

LiftMaster®

Industrial DC Operators

Models JDC, JHDC, and
TDC

DC Jackshaft, Hoist, and Trolley
For Doors up to 700, 1200, and 2200 lbs

NOT FOR RESIDENTIAL USE



NOT FOR RESIDENTIAL USE

- Please read this manual and the enclosed safety materials completely, prior to installation and use!
- This product is to be installed and serviced by a trained door systems technician ONLY.
- These operators are compatible with myQ®, myQ® Smart Facility Access™, and Security+ 2.0® accessories.
- These operators are Wi-Fi® compatible.

2 YEAR WARRANTY

Serial # _____

Installation Date _____

Scan here for
LiftMaster support
videos and content.



LiftMaster
300 Windsor Drive
Oak Brook, IL 60523

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MYQ® CONNECTIVITY

- myQ® Smart Facility Access Technology enables secure monitoring and control of door operators and other myQ® Smart Facility Access devices with a smartphone, tablet or computer.
- Alerts can be received as email notifications, ensuring the status of a commercial door.

SAFETY AND SECURITY

Security+ 2.0® – with every press of the button, a new code is sent to the commercial door operator, ensuring a door will only open for the remote control programmed.

UL 325 requires all commercial door operators to be either constant pressure to close or be equipped with a primary external monitored entrapment protection device.

LiftMaster® is the leading brand of professionally installed commercial door operators and access control products for businesses worldwide. We are committed to quality products, innovative designs and comprehensive services which exceed our Customers' expectations.

Safety Information

Safety Symbol and Signal Word Review

**WARNING**
Mechanical

**WARNING**
Electrical

When you see these Safety Symbols and Signal Words on the following pages, they will alert you to the possibility of **serious injury or death** if you do not comply with the warnings that accompany them. The hazard may come from something mechanical or from electric shock. Read the warnings carefully.

**CAUTION**

When you see this Signal Word on the following pages, it will alert you to the possibility of damage to your door and/or the door operator if you do not comply with the cautionary statements that accompany it. Read them carefully.



WARNING: This product can expose you to chemicals including lead, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

IMPORTANT NOTES:

- BEFORE attempting to install, operate or maintain the commercial door operator, you must read and fully understand this manual and follow all safety instructions.
- DO NOT attempt repair or service of a commercial door operator unless you are an Authorized Service Technician.
- A commercial door operator should only be installed on a properly balanced door. Ensure door is properly balanced prior to installation.

ENTRAPMENT PROTECTION DEVICES

Monitored Entrapment Protection

Monitored photoelectric sensors and/or door edge sensors are required for any momentary contact to close modes of operation. See "Entrapment Protection" on page 24 for additional information. Refer to the Entrapment Protection Devices in "Accessories" on page 63 for available options.

**WARNING**

To reduce the risk of SEVERE INJURY or DEATH:

1. READ AND FOLLOW ALL INSTALLATION WARNINGS AND INSTRUCTIONS.

2. Install door operator ONLY on properly balanced and lubricated door. An improperly balanced door may NOT reverse when required and could result in SEVERE INJURY or DEATH.

3. ALL repairs to cables, spring assemblies and other hardware MUST be made by a trained door systems technician BEFORE installing operator.

4. Disable ALL locks and remove ALL ropes connected to door BEFORE installing operator to avoid entanglement.

5. Install an operator, a minimum of 8 feet (2.44 m) from the floor.

6. NEVER connect a door operator to a power source until instructed to do so.

7. NEVER wear watches, rings or loose clothing while installing or servicing an operator. They could be caught in the door or operator mechanisms.

8. Install a wall controller:

- within sight of the door.
- out of reach of small children and at a minimum height of 5 feet (1.5 m) above floors, landings, steps, or any other adjacent walking surface.
- away from ALL moving parts of the door.

9. Install the wall controller far enough from the door to prevent the user from coming in contact with the door while operating the controls.

10. Install the entrapment warning placard on the wall next to the wall controller in a prominent location, visible from the door.

11. Place the manual release/safety reverse test label in plain view on the inside of door.

12. Upon completion of installation, test the entrapment protection device(s).

13. This door operator is not intended to replace door locks. With enough force, a door without a door lock can be opened. LiftMaster always recommends the use of door locks to properly secure a door.

14. SAVE THESE INSTRUCTIONS.

Planning

NOTE: Please obtain the latest Installation Manual by search the model number at liftmaster.com.

SECTIONAL DOORS

Recommended Drum/Sprocket Configuration for 12"/second Door Speed

Operator	Door Type	Drum*	Sprockets**
700	Standard	D400-96	16
	Hi-lift	D400-54	
	Standard	D400-144	
1200	Vertical	D850-132	22
	Standard	D5250-18	
	Hi-lift	D525-54	
	Hi-lift	D575-120	
	Standard	D525-216	
2200	Vertical	D1100-216	32
	Hi-lift	D6375-164	
	Standard	D800-384**	
	Hi-lift	D800-120	
	Vertical	D1350-336	42

UNINSULATED ROLLING DOORS 20'

Operator	Sprocket	Door Weight
700	50	Up to 450 lbs
	72	450 up to 700 lbs
1200		700 up to 1200 lbs
2200		1200 up to 1800 lbs
	82	1800 up to 2200 lbs

INSULATED ROLLING DOORS 20'

Operator	Sprocket	Door Weight
700	60	Up to 450 lbs
1200	72	450 up to 900 lbs
2200	82	900 to 1500 lbs
	90	1500 up to 2000 lbs

* Sprockets will no longer be included in the box.

Introduction

Voltage Selection

Voltage Selection	
120/240V single and 3 phase	dedicated sku
480V 3 phase	dedicated sku
208V 3 phase	Via accessory step down transformer
600V 3 phase	Via accessory step down transformer

Model Electrical Ratings

Model	Operator Type	Electrical Rating	Cycle	Max. Door Weight
JDC7S1BMC	Jackshaft non-hoisted Operators	120Vac, 5A, 1PH; 240Vac, 2.5A, 1PH/3PH**	Standard Cycle	700 lbs.
JDC7S4BMC		480Vac, 1.25A, 1PH/3PH**		
JHDC7S1BMC	Hoist Operators	120Vac, 5A, 1PH; 240Vac, 2.5A, 1PH/3PH*	Standard Cycle	700 lbs.
JHDC7S4BMC		480Vac, 1.25A, 1PH/3PH*		
JHDC12S1BMC		120Vac, 9A, 1PH; 240Vac, 4.5A, 1PH/3PH*		
JHDC12S4BMC		480Vac, 3A, 1PH/3PH*		
JHDC12X1BMC		120Vac, 10A, 1PH; 240Vac, 5A, 1PH/3PH*	Extended Cycle	1200 lbs
JHDC12X4BMC		480Vac, 3.5A, 1PH/3PH*		
JHDC22X1BMC		120/240 single, 3 phase*		
JHDC22X4BMC		480V 3 phase*		
TDC7S1BMC	Trolley Operators	120Vac, 5A, 1PH; 240Vac, 2.5A, 1PH/3PH*	Standard Cycle	700 lbs.
TDC7S4BMC		480Vac, 1.25A, 1PH/3PH*		
TDC12S1BMC		120Vac, 9A, 1PH; 240Vac, 4.5A, 1PH/3PH*		
TDC12S4BMC		480Vac, 3A, 1PH/3PH*		
TDC12X1BMC		120Vac, 10A, 1PH; 240Vac, 5A, 1PH/3PH*	Extended Cycle	1200 lbs
TDC12X4BMC		480Vac, 3.5A, 1PH/3PH*		
TDC22X1BMC		120/240 single, 3 phase*		
TDC22X4BMC		480V 3 phase*		
JHDC12X1N4XMC	Hoist Nema4X Operators	120/240 single, 3 phase N4X	Extended Cycle	1200 lbs
JHDC12X4N4XMC		480V 3 phase N4X		
JHDC22X1N4XMC		120/240 single, 3 phase		
JHDC22X4N4XMC		480V 3 phase		
TDC12X1N4XMC	Trolley Nema4X Operators	120/240 single, 3 phase N4X	Extended Cycle	1200 lbs
TDC12X4N4XMC		480V 3 phase N4X		
TDC22X1N4XMC		120/240 single, 3 phase N4X		
TDC22X4N4XMC		480V 3 phase N4X		

* BBU capable

** BBU included

Operator Specifications

Duty Cycles:

- Standard: 20 cycles per hour / 90 cycles per day
- Extended: 30 cycles per hour / 150 cycles per day
- BBU: 10 cycles, when fully charged.

Wall Controller: NEMA 1 General Purpose 3-Button Wall Controller Open/Close/Stop, LCD Display, and floor level commissioning through intuitive user menu.

Operation Mode: C2 (Factory default), B2, B2/T, B2/TS, D1, E2 and FSTS.

Brake: Standard Dynamic braking on 700, 1200, 2200; only 2200 has the standard Solenoid powered-off brake.

Disconnect:

- Jackshaft: No disconnect. Jackshaft operators come standard with battery backup for automatic opening or closing in case of emergency.
- Hoist: Operator includes an Engage rope (green) and a disengage rope (red) with manual hoist to electronically disable the operator controls.
- Trolley: Quick disconnect door arm for emergency manual door operation.

