller Web Page	<ol style="list-style-type: none"> 1. Verify the HC-108 Network Controller is powered on and fully booted up. 2. Verify the network cable is wired correctly and fully inserted into the network jack on the device. 3. Verify the Network Activity and Network Link LEDs are lit and/or flashing correctly. 4. Verify the IP Address of the device by checking the `Settings` Tab on the front panel display. 5. Verify the computer or mobile device is on the same network with an IP address in the same subnet as the device. 6. Reboot the device. 7. Contact technical support.



ERROR CODES

The HC-108 Network Controller can detect different errors that may be present in the system. Below is a list of the error codes and the troubleshooting process for each:

Error Message	Troubleshooting Steps
Over Temperature Error	<ol style="list-style-type: none">1. Remove the HC-108 Network Controller from the hot environment.2. Ensure the fan is not blocked.3. Contact technical support
No Network	<ol style="list-style-type: none">1. Check Network Settings on front display.2. Ensure the connected ethernet cable is fully seated and connected to a working network port.3. Contact technical support
External Wiring Error (individual channel only)	<ol style="list-style-type: none">1. Verify wiring from the HC-108 Network Controller to the CLiC Glass panel.2. Reboot the device.3. Move wiring for the switching devices and CLiC Glass panel(s) to a different channel to test if the problem persists.4. Contact technical support
All Other Errors	<ol style="list-style-type: none">1. Contact technical support.



SERVICE AND SUPPORT

CONTACTING US

Visit our Website for the Latest Information

You can find the latest revision of this manual, as well as, a list of frequently asked questions, and an easy way to contact us. www.clicglass.com

Contacting Technical Support

At Cardinal IG Company, customer service and satisfaction are two of our core missions. If you have any questions, concerns, or issues related to the window or framing systems please contact the window manufacturer directly.

For any problems or questions regarding your CLiC products, please contact our technical support department by email at: CLiCsupport@cardinalcorp.com

Please include the following information within your email:

- Your Name
- Company Name
- Window or Door Manufacturer
- Telephone Number
- Email address
- Product models and serial numbers
- Detailed description of your question or the problems you are experiencing

We greatly appreciate your purchase of Cardinal CLiC products, and we strive to provide a long-lasting and trouble-free experience. Our goal is to respond to your email promptly and to expediently resolve any issues you are experiencing.

Contacting Cardinal IG Company

For general information, you can contact the Cardinal IG Company at:

Cardinal IG Company
7201 W Lake St
Minneapolis, MN 55426
(952) 314-4757

