



DOOR OPERATOR ELECTRICAL & USER MANUAL

This document contains important installation and safety information to be reviewed prior to Installing and Operating the door.

Retain this document for future reference

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SAFETY INFORMATION



WARNING



Mechanical



WARNING



Electrical

IMPORTANT INSTALLATION INSTRUCTIONS



WARNING



To reduce the risk of **SEVERE INJURY** or **DEATH**:

1. READ AND FOLLOW ALL INSTALLATION WARNINGS AND INSTRUCTIONS.
2. NEVER let children play with or operate the door, keep remote controls (where applicable) out of the reach of children.
3. 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.**
4. Test and check the doors safety features once a month, adjust the upper and lower limits as needed. Failure to adjust the operator properly may cause severe injury or death.
5. Power connection to the door should be made by a qualified electrician after the door has been securely mounted onto the building.
6. 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 the reach of children.
7. Ensure all guards are in place before operating door.
8. Ensure all warning labels are visible and intact prior to operating the door.
9. Follow the maintenance schedules outlined in this manual.
10. **SAVE THIS INSTALLATION AND OWNERS MANUAL FOR FUTURE REFERENCE**

POWER AND GROUND WIRING



To reduce the risk of SEVERE INJURY or DEATH:

- 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 separate fused 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 indicated on the electrical box labels.

(1Ø) SINGLE PHASE - 110V					
HP	DISTANCE - OPERATOR TO PANEL (FEET)				
	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 - 230V					
HP	DISTANCE - OPERATOR TO PANEL (FEET)				
	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	6 AWG	4 AWG	2 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.

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(3Ø) THREE PHASE MOTOR - 208/230V					
HP	DISTANCE - OPERATOR TO PANEL (FEET)				
	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
10	8 AWG	6 AWG	4 AWG	4 AWG	1 AWG

(3Ø) THREE PHASE MOTOR - 460V					
HP	DISTANCE - OPERATOR TO PANEL (FEET)				
	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	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG
2	12 AWG	12 AWG	12 AWG	12 AWG	12 AWG
3	12 AWG	12 AWG	12 AWG	12 AWG	10 AWG
4	12 AWG	12 AWG	12 AWG	10 AWG	8 AWG
5	12 AWG	12 AWG	12 AWG	10 AWG	8 AWG
6	12 AWG	12 AWG	10 AWG	8 AWG	6 AWG
10	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG

(3Ø) THREE PHASE MOTOR - 575V					
HP	DISTANCE - OPERATOR TO PANEL (FEET)				
	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