Mechanical Drive Reduction:

- Model JDC: 65:1 gearbox with #50 chain output.

- Model JHDC: 65:1 gearbox with #50 chain output.
- Model TDC: 65:1 gearbox with #48 chain output on 700 units and #41 chain output on 1200 and larger units.

Door Speed:

Fine adjustments are made via Wall Controller menu; if you want to slow down the operator, please adjust via sprocket choice:

- Model JDC: 12" per second for sectional and 8-9" per second for rolling steel doors.
- Model JHDC: 12" per second for sectional and 8-9" per second for rolling steel doors.
- Model TDC: 12" per second for sectional and 8-9" per second for rolling steel doors.

Limit Adjust: Electronic limits, Floor level adjust-ability up to 20ft.

Temperature Ratings:

- -20°C (14°F) to +65°C (149°F)
- ENVIRONMENT: For indoor use only.

Max. Door Weight: See Operator Charts which include Door Weight and Height information.

Door Dim: See Operator Charts which include Door Weight and Height information.

Important Safety Instructions



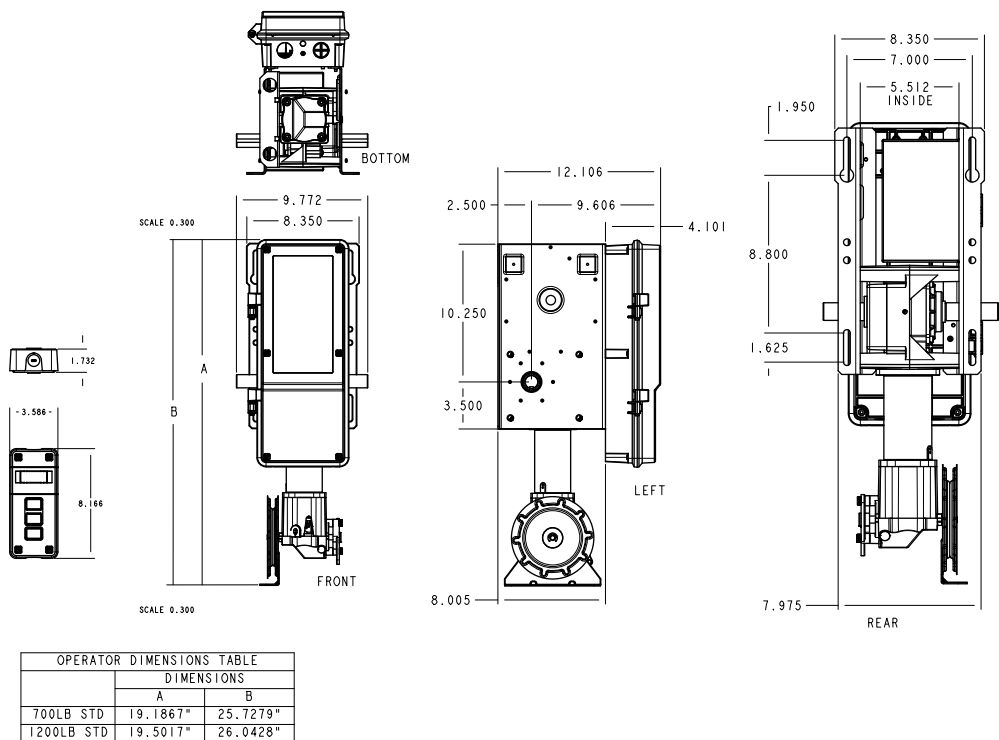
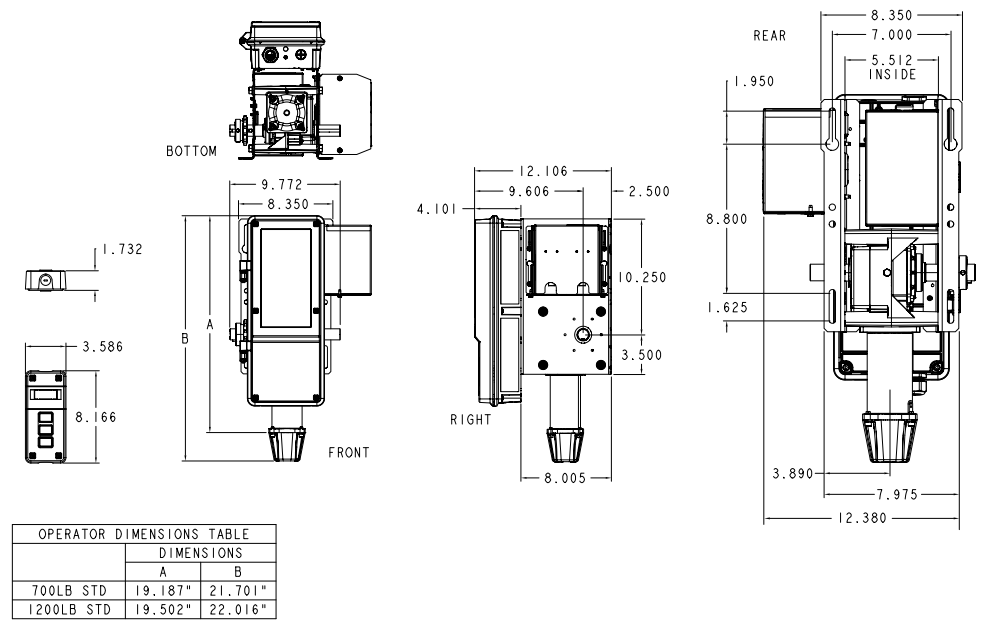
WARNING

To reduce the risk of SEVERE INJURY or DEATH:

1. READ AND FOLLOW ALL WARNINGS AND INSTRUCTIONS.
2. ALWAYS keep remote controls out of reach of children. NEVER permit children to operate or play with door control push buttons or remote controls.
3. ONLY activate a door when it can be seen clearly, it is properly adjusted and no obstructions exist in the path the door will travel.
4. Personnel should keep away from a door in motion and ALWAYS keep a door in sight until completely closed. NO ONE SHOULD CROSS THE PATH OF A MOVING DOOR.
5. NO ONE SHOULD GO UNDER A STOPPED OR PARTIALLY OPENED DOOR.
6. If possible, use the manual release handle to disengage a door ONLY when a door is CLOSED. Weak or broken springs or an unbalanced door could result in an open door falling rapidly and/or unexpectedly causing SEVERE INJURY or DEATH.
7. NEVER use manual release handle unless the doorway is clear of persons and obstructions.
8. After ANY adjustments are made, the entrapment protection device(s) MUST be tested. Failure to adjust the operator properly may cause SEVERE INJURY and DEATH.
9. Entrapment protection device(s) MUST be tested every month. Failure to adjust the operator properly may cause SEVERE INJURY and DEATH.
10. ALWAYS KEEP DOOR PROPERLY BALANCED. An improperly balanced door may NOT reverse when required and could result in SEVERE INJURY or DEATH. See the door manufacturer's owners manual.
11. ALL repairs to cables, spring assemblies and other hardware, ALL of which are under EXTREME tension, MUST be made by an Authorized Service Technician.
12. ALWAYS disconnect electric power to the door operator BEFORE making ANY repairs or removing covers.
13. NEVER try to loosen or remove an obstruction that has impeded the movement of the door. Both the obstruction and door are under EXTREME tension and loosening or removing an obstacle, impeding the movement of the door, can cause SERIOUS PERSONNAL INJURY.
14. NEVER stand under a door that has been impeded by an obstruction. KEEP CLEAR. Door could move freely at any time and can cause SERIOUS PERSONNAL INJURY.
15. If the door should be obstructed or impeded in its movement, ALWAYS call an Authorized Trained Service Technician to clear that obstruction.
16. SAVE THESE INSTRUCTIONS.

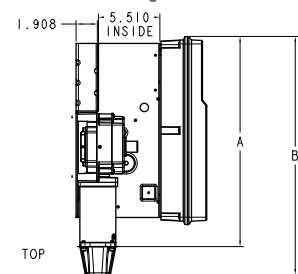
Operator Dimensions

Jackshaft (JDC) and Hoist (JHDC)

