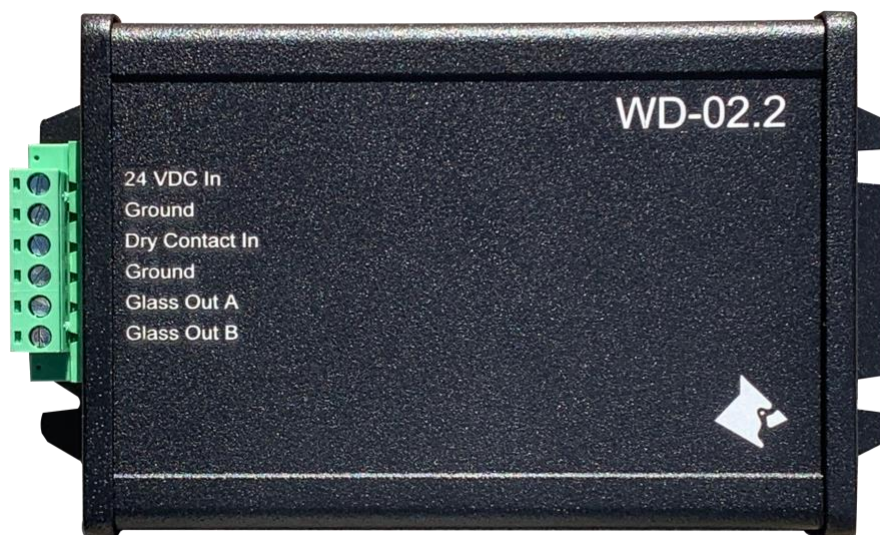


CARDINAL CLiC WD-02.2 GLASS CONTROLLER INSTALLATION MANUAL



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 the power supply that was included with the device.

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 near water; 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 be spilled into the enclosure through openings.

Indoor Use Only: The device should be installed and used indoors 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.

Damage Requiring Service: The device should be serviced by qualified service personnel when:

- 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 DEVICE TO RAIN OR MOISTURE.

SAVE THESE INSTRUCTIONS



DISCLAIMER

FCC INFORMATION TO USERS

FCC Information to Users

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

Warning: This unit is tested to FCC Part 15 Subpart B and, as such, is not intended for use in a residential environment. Any installation within a residential environment is considered outside of the intended use for this device.



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CHAPTER 1 - INTRODUCTION

OVERVIEW

This guide pertains to the Cardinal CLiC WD-02.2 Glass Controller. This device and the associated CLiC Glass Panel have been designed as a Class-3 system. The purpose of this document is to provide guidance on how to setup and install the device into a commercial, industrial, or business 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 WD-02.2 Glass Controller:

- The WD-02.2 must be installed within an appropriate NEMA enclosure placed in a dry ventilated area that maintains a normal room temperature (between 60°F to 90°F).
- Avoid installing the WD-02.2 in a location where it will have exposure to prolonged direct sunlight.
- Do not let the WD-02.2 get wet. It should not be handled with wet hands or placed in an area where it could get wet.
- Only use the power supply that is included with the WD-02.2. The included power supply is a 100-watt UL listed 1310 power supply with a Class-2 power limited output. Using the wrong type of power supply may result in damage.
- Do not disassemble the device. Service of the WD-02.2 should be performed by authorized personnel only.

COMPATABILITY

This device 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 attachments not recommended by the manufacturer. Connecting this device to load types other than CLiC Glass panels may damage the device or the unauthorized loads. 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 CLiC WD-02.2 Glass Controller:

- Installation Manual
- Power Supply: 24v DC 100-watt UL-1310 Class-2
 - With 6-pin locking spring terminal connector (female) pre-connected
- Paper mounting templates
- Rubber Feet
- Cardinal CLiC screwdriver with magnetized handle



