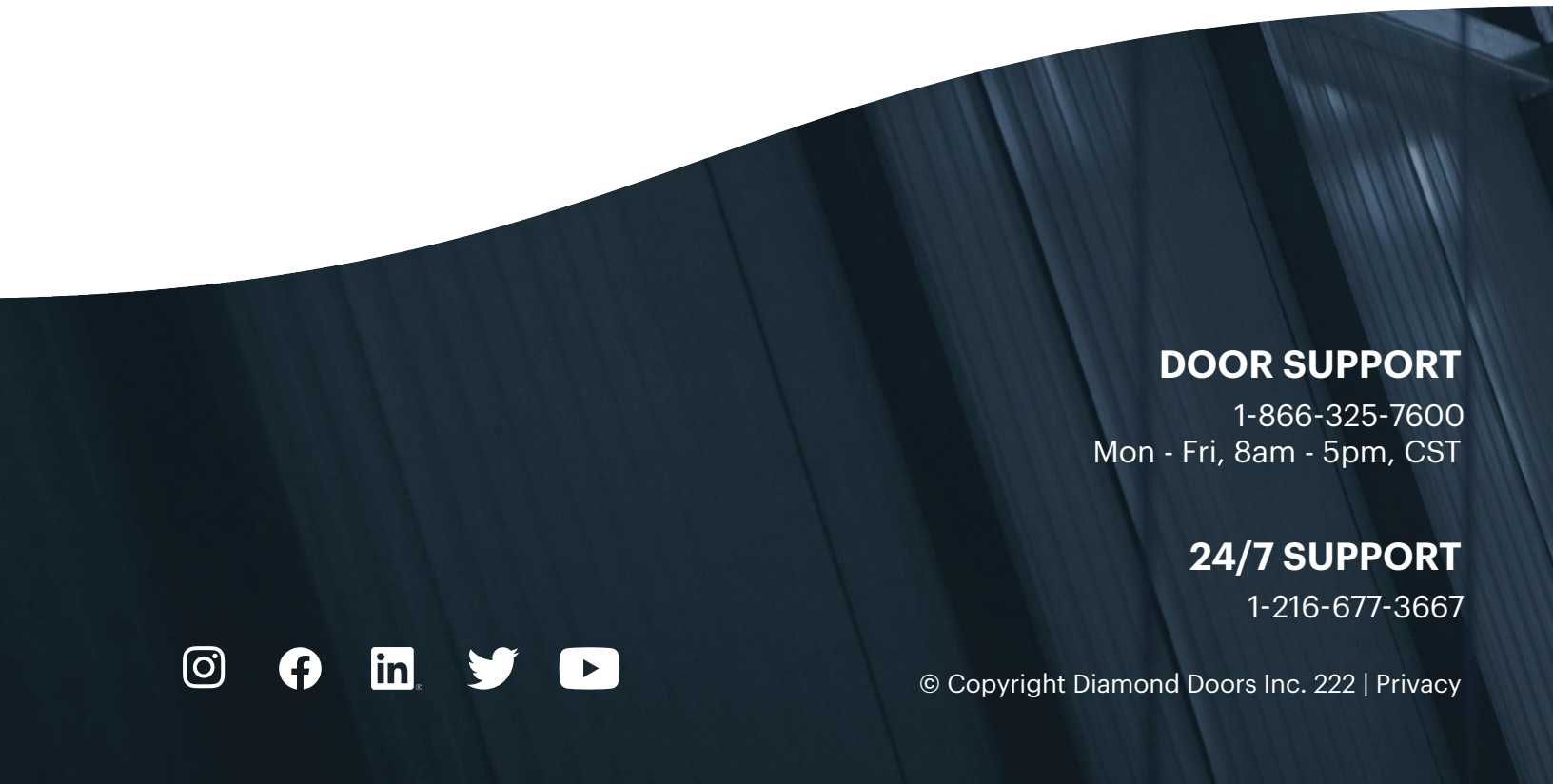
DIAMOND DOORS

Door Operator

ELECTRICAL & USER MANUAL



DOOR SUPPORT
1-866-325-7600
Mon - Fri, 8am - 5pm, CST

24/7 SUPPORT
1-216-677-3667

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WARNING!

To reduce the risk of SEVERE INJURY or DEATH:

- READ AND FOLLOW ALL INSTALLATION WARNINGS AND INSTRUCTIONS.
- NEVER let children play with or operate the door, keep remote controls (where applicable) out of the reach of children.
- Keep people and equipment clear of a door that is in motion and keep the moving door in sight until it is completely closed or opened. NO ONE SHOULD CROSS THE PATH OF A MOVING DOOR.
- Test and check the doors safety featrues (including Photoeyes) once a month, adjust the upper and lower limits as needed. Failer to adjust the operator properly may cause server injruy or death.
- Power connection to the door should be made by a qualified electrician after the door has been securely mounted onto the building.
- Locate the up/down/stop wall station within sight of the door and at a minimum height of 5 feet to keep it out of reach of children.
- Ensure that all guards are in place before operating the door.
- Ensure that all warning labels are visible and intact prior to operating the door.
- Follow the maintenance schedules outlined in this manual.
- SAVE THIS INSTALLATION AND OWNERS MANUAL FOR FUTURE REFERENCE.