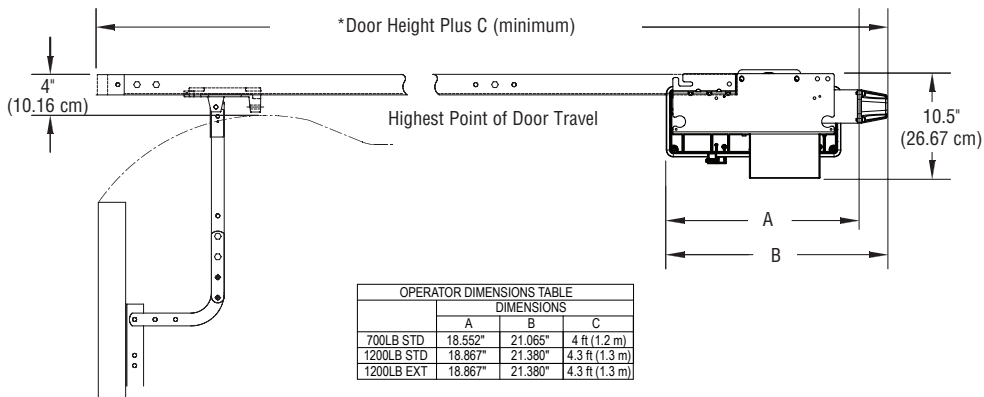
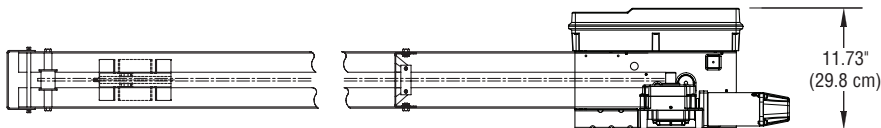
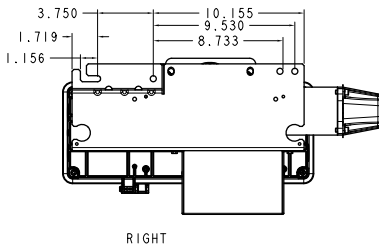
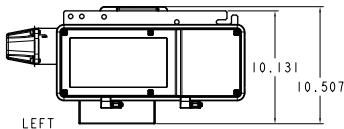
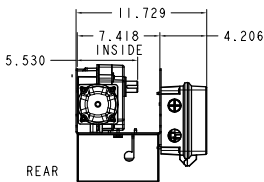


Operator Dimensions (continued)

TDC Trolley



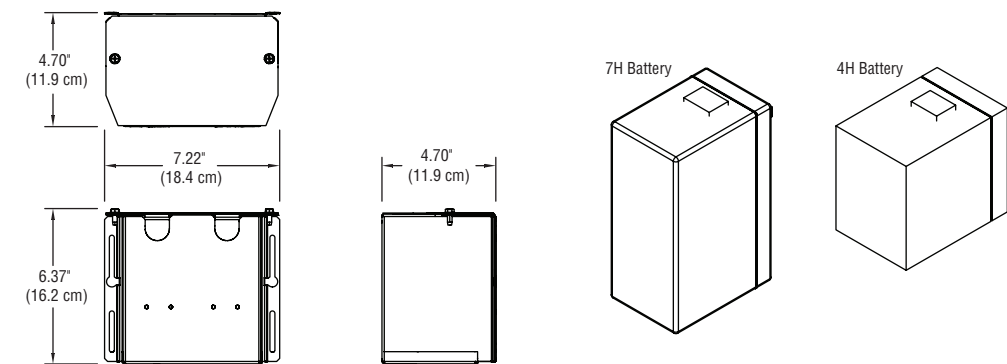
	DIMENSIONS	
	A	B
700LB STD	18.552"	21.065"
1200LB STD	18.867"	21.380"



	DIMENSIONS		
	A	B	C
700LB STD	18.552"	21.065"	4 ft (1.2 m)
1200LB STD	18.867"	21.380"	4.3 ft (1.3 m)
1200LB EXT	18.867"	21.380"	4.3 ft (1.3 m)

Operator Dimensions (continued)

Battery Backup



TDC Trolley Operators

 WARNING

- To prevent possible **SERIOUS INJURY** or **DEATH**:
- DO NOT connect electric power until instructed to do so.
 - If the door lock needs to remain functional, install an interlock switch.
 - ALWAYS call an Authorized Service Technician if door binds, sticks, or is out of balance. An unbalanced door may NOT reverse when required.
 - NEVER try to loosen, move, or adjust doors, door springs, cable, pulleys, brackets, or their hardware. ALL of which are under **EXTREME** tension and can cause **SERIOUS PERSONAL INJURY**.
 - Disable ALL locks and remove ALL ropes connected to door **BEFORE** installing and operating door operator to avoid entanglement.
 - Fasten the operator **SECURELY** to structural supports of the building.
 - Concrete anchors **MUST** be used in installing ANY brackets.

Carton Inventory

Your door operator is packaged in one carton which contains the motor unit and the parts illustrated below. If anything is missing, carefully check the packing material.

Description

- Operator assembly
- Installation manual and caution labels
- Hardware box
- Wall Controller
- LiftMaster Monitored Entrapment Protection, CPS-U Photoelectric Sensors
- Trolley drive chain

NOTE: The tracks are shipped separately. Trolley Chain will be shipped separate. Will no longer be packed inside the operator packaging.

Hardware

- Fasteners
- Track spacers
- Trolley
- Door arm assembly
- Front idler
- Header mounting bracket

TDC Trolley Assembly

Assemble the Operator

1. Install the track spacers evenly over the length of the track. Fasten the spacers to the track with bolt (A) and flange hex nuts (B).

Spacers Provided	Track Length
2	8-14 foot
3	16-20 foot
4	22-24 foot

2. Install the front idler to the track with bolts (F) and washers (D).
3. Assemble the trolley with the take up bolt (C), hex nuts (E), and lock washer (D).
4. Slide the trolley onto the track.
5. Insert bolts (A) into the end of the track and loosely thread the nuts (B) onto the ends of the bolts.
6. Slide bolts (A) on the end of the track assembly into the "L" slot in the operator and tighten nuts (B). Insert bolts (A) into the holes on the end of the track and the operator. Secure the track with nuts (B).

HARDWARE

A Bolt 3/8"-16
x 3/4"



B Flange Hex Nut
3/8"-16



C Take Up Bolt



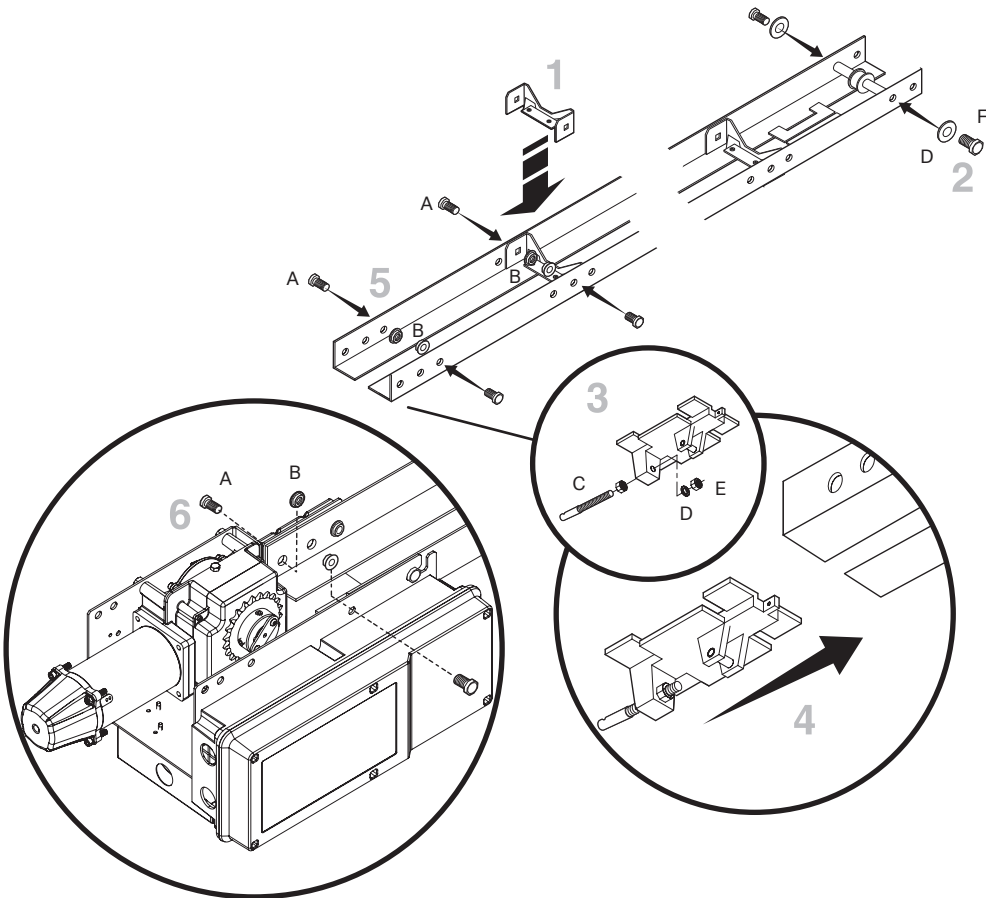
D Lock Washer
3/8"



E Hex Nut
3/8"-16



F Bolt
3/8"-16 x 1"