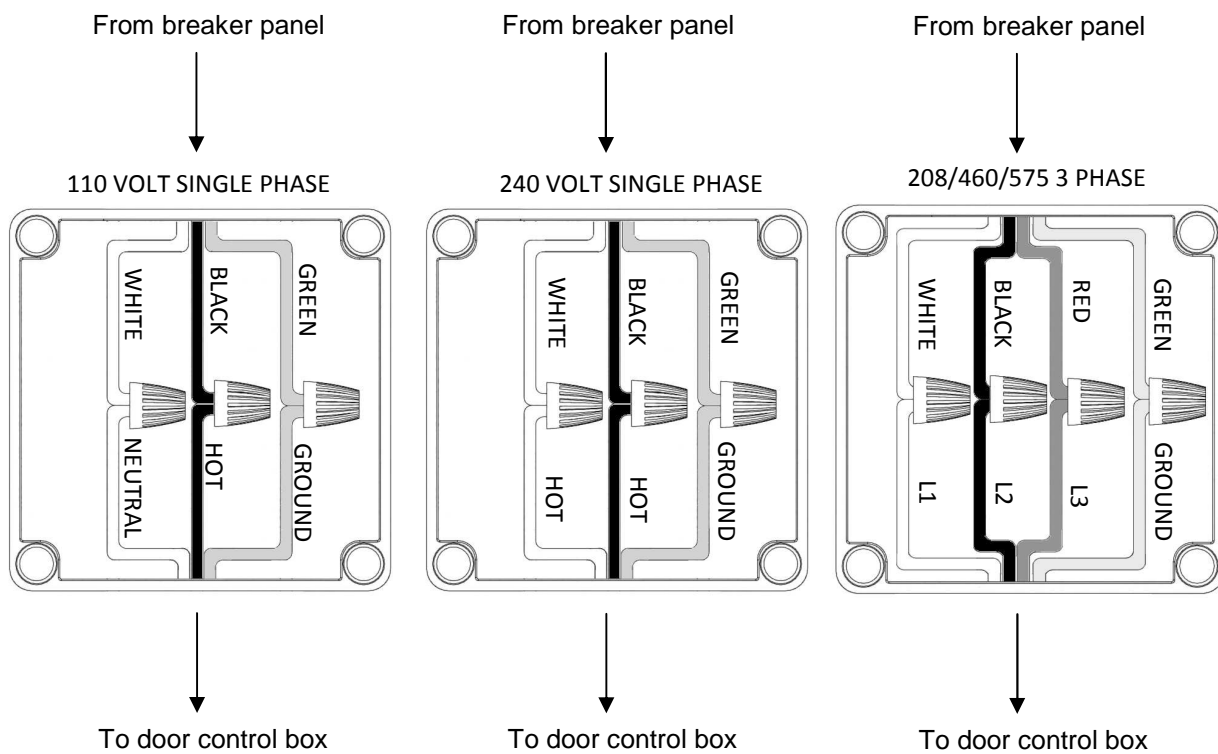
POWER AND GROUND WIRING



- Refer to electrical diagram located inside the electrical control 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 box cover.
- All wiring in controller and motor come factory set. Do NOT modify wiring in controller or motor(s).
- USE COPPER WIRE ONLY