Tools required

Below is a list of all the tools necessary to complete the installation of your newly acquired bi-fold door.

- Hammer
- Measuring tape
- Utility knife
- Level (4ft)
- Work platform (ie. Scissor-Lift, Scaffolding, or similar)
- lifting equipment (ie. forklift, Crane, or similar)
- Electrical drill
- Drill bits
- 1/2" bit, at least 12" long (For drilling rafters + columns)
- 3/16" bit (For pre-drilling holes in exterior cladding)
- 3/8" bit for steel buildings or metal quonsets
- Impact driver
- Nut driver bits
- 1/4" - Black electrical control box (or flat screwdriver)
- 5/16" - TEK screws to attach exterior cladding
- #? Torx for yellow lock brackets
- #3 Robertson impact bit (for J-Track fasteners)
- #2 Phillips screwdriver and impact bit
- Wrenches: 3/4" and 9/16"
- Hand ratchet with the following sockets: 3/4", 1/2", 7/16"
- Large pry bar
- Cable cutter or similar
- Tin snips (for cutting flashing and exterior sheeting)
- 2 large F-Clamps 12" or longer
- WD-40 lubricant or similar (for installing bottom black rubber weather seal)
- Silicone gun (for top canvas seal)

Power & Ground Wiring

WARNING!

- Disconnect power at the electrical panel **BEFORE** proceeding. Operator **MUST** be properly grounded and connected in accordance with local electrical codes. The operator should be on a seperate fuse line of adequate capacity.
- All electrical connections **MUST** be made by a qualified individual.
- **DO NOT** install **ANY** wiring or attempt to run the operator without consulting the wiring diagram.
- **ALL** power wiring should be on a dedicated circuit and be well protected. The location of the power disconnect should be visible and clearly labeled.
- **ALL** power and control wiring **MUST** be run in a separate conduit.
- **DO NOT** turn power on until you have finished making **ALL** power and control wiring connections.
- A **MINIMUM** of 14 AWG wire or larger must be used for all power wiring. Use conduit knockouts for wiring as inidicated on the electrical box labels.

Wire Gauge Charts

See the charts below to determine the correct wire length and gauge required for your specific size motor.

(1Ø) SINGLE PHASE MOTOR - 110V					
	DISTANCE - OPERATOR TO PANEL (FEET)				
HP	100'	150'	200'	300'	500'
3/4	6 AWG	6 AWG	4 AWG	2 AWG	1 AWG
1	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG

(1Ø) SINGLE PHASE MOTOR - 230V					
	DISTANCE - OPERATOR TO PANEL (FEET)				
HP	100'	150'	200'	300'	500'
3/4	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG
1	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG
1.5	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG
2	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG
3	8 AWG	8 AWG	6 AWG	4 AWG	2 AWG
4	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG
5	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG

(3Ø) THREE PHASE MOTOR - 208 / 230V					
	DISTANCE - OPERATOR TO PANEL (FEET)				
HP	100'	150'	200'	300'	500'
3/4	14 AWG	14 AWG	14 AWG	12 AWG	10 AWG
1	14 AWG	14 AWG	12 AWG	10 AWG	8 AWG
1.5	12 AWG	12 AWG	12 AWG	10 AWG	8 AWG
2	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG
3	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG
4	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG
5	10 AWG	8 AWG	6 AWG	6 AWG	2 AWG
6	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG
7.5	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG
10	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG

(3Ø) THREE PHASE MOTOR - 460V					
	DISTANCE - OPERATOR TO PANEL (FEET)				
HP	100'	150'	200'	300'	500'
3/4	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG
1	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG
1.5	14 AWG	14 AWG	12 AWG	12 AWG	10 AWG
2	14 AWG	14 AWG	12 AWG	12 AWG	10 AWG
3	14 AWG	12 AWG	12 AWG	10 AWG	8 AWG
4	12 AWG	12 AWG	10 AWG	8 AWG	6 AWG
5	12 AWG	12 AWG	10 AWG	8 AWG	6 AWG
6	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG
7.5	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG
10	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG
15	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG

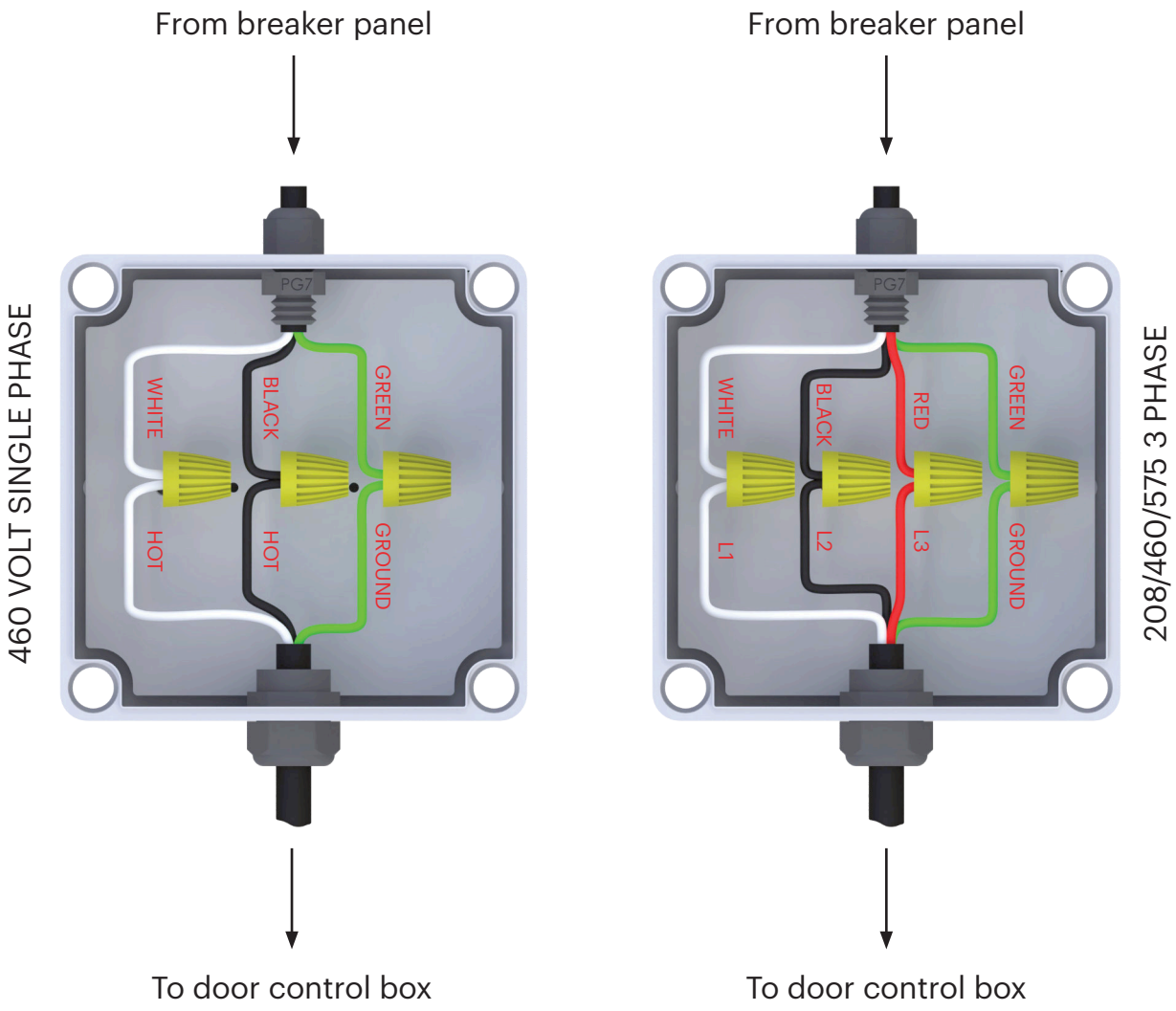
(3Ø) THREE PHASE MOTOR - 460V					
	DISTANCE - OPERATOR TO PANEL (FEET)				
HP	100'	150'	200'	300'	500'
3/4	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
1	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
1.5	14 AWG	14 AWG	14 AWG	14 AWG	14 AWG
2	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG
3	14 AWG	14 AWG	14 AWG	14 AWG	12 AWG
4	14 AWG	14 AWG	14 AWG	12 AWG	10 AWG
5	14 AWG	14 AWG	14 AWG	12 AWG	10 AWG
6	14 AWG	14 AWG	12 AWG	10 AWG	8 AWG
10	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG

CAUTION!

- WARRANTY does **NOT** cover improper wire sizing, incorrect power supply or use of a generator.
- Wire tables are the recommended **MINIMUM** wire gauge required for the horsepower application, using less than recommended will limit load abilities of the motor.
- it is **NOT RECOMMENDED** to use a generator with any door installations.
- **USE COPPER WIRE ONLY.**

Power Wires

Run power wires from fuse panel to junction box according to national and local electrical codes. Refer to the wire gauge charts for proper gauge.



CAUTION!

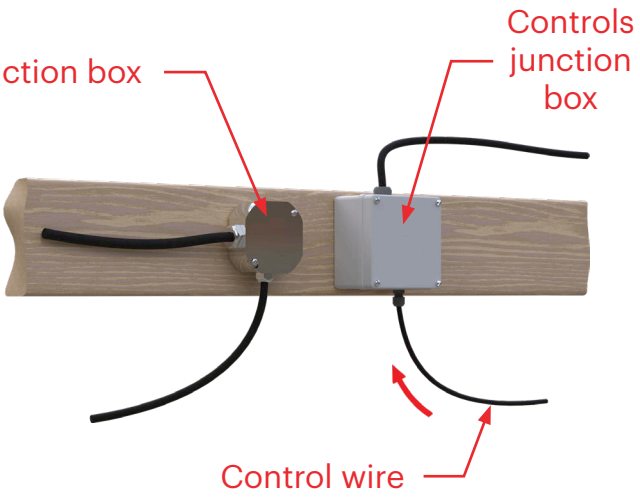
- Refer to electrical diagram located inside the electrical control wiring junction box for all connections.
- Verify the power supply is of proper voltage, phase, and amperage to supply the operator. Refer to the operator name plate on the electrical control wiring junction box cover.
- All wiring in controller and motor come factory set. Do **NOT** modify wiring in controller or motor(s).
- **USE COPPER WIRE ONLY.**