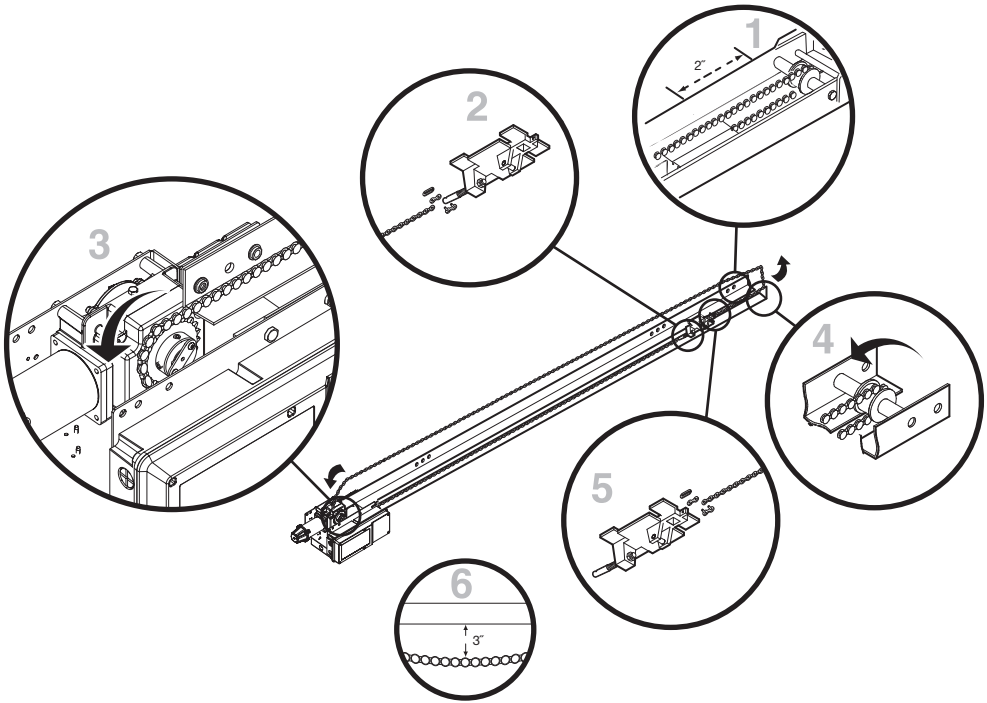


TDC Trolley Assembly (continued)

Install the Chain

The chain is packed separately from the operator. Please ensure you have your chain before starting installation.

1. Position the trolley 2 inches (5.1 cm) away from the front idler.
2. Attach the chain to the trolley threaded shaft using the master link.
3. Run the chain along the track to the operator. Wrap the chain around the operator drive sprocket.
4. Run the chain along the track to the front idler. Wrap the chain around the front idler.
5. Attach the chain to the front of the trolley using the master link.
6. Tighten the chain until the chain sags about 3 inches (7.6 cm) at the mid point of the track.
7. For retrofit trolley installations, use an additional 6" of chain for the installation.



TDC Trolley Installation

Install the Header Bracket

The trolley operator is generally mounted over the center of the door. However, off center mounting may be required due to interfering structures or location of the door stile / top section support. Typically, the operator may be mounted up to 24 inches (60.1 cm) off center on torsion spring doors. Extension springs require center mounting.

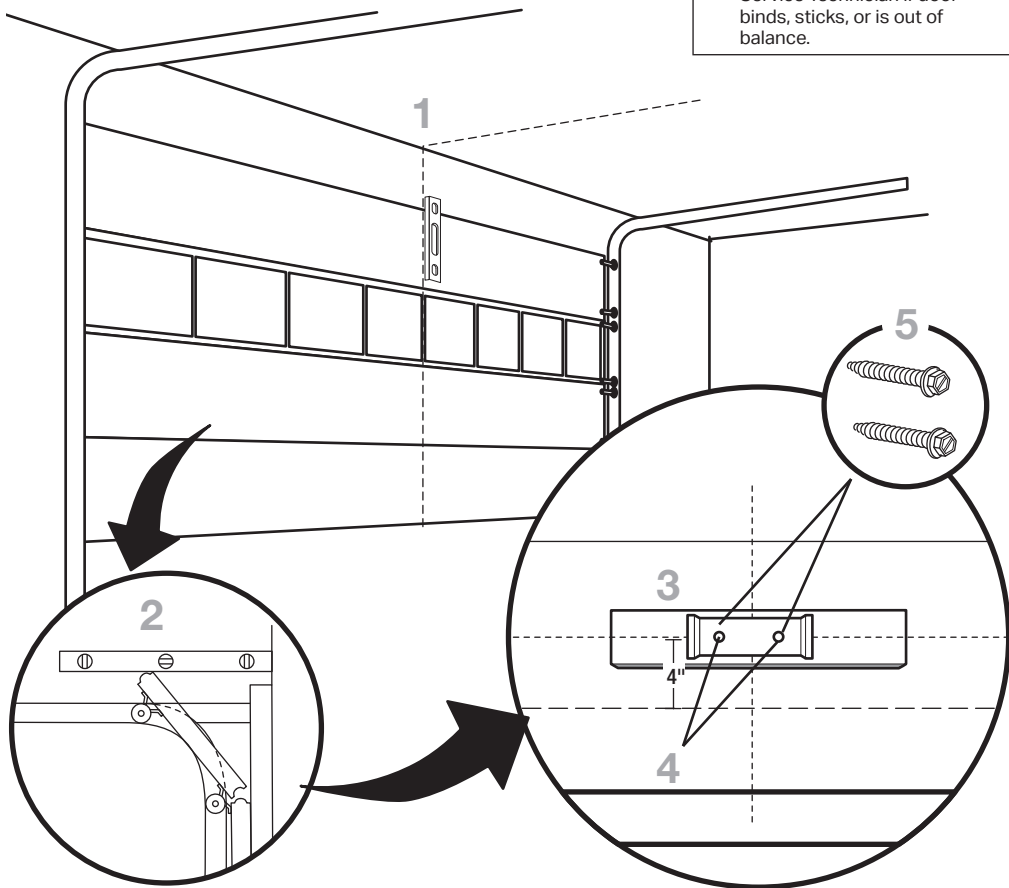
1. Close the door. Mark the center of the door with a vertical line, extend the line onto the ceiling.
2. Open the door to the highest point of travel mark 4 inches (10.1 cm) above the highest point of travel.
3. Center the header bracket on the vertical center line and the horizontal line.
4. Drill the pilot holes for the header bracket.
5. Fasten the header bracket with appropriate hardware (not provided).



WARNING

To prevent possible **SERIOUS INJURY** or **DEATH**:

- Header bracket **MUST** be **RIGIDLY** fastened to the structural support on the header wall or ceiling, otherwise the door might **NOT** reverse when required. **DO NOT** install the header bracket over drywall.
- Concrete anchors **MUST** be used if mounting the header bracket or 2x4 into masonry.
- **NEVER** try to loosen, move or adjust door, springs, cables, pulleys, brackets, or their hardware, **ALL** of which are under **EXTREME** tension.
- **ALWAYS** call an Authorized Service Technician if door binds, sticks, or is out of balance.



TDC Trolley Installation (continued)

Attach the Track to the Header Bracket and Hang the Operator

1. Align the track with the header bracket.
2. Insert the clevis pin through the track and header bracket holes. Secure with the fasteners.
3. Swing the operator up and ensure the operator is level.
4. Secure the operator using the appropriate fasteners and locking hardware to support the weight of the operator.



CAUTION

To avoid possible **SERIOUS INJURY** from a falling operator:

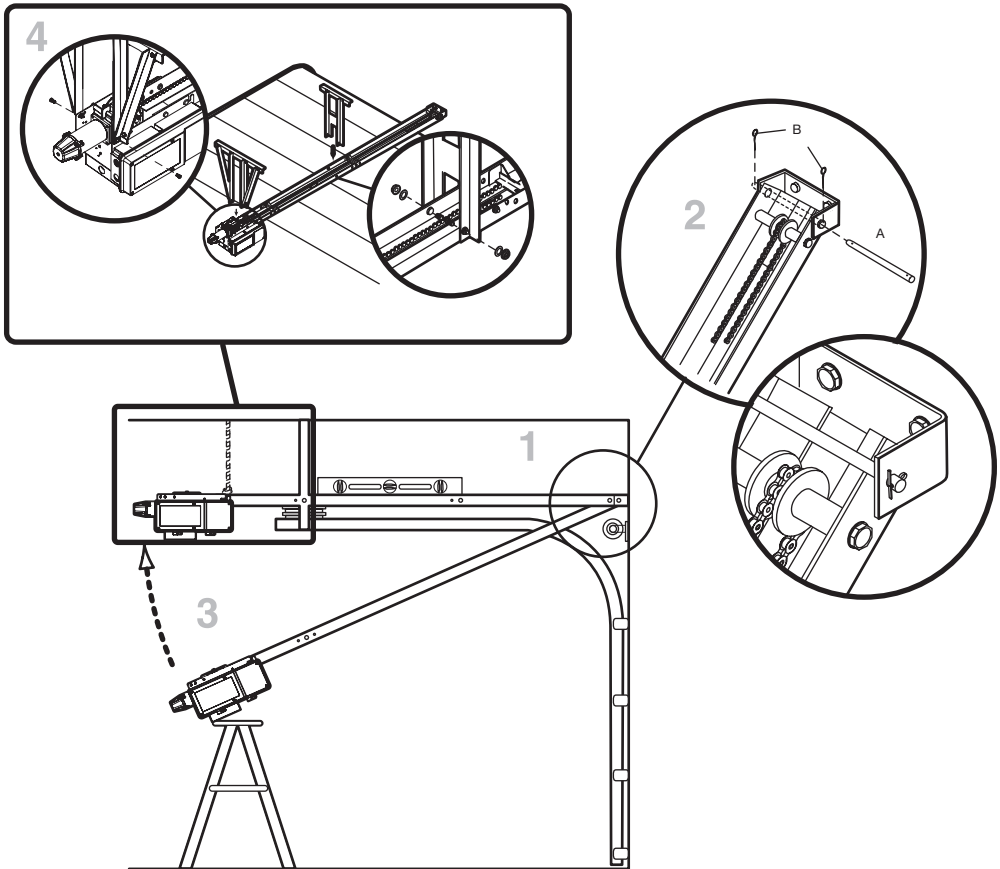
- Fasten the operator **SECURELY** to structural supports of the building.
- Concrete anchors **MUST** be used if installing **ANY** brackets into masonry.