1 Run factory provided power wires up to a junction box located above the door.

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

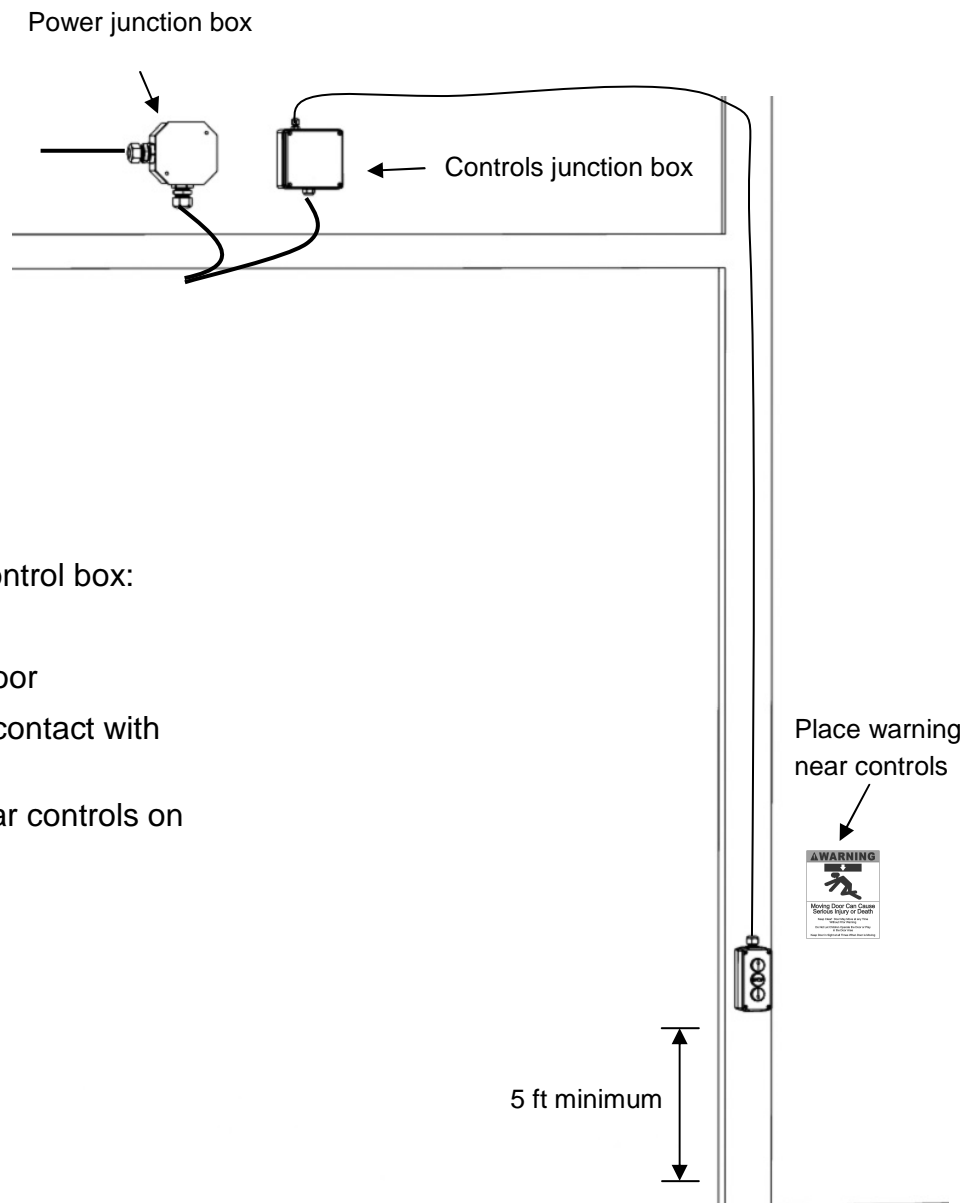


3-BUTTON CONTROL STATION

The control 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.