3-Botton Control Station

The control wiring junction box should be mounted centered above the door. Use four #8 x 1" wood screws provided to mount it. Be sure to leave **EXTRA WIRE** looped at the top of the door for opening and closing.

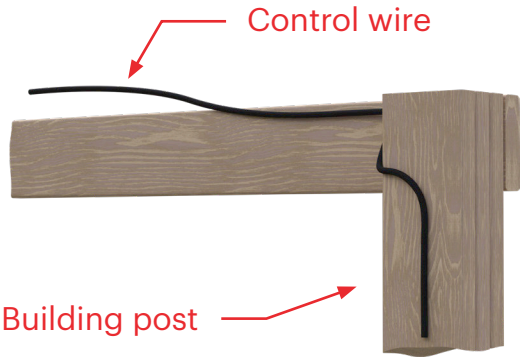
STEP 1: Running the control wire

Bring the control wire from the door into the junction box. Match the color of the wires. Refer to page 8 for a detailed diagram of wiring.



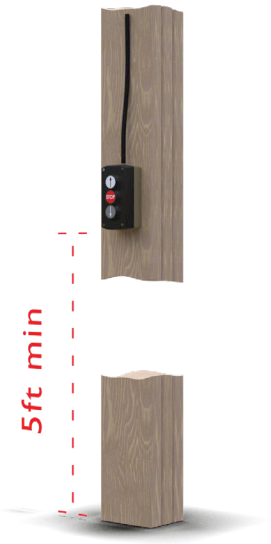
STEP 2: Running across building header

Run wire across the building header and down the buidings column.



STEP 3: Installing control station

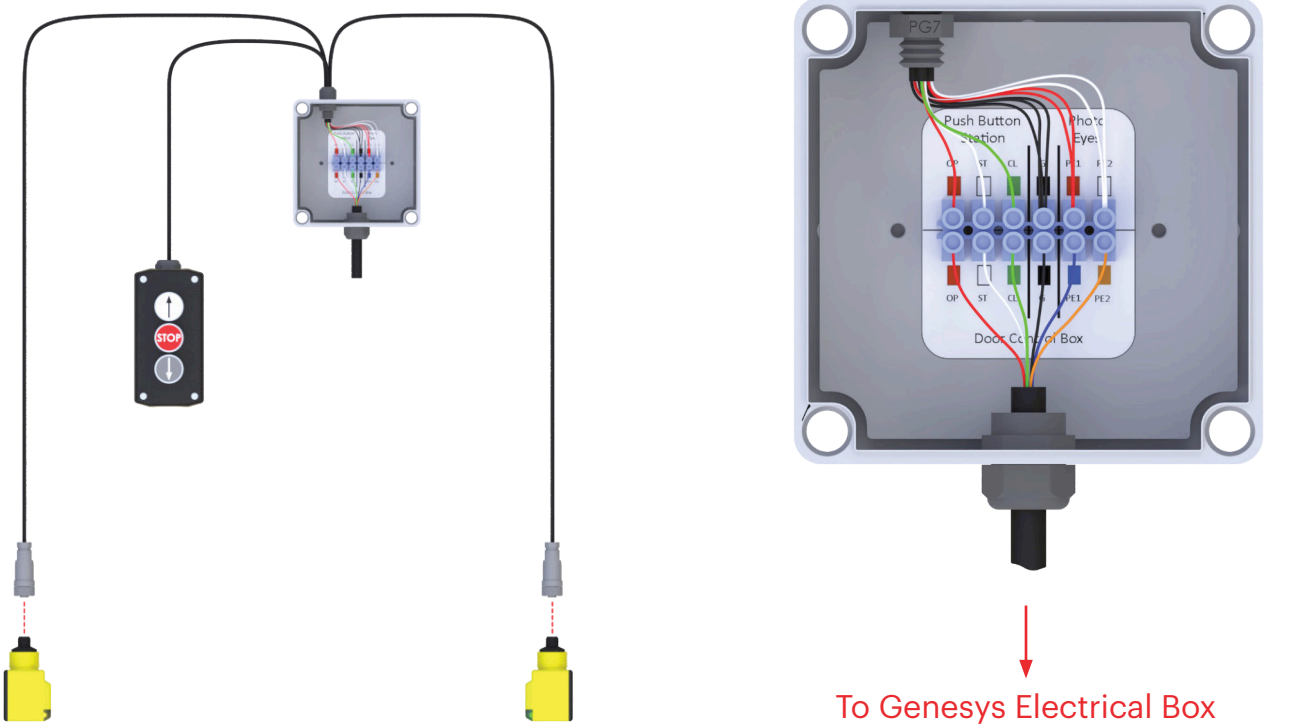
Place the control station at least 5 feet above the floor and within sight of the door. Far enough to avoid making contact with the door while operating.