HARDWARE

A Clevis Pin (1)



B Cotter pins (2)



TDC Trolley Installation (continued)

Attach the Door Arm and Bracket

1. Latch the door arm to the trolley. Make sure the open side of the notch on the door arm faces the door.
2. Position the door bracket to the center line of the door and attach the door bracket to the door using appropriate hardware (not included).

NOTE: When properly installed and adjusted the door arm should be leaning back toward the operator slightly. Refer to door manufacturer's instructions for recommended installation guidelines.

HARDWARE

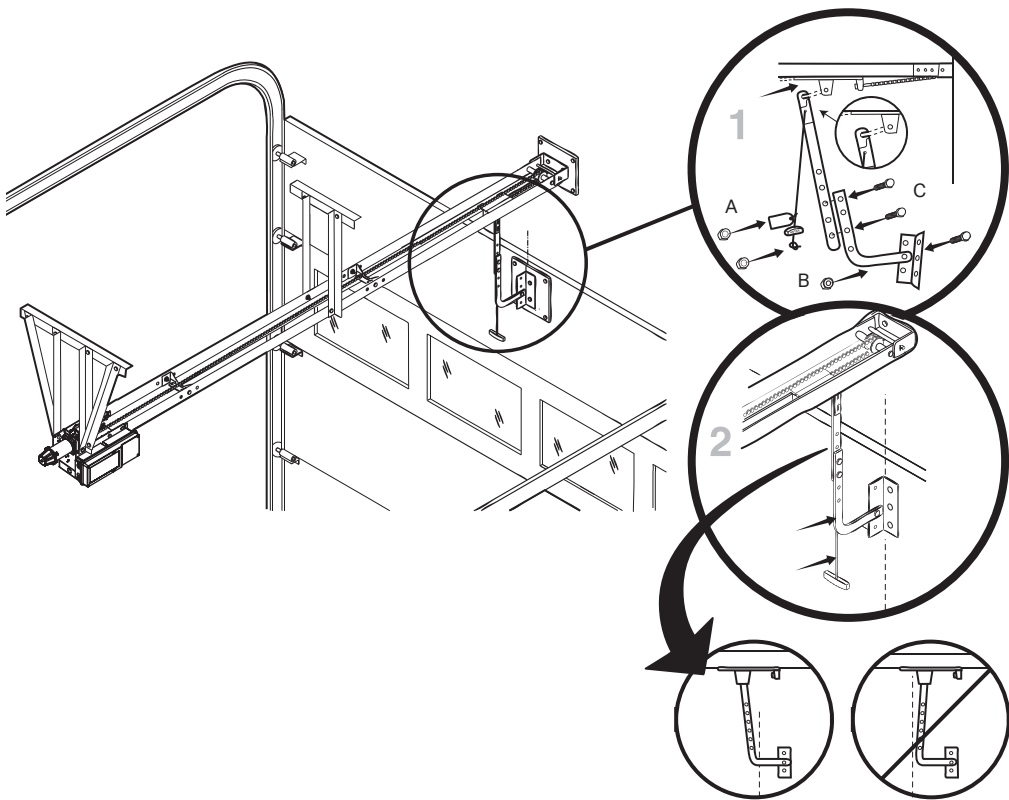
A Flanged Hex
Nut 3/8"-16 (2)



B Nylok Nut 3/8"-
16 (1)



C Bolt 3/8"-16 x
1" (3)



WARNING

To prevent possible **SERIOUS INJURY** from a moving chain:

- DISCONNECT electric power to the operator **BEFORE** manually operating your door.
- If possible, use emergency disconnect **ONLY** when door is **CLOSED**. Weak or broken springs or unbalanced door could result in an open door falling rapidly and/or unexpectedly.
- **NEVER** use emergency disconnect unless doorway is clear of persons and obstructions.

Jackshaft (JDC) and Hoist (JHDC)

Operators

Carton Inventory

Your door operator is packaged in one carton which contains the motor unit and the parts illustrated below. If anything is missing, carefully check the packing material.

Description

- Powerhead assembly
- Installation manual and caution labels
- Hardware box (includes fasteners)
- Floor level Wall Controller with LCD display to program and setup the door and operator system
- LiftMaster Monitored Entrapment Protection, CPS-U Photoelectric Sensors
- Hoist hand chain (JHDC models only)
- Sash chain (JHDC models only)
- Door/operator drive chain

JDC Operators also include:

- 700 operators - (2) 4.5 AH batteries and battery mounting tray
- 1200 operators - (2) 4.5 AH batteries and battery mounting tray
- 2200 operators - (2) 7 AH batteries and battery mounting tray

NOTE: The new DC logic board includes inputs for CTM (Cable Tension Monitor). Although, not required to operate the unit, it is highly recommended to include Cable Tension Monitors (part #: K41-0157-000 and K41-0156-000) in all Jackshaft installations. The Cable Tension Monitor detects cable slack and will stop and reverse the door.

NOTE: Pusher springs should be used with the door system to help get the door moving in the Close direction. For certain types of doors, such as standard lift, angled track may also be recommended. Please check with the door manufacturer for details.

Door Sprockets

Door Sprocket (with setscrew and keyway) will now be sold separately via accessory kits. Please see the guide below for the correct Door Sprocket Kit for your door type and installation.

NOTE: Reference the recommended drum/sprocket configuration on page 4 to help determine sprocket tooth count.

Kit Number	Description	Kit Number	Description
71-1550B16LGH	Sprocket Kit - 16 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B16QGH	Sprocket Kit - 16 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B22LGH	Sprocket Kit - 22 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B22QGH	Sprocket Kit - 22 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B32LGH	Sprocket Kit - 32 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B32QGH	Sprocket Kit - 32 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B42LGH	Sprocket Kit - 42 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B42QGH	Sprocket Kit - 42 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B50LGH	Sprocket Kit - 50 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B50QGH	Sprocket Kit - 50 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B60LGH	Sprocket Kit - 60 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B60QGH	Sprocket Kit - 60 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B72LGH	Sprocket Kit - 72 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B72QGH	Sprocket Kit - 72 Tooth, 1.25" Bore, 1/4"x1/4" Keyway
71-1550B82LGH	Sprocket Kit - 82 Tooth, 1" Bore, 1/4"x1/4" Keyway	71-1550B82QGH	Sprocket Kit - 82 Tooth, 1.25" Bore, 1/4"x1/4" Keyway

 WARNING

To prevent possible **SERIOUS INJURY, DEATH**, or uncontrolled descent of the door:

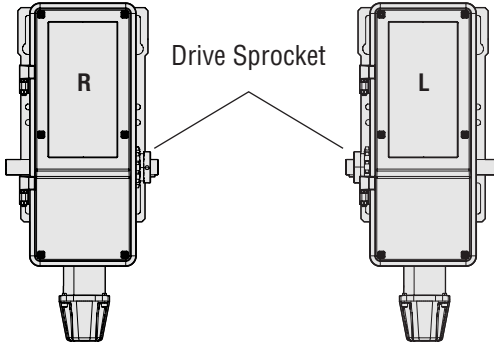
- When installing a jackshaft-style operator on a sectional door, additional precautions **MUST** be taken to assure that proper door cable tension is present throughout the **ENTIRE** travel of the door.

JDC/JHDC Assembly

Configure the Operator

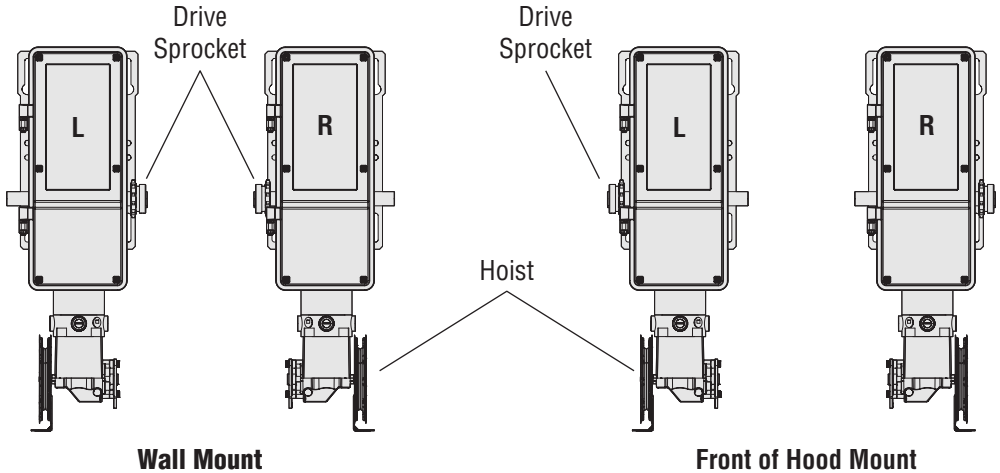
Units are now dual handed and can be used in either the right or left side.

1. Select right (R) or left (L) handing for the sprocket and hoist as needed.
 - For JDC models, the drive sprocket can be mounted on either the right or left side.