UNPACKING AND INSPECTION

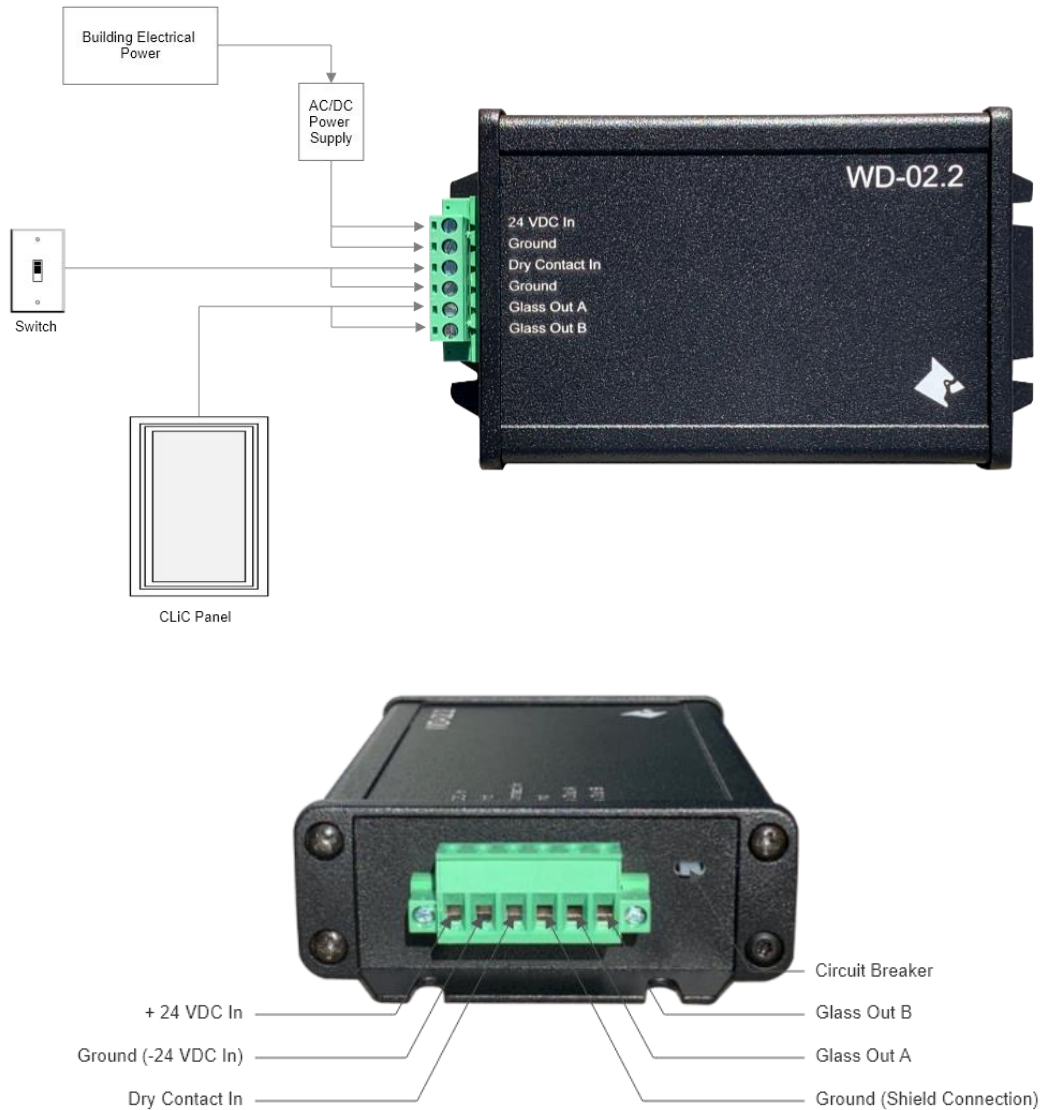
After opening the WD-02.2 package, save all of the packaging material in case you ever need to ship the unit. Thoroughly inspect and make sure the devices are in good condition and there is no visible damage. If you have any doubt about the product's integrity, please contact your reseller or an authorized support center immediately.



CHAPTER 2 - FEATURES

CONTROLLER LAYOUT

NOTE: The WD-02.2 must be installed within an appropriate NEMA enclosure.