1 Bring the control wire (4 or 6 conductor) from the door into the junction box. Match the color of the wires. Refer to page 8 for a detailed diagram of wiring.

2 Run wire across the building header and down the building column to the desired location.



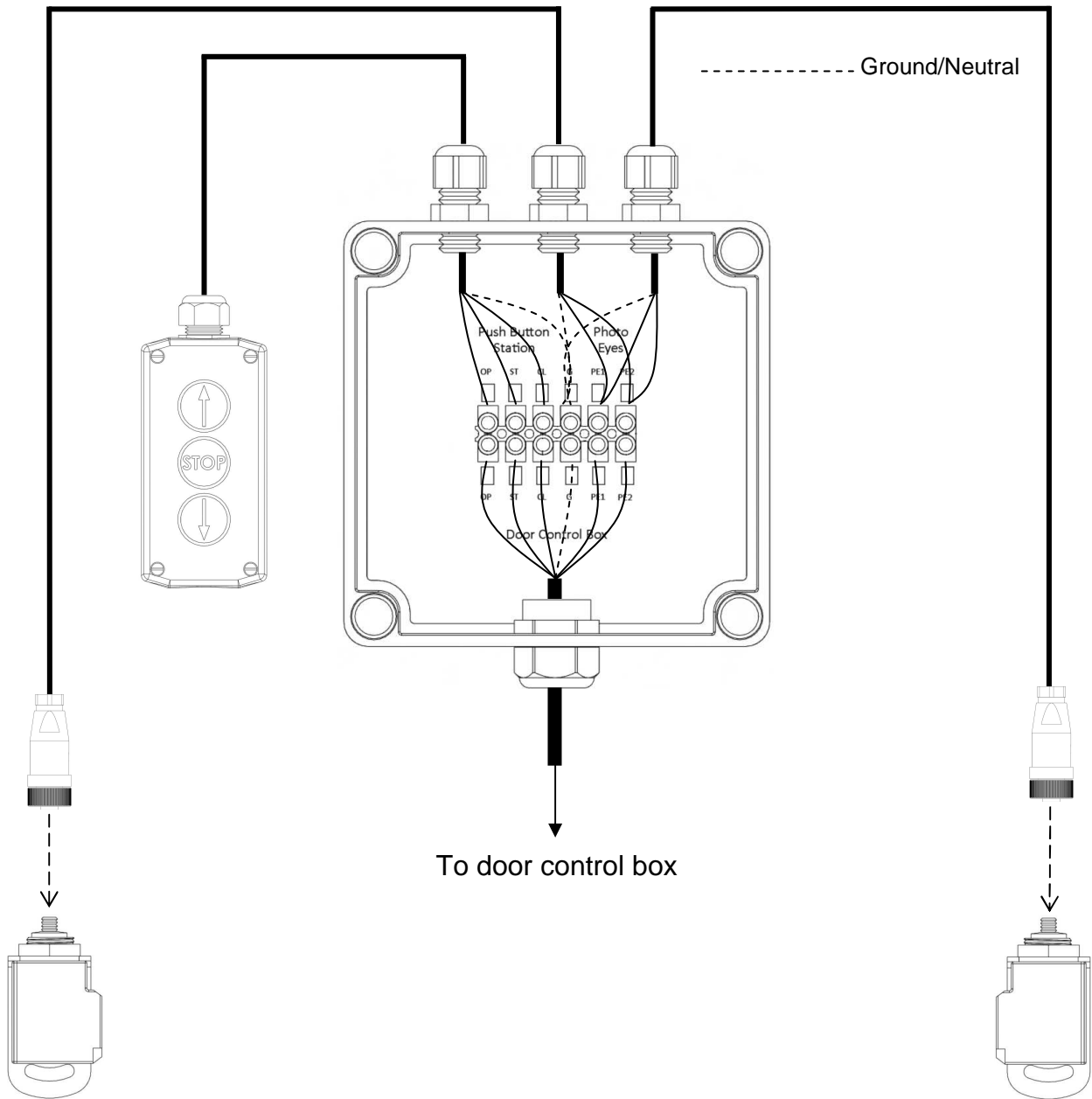
3 Install the 3-button control box:

- Within sight of the door
- Minimum 5 feet off of floor
- Far enough to prevent contact with door while operating
- Place warning label near controls on wall or door column

CONTROL WIRING

DISCONNECT POWER BEFORE WIRING CONTROL BOX.

The control box has a 4-conductor cable for standard doors and a 6-conductor cable if photo-eyes 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 photo eyes, ignore PE1 and PE2 in the control box. Both photo-eyes and lift station come with a length of wire suitable for your door.



PHOTOEYE SENSOR INSTALLATION (OPTION)

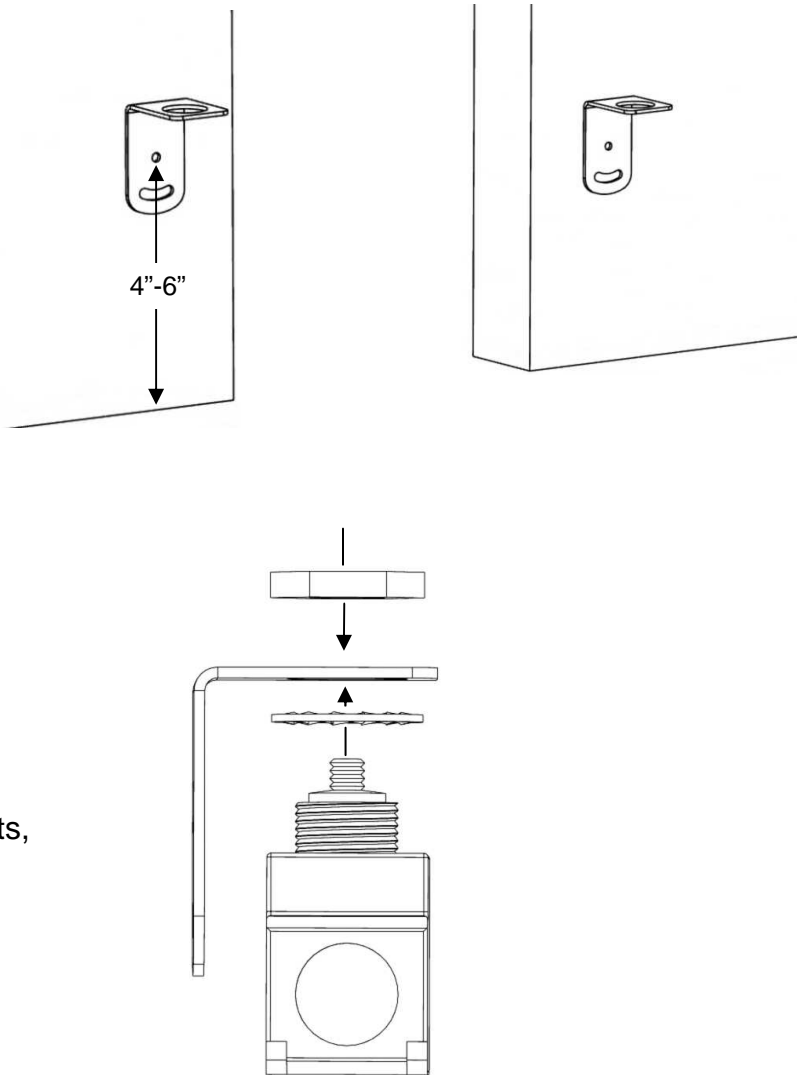


- If your door was ordered with the eye option, they **MUST** be installed for the door to operate correctly.
- Follow directions carefully to ensure door works properly.
- Do **NOT** put eyes higher than 6" or lower than 4" from the floor surface.
- Eyes **MUST** be installed for packages that include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

1 Drill pilot holes into wall for installing supplied mounting bracket for eyes 4-6" above the ground. Do not exceed 6".

2 Bolt bracket onto wall, ensure that it is mounted to allow eyes to face correct direction. Leave adjustment screw (bottom one) loose for adjustment.

3 Install eye modules into brackets, finger tighten nut and lock washer.

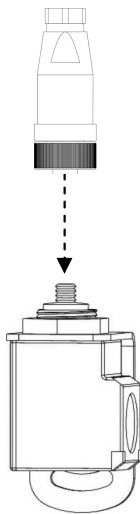


PHOTOEYE SENSOR INSTALLATION (OPTION)

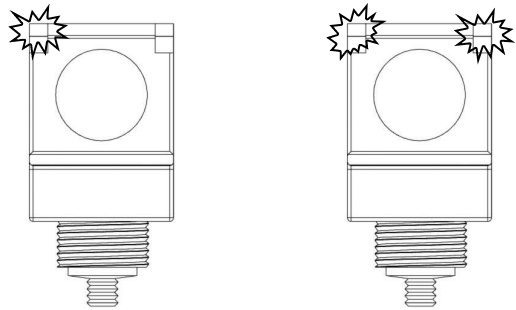
CAUTION

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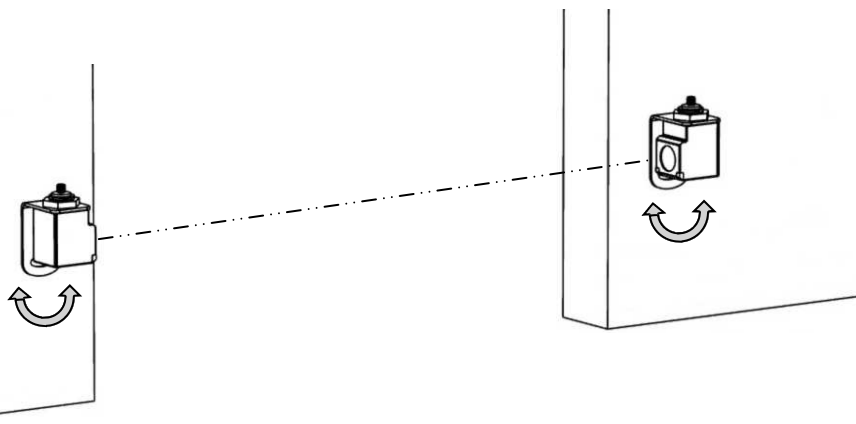
4 Thread Quick-Connect fittings to eyes and run wiring to control box. Refer to Page 8 for wiring diagram.



5 Once both eyes have been connected and wired, power on the E-Box to ensure the eyes have power. Each eye will have a green light for power. One has a yellow light to show they 'seeing' each other.



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



RUNNING YOUR DOOR THE FIRST TIME



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

1 Clear doorway and area of obstructions

2 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.

3 Check all electrical cables that there is no strain or risk of pinching at hinge locations.

4 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).