Place the provided warning label on the wall or column near the control station.

Control Wiring

The control wiring junction box has a 6-conductor cable for standard doors and a 6-conductor cable if Photoeyes were requested. Run the control cable through the bottom of the control box and wire as shown matching up wire colors. If there are no Photoeyes, ignore PE1 and PE2 in the control box. Both Photoeyes and lift station come with a length of wire suitable for your door.



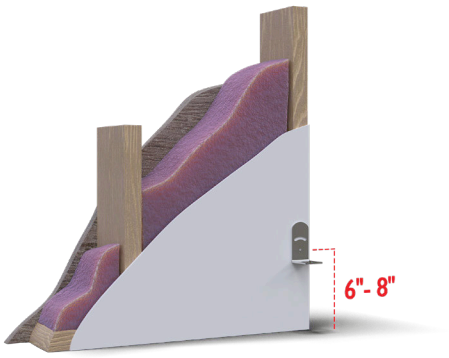
NOTE
Disconnect power before wiring the control wiring junction box

Photoeye Installation

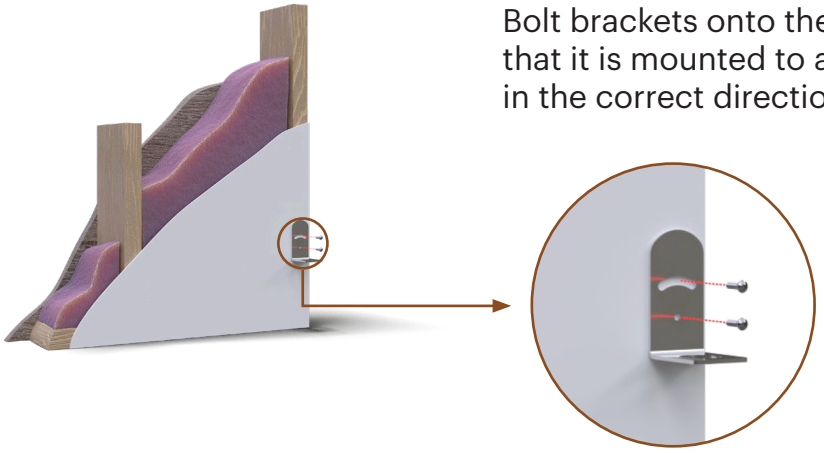
Follow the necessary steps below to ensure proper installation and alignment of the photoeyes.

STEP 1: Running the control wire

Drill pilot holes in the wall for the provided mounting bracket. The center of the photoeye beam should not be higher than 6" above ground level.



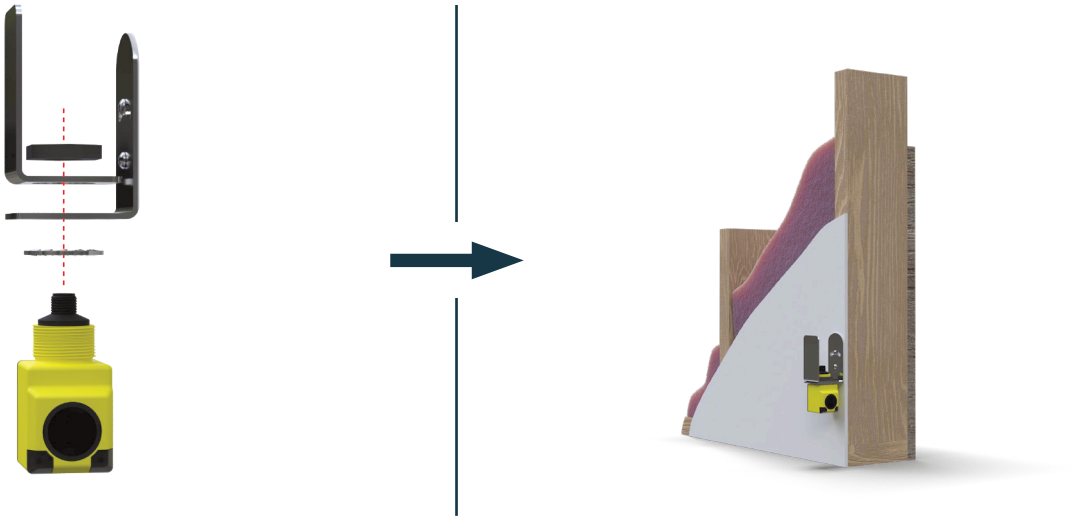
STEP 2: Fasten brackets



Bolt brackets onto the wall and ensure that it is mounted to allow eyes to face in the correct direction.

STEP 3: Installing photoeyes

Install photoeyes through mounting backet and protective bracket (for wire connection), fasten with supplied nut.