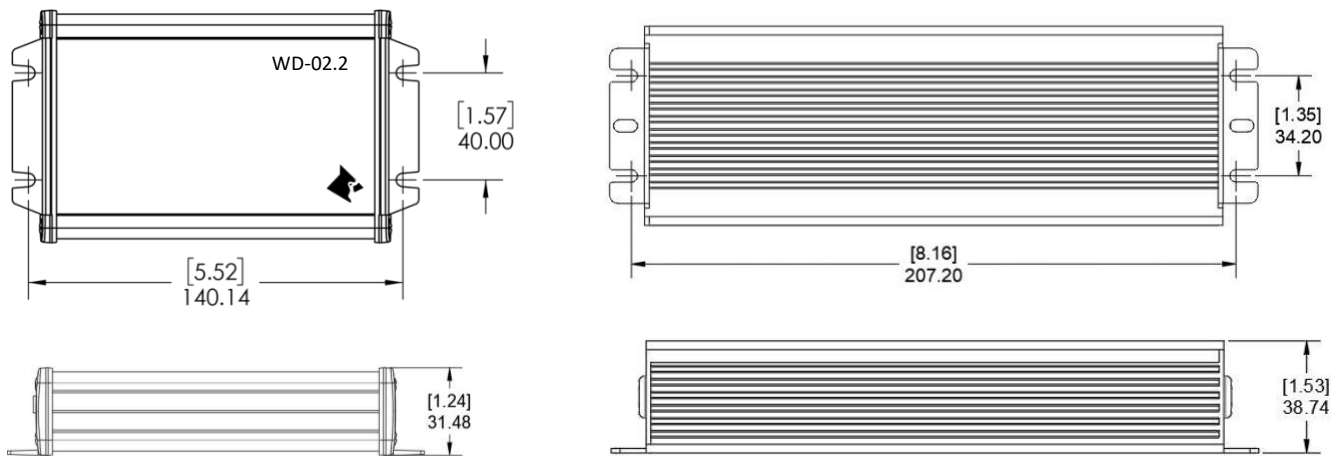
NOTE: Shielded wire must be used for all connections to the WD-02.2. The shield shall be terminated on the WD-02.2 end of the wire only and shall be connected to either of the 'Ground' terminals as labeled above. The shield at the CLiC Glass end and the Switching Device end can be cut where the cable jacket is removed.

CHAPTER 3 – INSTALLATION

MOUNTING

The CLiC WD-02.2 Glass Controller must be installed within an appropriate NEMA enclosure. The device can be mounted (details below) within the enclosure or free standing. The WD-02.2 does not need to be mounted near the CLiC Glass panel. Both the CLiC Glass powered outputs and the dry contact inputs can be extended up to 100 meters (328 feet).

Mounting Pattern Drawings



POWER

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

ALL PROTECTIVE FILMS MUST BE REMOVED PRIOR TO CONNECTING THE WD-02.2 GLASS CONTROLLER

The included power supply (A/C Adapter) should be connected to the '24 VDC in' and 'Ground' input terminals on the WD-02.2. The terminal connector will be pre-attached to the power supply. The CLiC WD-02.2 will be powered on and begin functioning upon applying power.

Use only the supplied power supply to power the WD-02.2. Do not connect more than one WD-02.2 to a power supply.



WIRE CONNECTION TERMINALS

NOTE: Shielded wire must be used for all connections to the WD-02.2. The shield shall be terminated on the WD-02.2 end only and shall be connected to the 'Ground' terminals as dictated below.

- **Terminal: +24 VDC In**
Positive power supply connection. This is used to power the device.
- **Terminal: Ground (-24 VDC In)**
Common ground connection. Use this ground reference for power supply ground connection, trigger ground connection, and wire shield ground connections.
- **Terminal: Dry Contact In**
The WD-02.2 has a dry contact input that is used to allow external devices to control the state of the CLiC Glass panel. The triggering device shall use a ground referenced switch or relay type output. The CLiC Glass panel will go to the clear state when the contact closure is closed. The CLiC Glass panel will go to the privacy state when the contact closure is open.
- **Terminal: Ground**
Common ground connection. Use this ground reference for power supply ground connection, trigger ground connection, and wire shield ground connections.
- **Terminal: Glass Out A**
This is the power signal output used for driving the CLiC Glass panel. Both Glass Out A and Glass Out B must be connected to the CLiC Glass panel. Glass Out A and Glass Out B can be connected to either corner of the CLiC Glass panel. Shorting the outputs will damage the WD-02.2 and should be avoided.
NOTE: Only connect a single CLiC Glass panel. Not to be used with multiple CLiC Glass panels.
- **Terminal: Glass Out B**
This is the power signal output used for driving the CLiC Glass panel. Both Glass Out A and Glass Out B must be connected to the CLiC Glass panel. Glass Out A and Glass Out B can be connected to either corner of the CLiC Glass panel. Shorting the outputs will damage the WD-02.2 and should be avoided.
NOTE: Only connect a single CLiC Glass panel. Not to be used with multiple CLiC Glass panels.
- **Circuit Breaker**
The WD-02.2 Glass Controller is equipped with a resettable circuit breaker to help protect against accidental miswiring of the Glass Outputs. The circuit breaker will trip to protect the WD-02.2 in the event that the Glass Output wiring is mis-wired, shorted together, or the line was cut during installation. In this event the white plastic button will pop-out and the unit can reset by pushing the button back in. Make sure to correct the wiring problem prior to resetting the circuit breaker.