- For JHDC models with manual hand chain systems, the drive sprocket can be installed as a right (R) hand or left (L) hand.

NOTE: The hoist will need to change location depending on the wall mount or front of hood application shown in the images below.



- To reposition the hoist:
 - a. Remove the four allen bolts.
 - b. Pull the housing down and away from the motor, then rotate the housing 180 degrees.
 - c. Place the housing back up to the motor and tighten back in place using the allen bolts.
- 2. Place the operator drive sprocket on the appropriate side of the operator for your installation type. To avoid potential damage caused by an overhung load, position the sprocket as close to the center of the exposed drive shaft.



WARNING

To prevent possible **SERIOUS INJURY** or **DEATH**:

- **DO NOT** connect electric power until instructed to do so.
- If the door lock needs to remain functional, install an interlock switch.
- **ALWAYS** call an Authorized Service Technician if door binds, sticks or is out of balance. An unbalanced door may **NOT** reverse when required.
- **NEVER** try to loosen, move or adjust doors, door springs, cable, pulleys, brackets or their hardware, **ALL** of which are under **EXTREME** tension and can cause **SERIOUS PERSONAL INJURY**.
- Disable **ALL** locks and remove **ALL** ropes connected to door **BEFORE** installing and operating door operator to avoid entanglement.
- Fasten the operator **SECURELY** to structural supports of the building.
- Concrete anchors **MUST** be used if installing **ANY** brackets.

Applying AC Power

1. Power the operator by turning the circuit breaker on supplying AC power to the operator.

Battery Backup Wiring

NOTE: It's recommended to install battery backup unit at ground level, prior to mounting operator on fixed location.

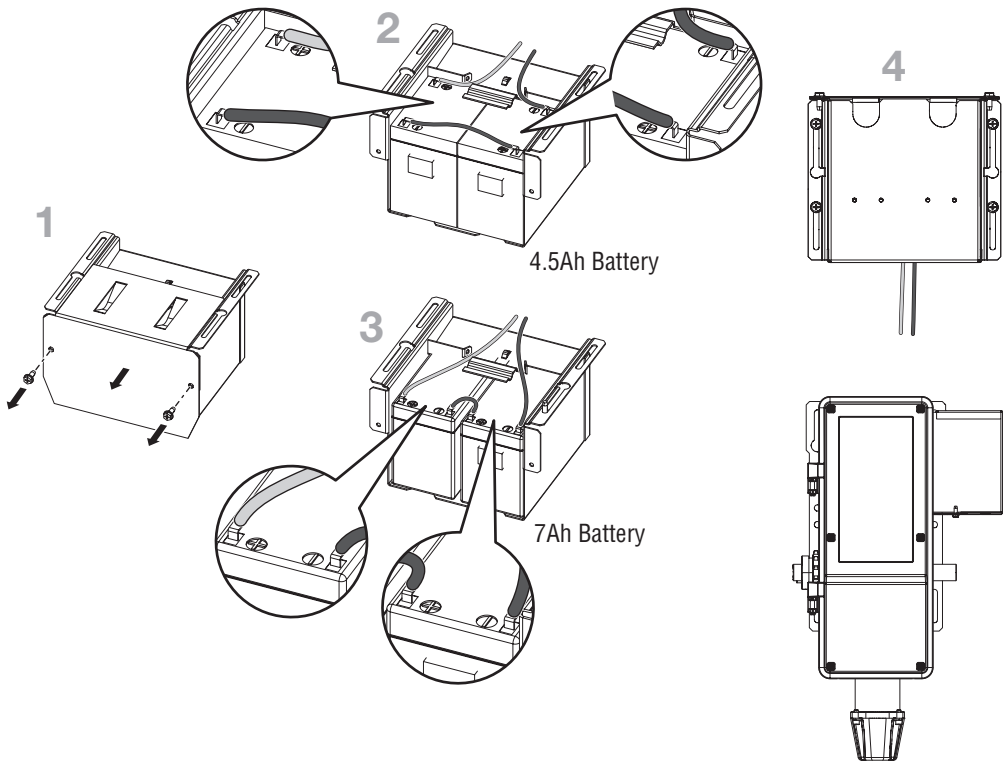
1. Remove the battery cover from the battery enclosure (see image 1).
2. Ensure jumper and battery harness are properly routed and connected (see images 2 and 3).
3. Using supplied screws, reinstall and secure battery box cover and ensure screws are tightened firmly (see image 1).
4. Using supplied screws, mount battery enclosure to operator (OR) in an appropriate alternate location and ensure screws are tightened firmly. (Reference the Recommended mounting location.)
5. Route wires around backside of battery enclosure, through knock out and into electrical box. (Reference the Knock out location.)
6. Place snap in cord gland over top of wires and snap into place.

Recommended mounting location:

- JHDC/JDC: Side of operator; opposite from drive shaft and sprocket location.
- TDC: Mount to the bottom of the operator. Open electrical box and knock out appropriate backside $\frac{1}{2}$ conduit location.

Knock out location:

- JHDC/JDC: Bottom of the electrical box, adjacent to the EMI filter board.
- TDC: Bottom of the electrical box, adjacent to the antenna AUX connection.

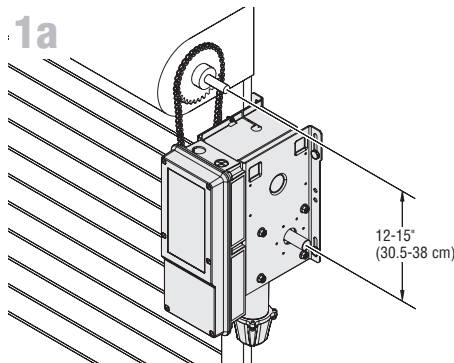


JDC/JHDC Installation

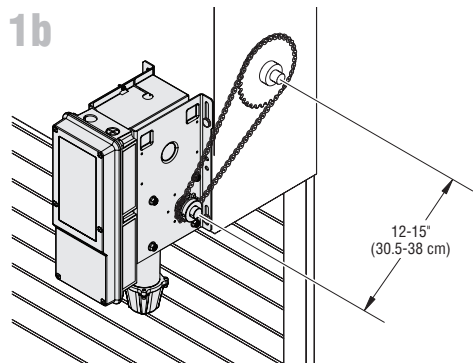
Determine Mounting Location

1. The operator may be mounted on the wall, shelf, or bracket (not provided, see "Accessories" on page 63). The optimum distance between the door shaft and operator drive shaft is 12-15 inches (30.5-38 cm).

In the image, 1a shows the wall mount, and 1b shows the shelf or bracket mount.



WARNING TO REDUCE THE RISK OF SEVERE INJURY: • Install the operator, a minimum of 8 feet (2.44m) from the floor. NOTE: If the operator sprocket is below the minimum 8 foot requirement, please purchase and install the operator Chain/Sprocket Guard Kit PN# CHNGUARD travel of the door.
--



JDC/JHDC Installation (continued)

Mount the Operator

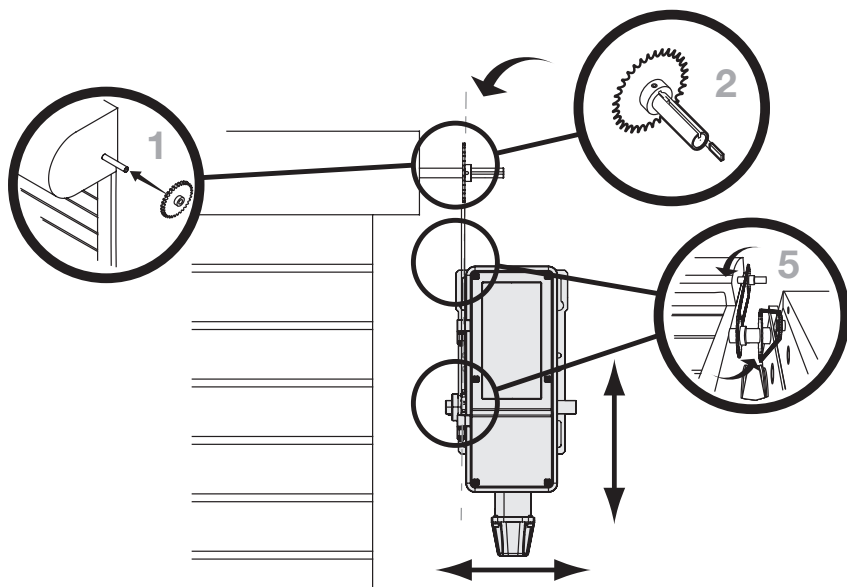
The wall or mounting surface **MUST** provide adequate support for the operator.

The surface must:

- Be rigid to prevent play between the operator and the door shaft.
 - Provide a level base.
 - Permit the operator to be fastened securely and with the drive shaft parallel to the door shaft.
1. Place the door sprocket on the door shaft so it can be moved to align vertically with the operator drive shaft.
 2. Insert the keys and fasten the sprockets with the set screws (recommended torque for the set screws is 34-45 in/lb).
 3. Hold the operator in the desired mounting position so the door sprocket and the drive sprockets are vertically aligned.
 4. Mount the operator to the wall or mounting plate where the operator can be moved to aligned with the appropriate hardware (not supplied).
 5. Wrap the drive chain around the door sprocket and the drive sprocket, then secure with the master link.