STEP 4: Quick-Connect fitting

Thread Quick-Connect fittings to photoeyes and run wiring to the control wiring junction box. Refer to page # for wiring diagram.

STEP 5: Power indication

Once both photoeyes have been connected and wired, power on the Genesys Electrical Box to ensure the eyes have power. Each eye will have a green light for power. One has an amber light to show they are "seeing" each other.

STEP 6: Alignment

Using the top screw, tilt one or both eyes until the Yellow light comes on to indicate the eyes are connected.

IMPORTANT!

- If your door was ordered with the eye option, they MUST be installed for the door to operate correctly.
- Follow directions carefully to ensure door works properly.
- Do NOT put eyes higher than 6" or lower than 4" from the floor surface.
- Eyes MUST be installed for packages that include wireless remote.
- Do NOT mount eyes in direct sunlight.

First Time Operation

Before operating the door for the first time, make sure to follow the steps below in their proper order.

- Clear doorway and area of obstructions.
- **3-Phase Powered Doors:** Ensure proper phasing of the power supply for correct motor direction.
    - **a.** Run motor(s) momentarily to confirm motor direction.
    - **b.** To reverse direction, change any 2 of the 3 power leads. Refer to wiring diagram in control box for more info.
- Check all electrical cables that there is no strain or risk of pinching at hinge locations.
- The lower limit has been factory set. Upper limits have **NOT** been set yet. **DO NOT** allow door to go all the way up until you are setting limits (see next section).
- If your door came with Photoeyes, be sure the jumper on the board has been moved from "C2" to "B2" under the options column. After it has been moved, the board **MUST** be turned off and back on again.
- Begin opening door to ensure normal operation. During close cycle, test eyes by blocking the beam and the door should go back up again.

CAUTION!

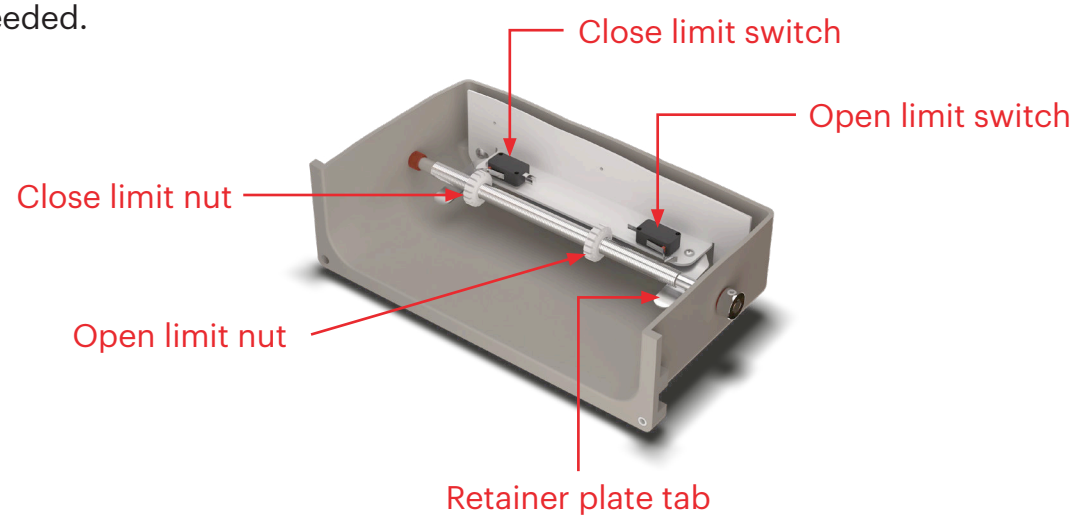
- Ensure that all tools, wires, switches, and the list are not still on door.
- Clear doorway and area of any obstructions.
- Make sure that all electrical connections are firmly fastened.

Adjust Limit Switches

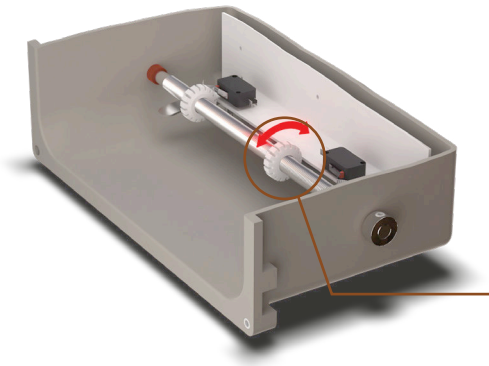
Each door will require a limit as to how far the door is allowed to open. Follow the steps below to make the necessary adjustements.

STEP 1: Press down on retaining plate tab

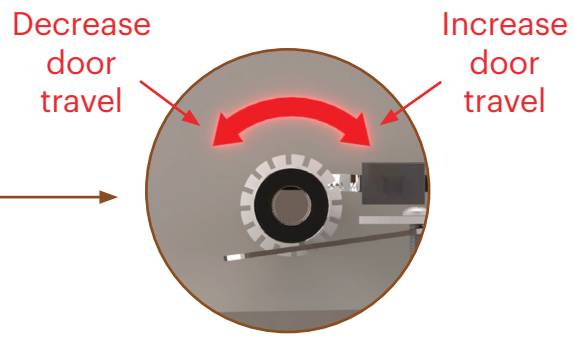
This will allow for the limit nuts to be adjusted as needed.