INSTALLATION AND OPERATION

SITE WIRING AND PREPARATION

Wiring from the WD-02.2 to the CLiC Glass panel 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). All wiring should be completed by a qualified and experienced technician.

Placement: The WD-02.2 should be installed within an appropriate NEMA enclosure in a accessible area within sufficient distance to plug the power supply into a standard 120vac outlet. The WD-02.2 and the power supply are both mountable if desired. Please allow adequate space for ventilation and heat dissipation around the devices.

NOTE: IN THE EVENT THAT THESE DEVICES ARE INSTALLED WITHIN AN AIR-EXCHANGE SPACE (PLENUM AIRWAY) THEY SHALL BE MOUNTED WITHIN AN APPROPRIATE CERTIFIED PLENUM-SAFE ENCLOSURE OF MINIMUM SIZE GREATER THAN 273 x 100 x 138MM.

Wire Type and Connections

Shielded two-conductor wire must be used for all wire connections on the WD-02.2 Glass Controller. This is important to maintain FCC compliance and to minimize the chance for electrical interference. **IMPORTANT:** When completing the terminal connections, the shield of each wire run must be terminated to the 'Ground' terminals on the WD-02.2 and left unconnected at the CLiC Glass panel and at the trigger switch or relay devices.

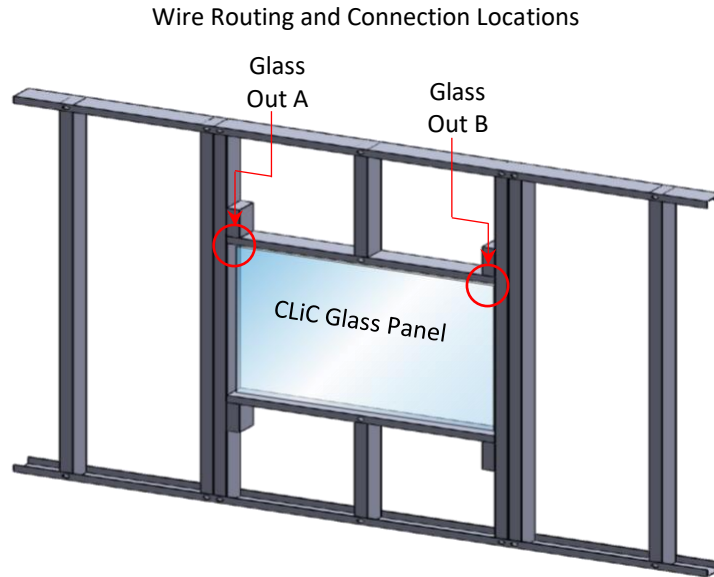
Wire Size and Maximum Length

The shielded wire utilized for connections on the WD-02.2 shall be a minimum of 18 AWG. It is important that the correct gauge wire is used to assure the correct voltage and signal reaches the CLiC Glass panel. The maximum wire distance between the WD-02.2 and the CLiC Glass panel is 100 meters (328 feet).



Wiring Termination at CLiC Glass Panel

The wiring terminations at the CLiC Glass panel will occur at the upper corners of the glass panel. Therefore, the framing and pre-wiring for the CLiC Glass panel must provide enough room along the top edge to hide the wire and allow for secure wire connections. See the diagram below:



IMPORTANT: REMOVAL OF PROTECTIVE FILMS CAN PRODUCE ELECTRIC SHOCKS AND SPARKS WHICH COULD CAUSE DAMAGE TO CONNECTED ELECTRONICS.