NOTE: Chain links may need to be removed to achieve appropriate chain length.

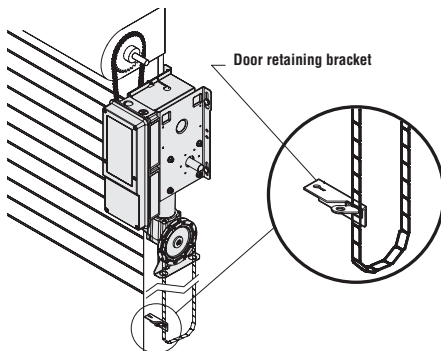
NOTE: It is highly recommended to add a thread adhesive to secure the set screws in place.



Secure the Chain Hoist

1. Fasten the door retaining bracket 4 feet (1.2 m) above the floor.

NOTE: If the position of the operator causes the hand chain to hang in the door opening hook the chain to the side near the top of the door jamb.



Manual Release

Emergency Disconnect System Model TDC

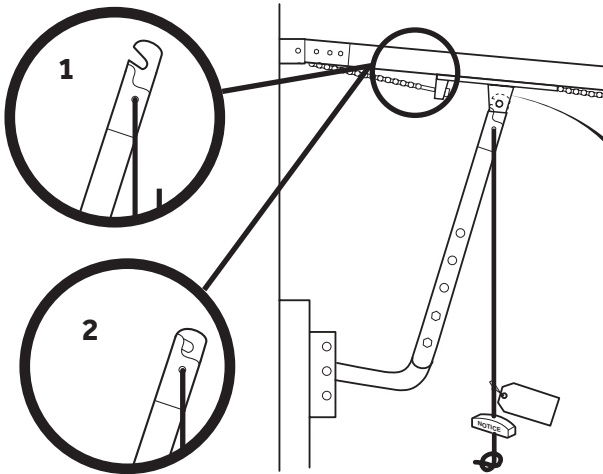
TO DISCONNECT DOOR FROM OPERATOR

The door should be in the fully closed position if possible.

1. Pull emergency release handle straight down. Emergency disconnect will open.

TO RECONNECT DOOR ARM TO TROLLEY

2. Lift free end of door arm to trolley. Pull emergency release handle to allow arm to engage roll pin. Release handle. Emergency disconnect will close.



WARNING

To prevent possible **SERIOUS INJURY** or **DEATH** from a falling door or arm:

- **DISCONNECT** electric power to the operator **BEFORE** manually operating your door.
- **DO NOT** stand under the door arm when pulling the emergency release.
- If possible, use emergency disconnect **ONLY** when door is **CLOSED**. Weak or broken springs or unbalanced door could result in an open door falling rapidly and/or unexpectedly.
- **NEVER** use emergency release handle unless doorway is clear of persons and obstructions.

Emergency Disconnect System Model JHDC

These operators have provisions for manually operating the door in case of emergency or power failure. These operators are equipped with a manual hoist. An electrical interlock will disable the electrical controls when the hoist is used.

This operator includes Engage rope (green) and a disengage rope (red) with manual hoist to electrically disable the operator controls.

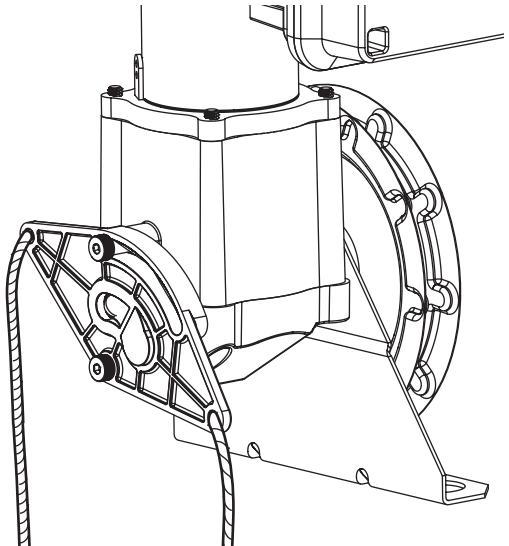
1. To disengage, pull the disconnect rope (red).
2. Operate the door in the desired direction by pulling on one side or the other of the continuous loop hoist chain.
3. Pull the engage rope (green) to operate the door again electrically.

OPERATE A MANUAL HOIST

1. Pull down on the hoist engagement rope, engaging the hoist/interlock.

NOTE: F96 INTERLOCK will be displayed.

2. Operate the door in the desired direction by pulling on one side or the other of the continuous loop hoist chain.
3. To restore standard electrical operation to the operator, pull the hoist disengagement rope to disengage the hoist/interlock.



Wiring



WARNING

To prevent possible SERIOUS INJURY or DEATH:

- ANY maintenance to the operator or in the area near the operator **MUST NOT** be performed until disconnecting the electrical power and locking-out the power. Upon completion of maintenance the area **MUST** be cleared and secured, at that time the unit may be returned to service.
- Disconnect power at the fuse box **BEFORE** proceeding. Operator **MUST** be properly grounded and connected in accordance with national and 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 well protected. The location of the power disconnect should be visible and clearly labeled.
- ALL power and control wiring **MUST** be run in separately.

Power and Ground

Power and control wiring must be run in separate conduit to comply with national and local electrical codes. For power wiring, use the appropriate wire gauge. Use conduit knockouts, conduit fittings, and appropriate conduit fittings for wiring as indicated on the electrical box label.

1. Open the operator cover.
2. Run power wires to electrical box according to national and local electrical codes.

NOTE: ON THREE PHASE POWER only use two of the power legs cap off the third leg.

3. Attach power and ground wires to appropriate terminals. Incoming power leads go to L1 and L2. Ground is on the EMI filter board.

NOTE: The operator must be properly grounded. Failure to properly ground the operator could result in electric shock and serious injury.

* Maximum wire gauge that can be connected to the operator's terminal is 12 AWG. When a larger wire gauge is required, the wire must be gauged down to 12 AWG. USE COPPER WIRE ONLY.

Voltage Selection

NOTE: LiftMaster offers two types of EMI filter boards. However, each operator will **ONLY** house a single type of board, dependent on operator voltage specification ordered. Reference Image A for 120/ 240Vac and Image B for 480Vac.

1. Locate EMI filter board inside of the electrical box.
2. Remove the Orange voltage sticker covering the voltage connector/s and stick it to the inside of the electrical box.
3. On units with type (A) EMI filter board. Verify incoming voltage and phase1 or phase3 type.
4. Plug the connector to the appropriate plugin labeled 120Vac OR 240Vac.

Image A

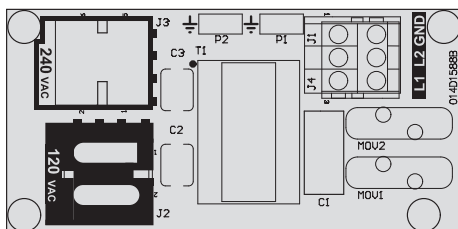
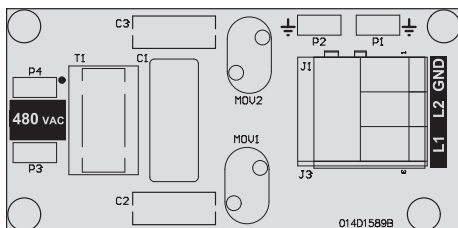


Image B



Wall Controller Installation

WARNING

To prevent possible **SERIOUS INJURY** or **DEATH** from electrocution:

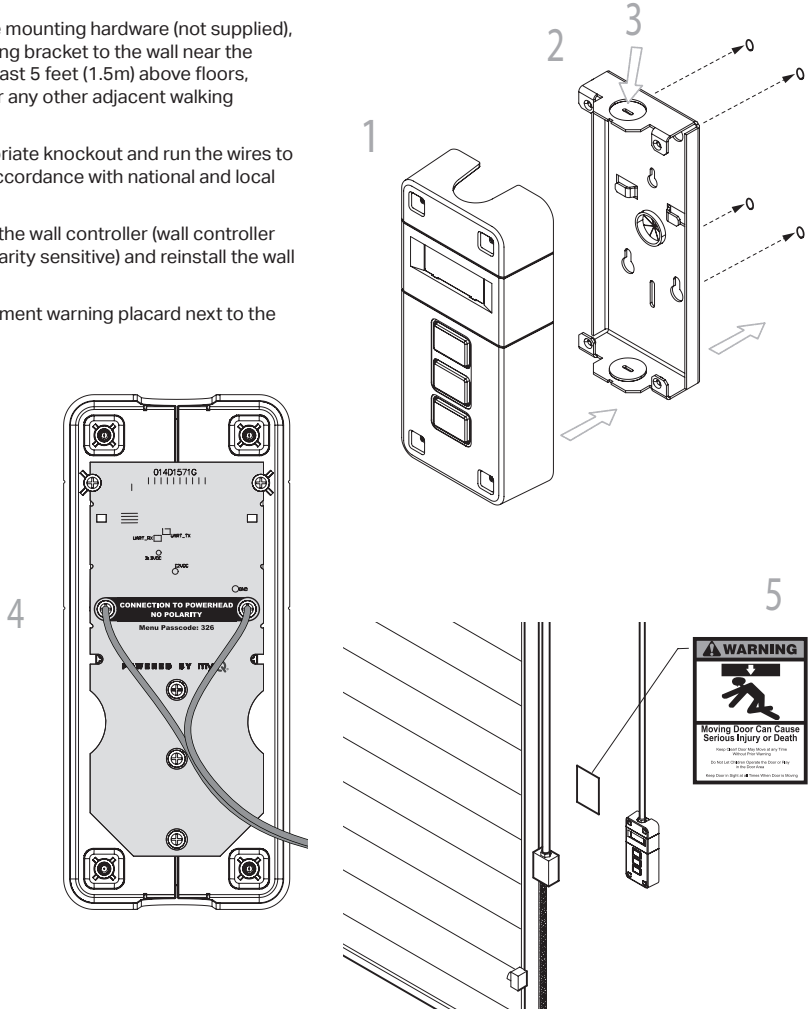
- Be sure power is **NOT** connected **BEFORE** installing the door control.