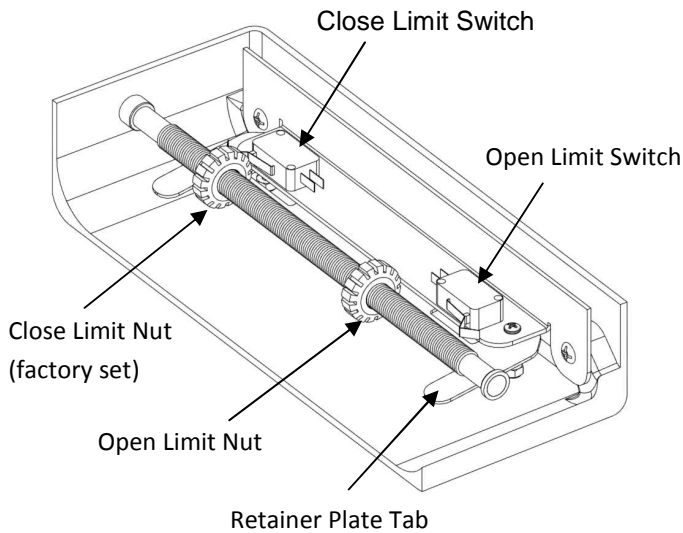
5 If your door came with Photo-eyes, begin opening door and block the eyes to verify the door stops moving. If not, check pages 8-9 to ensure all wiring is correct.

ADJUSTING THE LIMIT SWITCHES

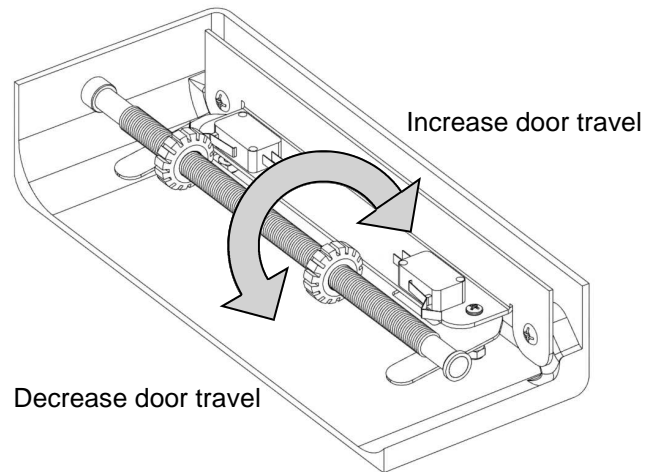


- Disconnect electric power BEFORE performing ANY adjustments or maintenance.
- Do NOT allow door to travel beyond the designed limits
- Adjusting limits without careful monitoring can result in damage to both the door and frame.

1 Press down on retaining plate tab.



2 Adjust OPEN limit to set height. CLOSE limit is factory set and should need no adjustment.



3 Release retaining plate and verify that it is fully seated into the notches of BOTH limit nuts.

Watch movement of limit nuts during testing cycles to be sure everything is in place.

4 When door is fully closed, the cables should be slightly loose. The upper limit should be set so the door bridges DO NOT touch the frame. The door should stop at it's MAXIMUM opening. Cycle several times to ensure limits are correctly 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 is the instructions on how to do this.