ALL PROTECTIVE FILMS MUST BE REMOVED PRIOR TO CONNECTION OF THE GLASS CONTROLLER!

WD-02.2 Dry Contact Connections

The WD-02.2 has been designed to accommodate many installation configurations and scenarios by utilizing a flexible Dry Contact Input Circuit. This circuit allows a wide variety of switch devices, relays, or other automation controllers to provide end user control of the CLiC Glass panel. These devices can include, but are not limited to:

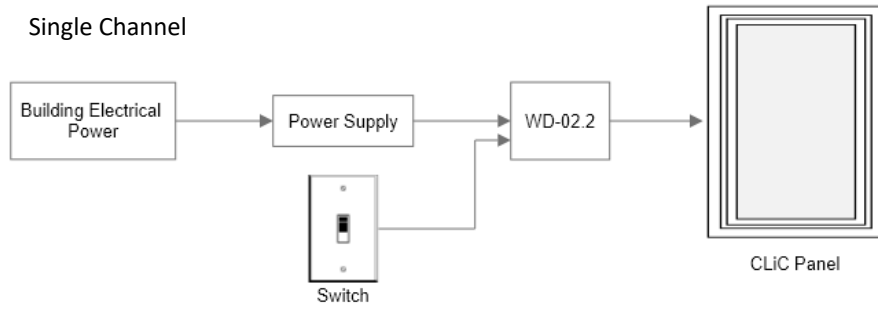
- Standard light switches ***NOTE: USED FOR LOW-VOLTAGE TRIGGER ONLY AND NOT CONNECTED TO LINE VOLTAGE***
- Occupancy Sensors
- Relays and Switch outputs from automation controllers or remote-control systems
- Doorjamb Plunger Switches
- Magnetic Security Style Door Switches

SYSTEM LAYOUT EXAMPLES

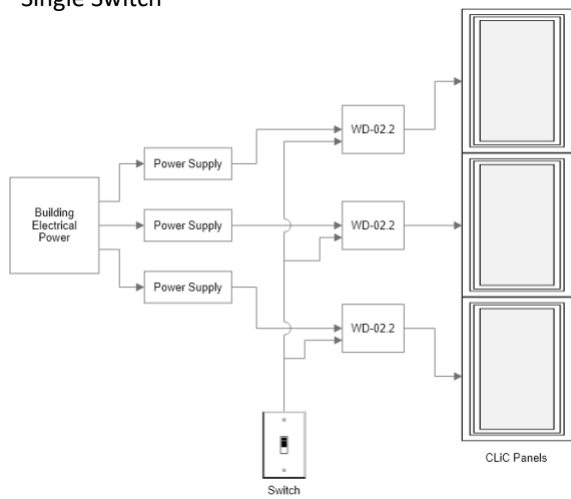
Please review the following diagrams for example wiring scenarios:



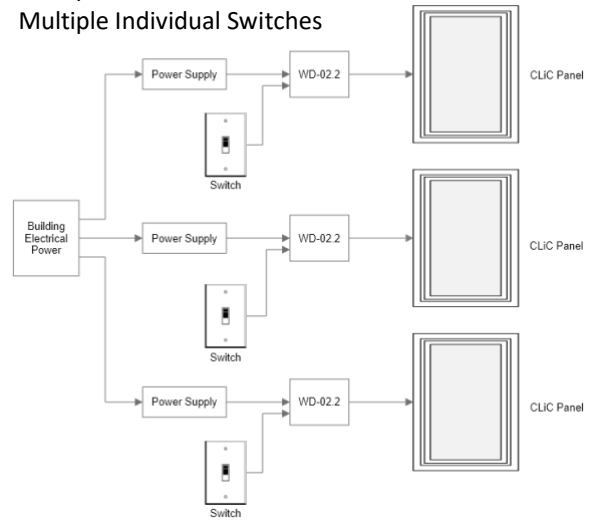
Single Channel



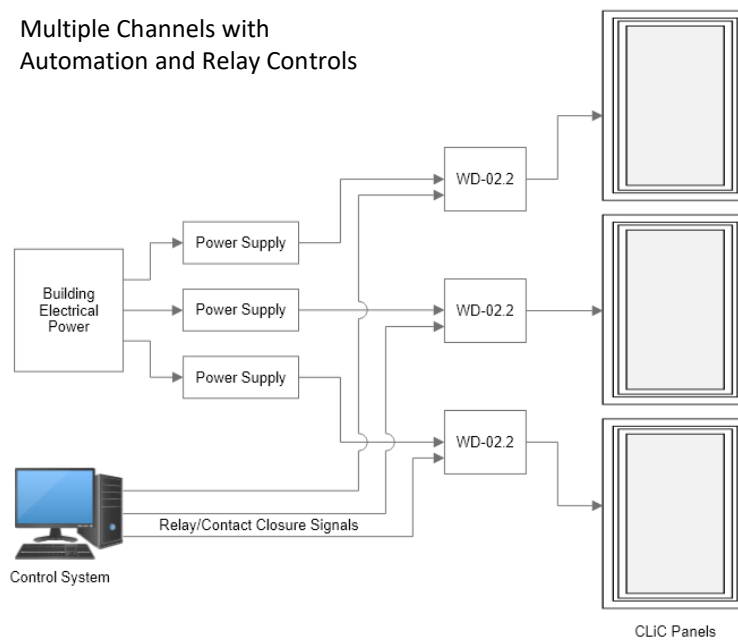
Multiple Channels Single Switch



Multiple Channels Multiple Individual Switches



Multiple Channels with Automation and Relay Controls



SPECIFICATIONS

Power Supply Requirements	24VDC 100-Watt UL1310 Class 2 Power Limited
CLiC Control Output	100VA Max, Capacitive Load, Class 3 Voltage
Input Trigger Type	Open Collector; Shunt to Ground
Mounting	Mounted or free standing within an appropriate NEMA enclosure
WD-02.2 Dimensions (W x H x D) without feet	5.99" x 3.03" x 1.24" (152.2mm x 77mm x 31.5mm)
Required Power Supply	24v DC 100-watt UL-1310 Class 2
Included Power Supply Dimensions (W x H x D)	8.75" x 2.68" x 1.53" (222.2mm x 68mm x 38.8mm)
Weight (without included power supply)	9.92 oz (0.62 lbs.)
Weight (with included power supply)	53.44 oz (3.34 lbs.)
Operating Temperatures	50°F to 122°F (10°C to 50°C)
Certifications	NEC Class 3, FCC Part 15 Subpart B Class A, UL-60730



TROUBLESHOOTING

COMMON SYMPTOMS AND SOLUTIONS

If you are experiencing problems with your WD-02.2 or CLiC Glass panel, 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 (won't change state)	<ol style="list-style-type: none"> 1. Verify wiring from switch or dry contact device to Glass Controller 2. Verify switch or dry contact device is functioning properly and opening the circuit
Glass stuck in Private State (won't change state)	<ol style="list-style-type: none"> 1. Verify wiring from Glass Controller to the CLiC Glass panel 2. Verify wiring from switch or dry contact device to Glass Controller 3. Verify switch or dry contact device is functioning properly and closing the circuit 4. If a digital multi-meter is present, verify presence of 24VDC at terminal on Glass Controller 5. <i>See No Power to Glass Controller Below</i>
No power at Glass Controller	<ol style="list-style-type: none"> 1. Verify the power supply is plugged into a wall outlet 2. Verify that the wall outlet has power 3. Verify the wiring from the power supply to the Glass Controller and that the connector is fully inserted 4. Verify that circuit breaker on the Glass Controller is fully depressed and does not immediately pop back out 5. Thermal protection may have been activated on the power supply. Unplug power supply from the wall, verify all wiring, and wait 30 minutes to allow the power supply to cool down
Clear state unstable	<ol style="list-style-type: none"> 1. Verify wiring and connections from the Glass Controller to CLiC glass panel 2. Contact technical support



SERVICE AND SUPPORT

CONTACTING US

Contacting Cardinal IG Company

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

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

Contacting Technical Support

At Cardinal IG Company, customer service and satisfaction are two of our core missions. If you are experiencing any problems or have a question 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
- 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 customer experience. Our goal is to respond to your email in a timely manner and to expediently resolve any issues you are experiencing.