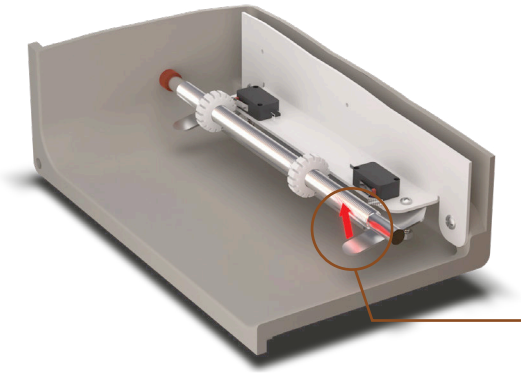
STEP 2: Adjust OPEN limit set height



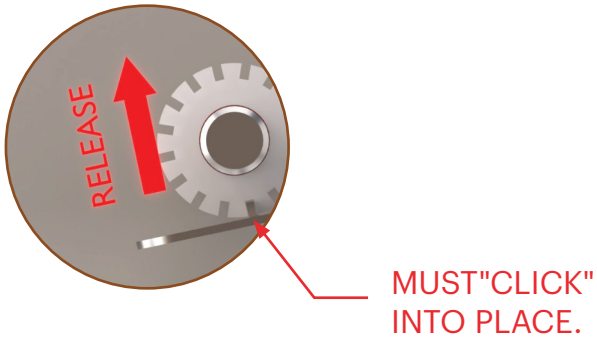
Adjust OPEN limit set height.
ClOSE limit is factory set and should need no adjustment.



STEP 3: Release retaining plate



Release retaining plate.
This will allow for the limit nuts
to be adjusted as desired.



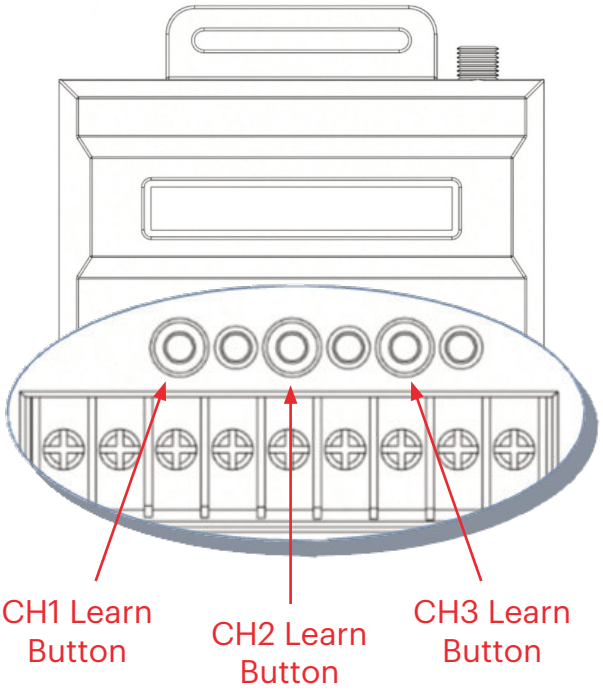
MPORTANT!

The cables should be slightly loose when the door is completely closed. The upper limit should be set high enough to allow the door to bridge. **DO NOT TOUCH THE FRAME**. The door should come to a complete halt at its maximum opening. Cycle through the process numerous times to confirm that the limits are accurately set.

Remote Transmitter

There may be a time when you have to reprogram the remote transmitter should the battery run out or if you replace it with a new unit. Below are the instructions on how to do this.

1. Press and release the CH1 Learn button on the receiver.
2. Press and hoold the desired **OPEN** button on the remote control for 30 seconds.
3. Press and release the **CH2** Learn button on the receiver.
4. Within 30 seconds, press the desired **CLOSE** button.
5. Press and release the **CH3** Learn button on the reveiver.
6. Within 30 seconds, press the desired **STOP** button on the remote control.



Erasing the memory

Press and hold the Learn button for the channel you want to erase. Release the button when the LED turns off; the memory for that button has been erased.