Programming

1 Press and release the CH1 Learn button on the receiver.

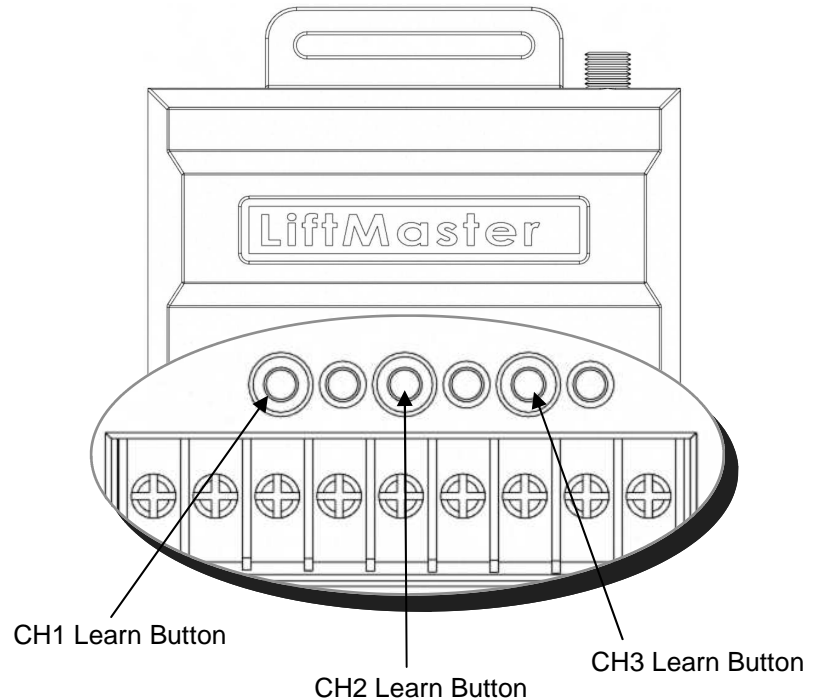
2 Within 30 seconds press the desired OPEN button on the remote control.

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 receiver.

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.

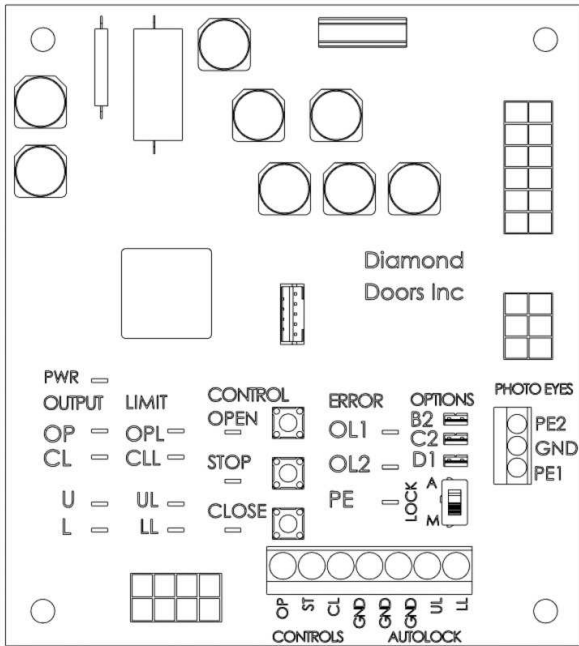
Compatible accessories

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

Keypads: 877LM, 877MAX

CONTROL BOARD FUNCTIONS

The functionality of this board is based on the wiring type found in the OPTIONS 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).



OPTIONS LEGEND

Use black jumper tab to move selection if necessary.

B2 — Single-push button for Open & Close. (ONLY with photo-eyes)

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

D1 — Hold Open & Close (Remotes cannot be used)

Lock— Set from factory to match chosen lock style.

A — Autolock (option must be installed)

M — Manual Lock

INDICATOR LIGHT LEGEND

OUTPUT	Color	Function
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 limit 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 photo eyes are blocked/ misaligned.

TROUBLESHOOTING

Condition	Possible Cause	Solution
Door does not unlock (Auto-lock option).	Autolock switch position incorrect. Limit switches improperly set or faulty. No power to controller.	Red switch found on the controller board must be UP for Auto-Lock and DOWN for manual Lock Lights on controller board, CCL & LL must be ON. Verify limit switches are properly set and working when pressed. 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. 3-button control panel fault. Insufficient voltage or over-amped.	Verify that UL light is ON (Upper limit switch light). 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 15. 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 eyes are blocked. 3-button control panel fault. No power. Limit switch improperly set or faulty.	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). Refer to instructions above regarding 3-button control panel. 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. Verify that limit switches are not preventing door from lowering (LL light should be OFF).
Door does not lock (auto-lock option)	Autolock position switch Limit switch improperly set or faulty. No Power.	Verify that the red switch on the board is set to UP for Autolock and DOWN for manual lock Ensure that CCL light is ON. Ensure that limit switches are not being prematurely pressed or latched shut. 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 photo eyes are blocked by blowing snow, fog or the 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.



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