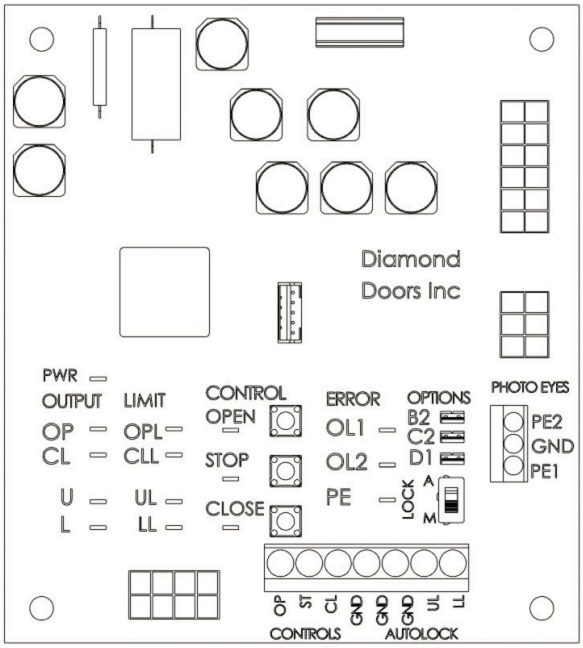
Compatible accessories

Remote Controls:
811LM, 813LM, 891LM, 893LM, 890MAX, 893MAX, 895MAX, 892LT, 894LT

Keypads:
877LM, 877MAX

Control Board

The functionality of this board is based on the wiring type found in the OPTONS section. The control board is shipped from factory with C2 option wiring. This allows single press button for opening and hold-down for closing (remote control not allowed).



INDICATOR LIGHT LEGEND		
OUTPUT	**COLOR**	**FUCTION**
PWR	Green	Indicates control board has power.
OP	Green	OPEN contactor ON (Door opening).
CL	Green	CLOSE contactor ON (Door closing).
U	Green	UNLOCK contactor ON (Door unlocking).
L	Green	LOCK contactor ON (Door locking).
LIMIT	**COLOR**	**FUNCTION**
OPL	Yellow	OPEN limi reached.
CLL	Yellow	CLOSE limit reached.
UL	Yellow	UNLOCK limit reached.
LL	Yellow	LOCK limit reached.
CONTROL	**COLOR**	**FUNCTION**
OPEN	Yellow	ON when OPEN button pressed.
STOP	Green	OFF when STOP button pressed.
CLOSE	Yellow	ON when CLOSE button pressed.
ERROR	**COLOR**	**FUNCTION**
OL1	Red	ON when motor overload is tripped.
OL2	Red	ON when auto-lock motor overload is tripped.
PE	Yellow	ON when Photoeyes are blocked/misaligned.

OPTIONS LEGEND

Use black jumper tab to move selection if necessary.

B2 - Single push button for Open & Close. The board MUST be power cycled before this is operational. (ONLY with Photoeyes).

C2 - Single push button for Open, but hold button to Close. (Remote control cannot be used).

D1 - Press and hold up the up and down buttons.

Lock - Set from factory to match chosen lock style.

A - Autolock (Option must be installed)

M - Manual Lock

Troubleshooting

CONDITION	POSSIBLE CAUSE	SOLUTION
door does not unlock (Auto-Lock opton).	Autolock switch position incorrect.	Red switch found on the controller board must be UP for Auto-Lock and DOWN for manual lock.
	Limit switches improperly set or faulty.	Lights on controller board, CCL & LL must be ON. Verify limit switches are properly set and working when pressed.
	No power to controller.	Verify there is power to controller board (PWR light will be ON). Verify that no breakers have been thrown or fuses blown.
Door will not open.	Limit switch being activated.	Verify that UL light is ON (Upper limit switch light).
	3-button control panel fault.	Verify that Stop button and Open button are working correctly. Have one person pressing buttons on 3-button panel while watching indicator lights on control board to verify which button is not operating correctly. Refer to light diagram on Page 19.
	Insufficient voltage or over-amped.	Check breaker switch in panel, verify correct wire size was chosen for application, and check that thermal overloads have not released inside E-Box.
Door will not close.	(Option) Photo-eye setting hasn't been set yet/Board not power cycled.	Ensure that the board jumper has been moved from C2 to B2 under the options column. Refer to Page 15 regarding board layout. Board MUST be rebooted (turned off and back on) before photo-eye function works correctly.
	(Option) Photoeyes are blocked.	Check for any obstructions between eyes. Verify that the eyes are aligned with each other. Note: Yellow light on photo eye must be ON (PE light on the board must be OFF).
	3-button control panel fault.	Refer to instructions above regarding 3-button control panel.
	No power.	Verify that control board has power (check PWR light is ON). Check all related breakers and fuses (including one on control board) are not blown/thrown.
	Limit switch improperly set or faulty.	Verify that limit switches are not preventing door from lowering (LL light should be OFF).
Door does not lock (Auto-Lock option)	Auto-Lock position switch.	Verify that the red switch on the board is set to UP for Autolock and DOWN for manual lock
	Limit switch improperly set or faulty.	Ensure that CCL light is ON. Ensure that limit switches are not being prematurely pressed or latched shut.
	No power.	Verify that control board has power (check PWR light is ON). Check all related breakers and fuses (including one on control board) are not blown/thrown.

Emergency Close Procedure

In the event that the Photoeyes are blocked by blowing snow, fog or eyes have been damaged, the door can be closed using the following sequence

1. Make sure the doorway is clear of people and objects.
2. Press the DOWN button 5 times and hold on the fifth push.
3. Keep holding the button in until the door starts to move. This will be about 4 seconds.
4. Release the button to stop the door.

VERSION: 3.1.1

DIAMOND DOORS

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