To prevent possible **SERIOUS INJURY** or **DEATH** from a closing door:

- Install the door control within sight of the door, out of reach of small children, at a minimum height of 5 feet (1.5 m) above landings, steps, or any other adjacent walking surface, and away from **ALL** moving parts of the door.
- Install the control station far enough from the door to prevent the user from coming in contact with the door while operating the controls.
- Install the entrapment warning placard on the wall next to the control station in a prominent location visible from the door.
- **NEVER** permit children to operate or play with door control push buttons or remote controls.
- Activate a door **ONLY** when it can be seen clearly, is properly adjusted and no obstructions exists in the path the door will travel.
- **ALWAYS** keep the door in sight until completely closed. **NEVER** permit anyone to cross path of a closing door.

NOTE: The field wiring terminals are rated for 14-22 AWG wire Stranded and 12-22 AWG Solid.

1. Remove wall control cover from mounting bracket by loosening the four Philips screw at each corner of the housing.
2. Using appropriate mounting hardware (not supplied), fasten the mounting bracket to the wall near the operator and at least 5 feet (1.5m) above floors, landings, steps, or any other adjacent walking surface.
3. Select the appropriate knockout and run the wires to the operator (in accordance with national and local electrical codes).
4. Connect wires to the wall controller (wall controller wires are **NOT** polarity sensitive) and reinstall the wall controller cover.
5. Fasten the entrapment warning placard next to the wall control.



Entrapment Protection (continued)

Install the Monitored Light Curtain (Optional)

This step includes directions to install one set of monitored light curtains as a standalone primary entrapment protection device.

The mounting brackets must be securely fastened to a solid surface such as a wall framing. If installing the mounting brackets in masonry construction, add a piece of wood at each location to avoid drilling extra holes in the masonry.

NOTE: If the Monitored Light Curtain is installed with coil cord, the coil cord needs to be secured so it will not interrupt the light beams.

1. Fasten the mounting brackets loosely to both Monitored Light Curtain with the screws provided.
2. Measure a maximum of 6 inches above the floor. Mark this location. The lowest optical sensor of the Monitored Light Curtain must be installed at or below this point. In this application, in order to assure that the lowest optical sensor is mounted no higher than 6" above the ground, the light curtain wires must be oriented at the top of the light curtain in this application.
3. Hold the Monitored Light Curtain up to the desired mounting location with the cable end pointing upward. Secure the bottom mounting bracket to the mounting surface.
4. Make sure the Monitored Light Curtain is level and secure the upper mounting bracket to the mounting surface.
5. Tighten the screws to secure the Monitored Light Curtain to the mounting bracket.
6. Secure the other Monitored Light Curtain to the opposite side of the door following steps 2–5, making sure they are aligned.
7. Run wires to the operator.
8. Twist like colored wires together, brown to brown and blue to blue.

 **WARNING**

To prevent possible product damage and incorrect operation:

- NEVER scratch or paint the optical sensors.
- DO NOT drill ANY additional holes into the Monitored Light Curtain.
- Correctly connect and align the Monitored Light Curtain transmitter and receiver.
- DO NOT bend or twist the Monitored Light Curtain.
- Oil may damage the Monitored Light Curtain cable so contamination MUST be avoided at ALL times.
- DO NOT mount the Monitored Light Curtain where sunlight or other external infrared light sources will shine directly into the optical sensors of the Monitored Light Curtain receiver. If necessary, switch the mounting side of the Monitored Light Curtain transmitter and receiver.

POWER WIRING

Do not run wiring in the same conduit with AC power.

1. Disconnect power to the operator.
2. Connect the wires from the Monitored Light Curtain LC36M to the following.
 - a. Brown wire to + Aux24 power
 - b. Blue wired to – Aux24 CMN
 - c. White wire to eye/edge input –
 - d. Black wired to eye/edge input +

ALIGNMENT

The Monitored Light Curtain transmitter and receiver must be aligned. When properly wired and aligned the amber and green LEDs will be ON. The amber LED is located on the Monitored Light Curtain Transmitter and the green LED is located on the Monitored Light Curtain Receiver. If the amber and green LEDs are not on, see the table below.

1. Open and close the door for one complete cycle to let the operator register the Monitored Light Curtain.

Amber LED	Green LED	Status	Solution
OFF	OFF	No power	Check wiring.
ON	Blinks	• Monitored Light Curtain receiver and transmitter are not aligned • Obstructed light beam • Defective Monitored Light Curtain Receiver	• Adjust the Monitored Light Curtains to correct alignment • Remove the obstruction • Replace Monitored Light Curtain receiver and transmitter (Model LC36M)

NOTE: For more detailed information, please refer to Monitored Light Curtain manual 114-5541.

Cable Tension Monitors

Install the Cable Tension Monitor(s) (Optional)

TWO CABLE TENSION MONITORS MAY BE CONNECTED TO THIS OPERATOR.

THE CABLE TENSION MONITORS DETECT ANY SLACK THAT MAY OCCUR IN THE CABLES AND WILL RESPOND ACCORDINGLY.

NOTE: ONLY USE THE LIFTMASTER CABLE TENSION MONITORS, AS THEY HAVE BEEN TESTED AND APPROVED FOR THIS SYSTEM. See "Accessories" on page 63.

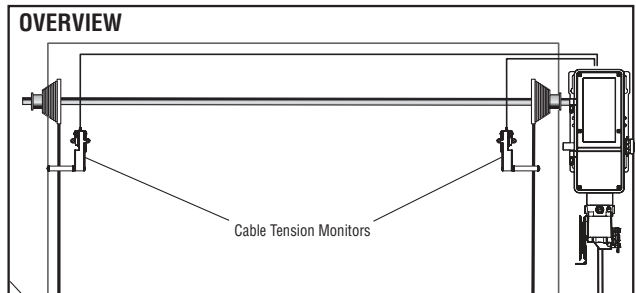
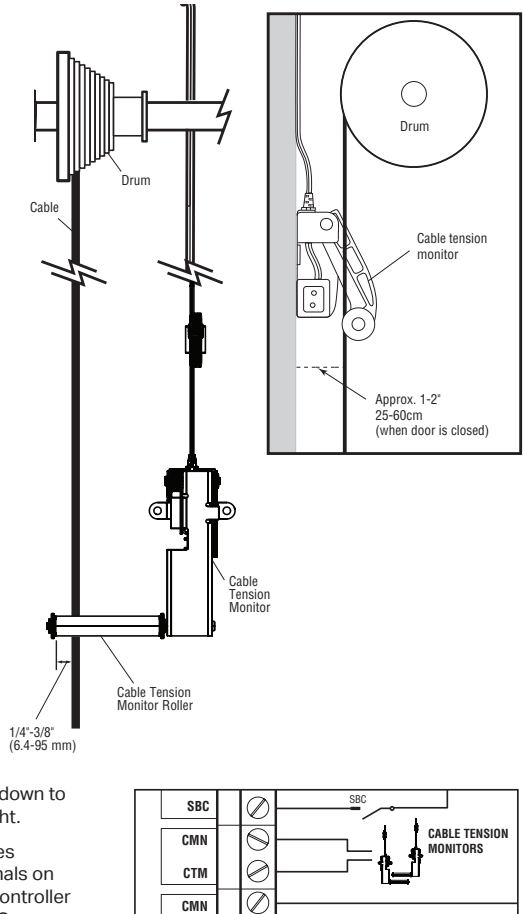
1. Make sure the door cable is approximately 1"-2" (25-50 mm) from the mounting surface. Door adjustments or shimming may be required to achieve proper depth for the door cable. The bracket must be flush with the mounting surface.
2. Position the cable tension monitor as close to the drum as possible. The optimal distance of the cable from the wall surface is no more than 2.5" (6.35 cm), and be sure the roller extends 1/8"-1/4" past the cable. Make sure the cable tension monitor and roller is free from any obstructions in all positions of operation.

NOTE: There must be no obstructions in the installation area that prevent the cable tension monitor from closing completely when slack is detected.

NOTE: Cable tension monitors must either be anchored to concrete, or a wood stud with appropriate fasteners. If neither are available, toggle bolt style drywall anchors with at least a 50 lbs rating are acceptable.

3. Run bell wire to the door operator junction box, and down to the control box through conduit as shown on the right.
4. Once the controller is installed, connect the bell wires parallel to the CTM and CMN terminals on the terminals on the controller (polarity is not important). See "Wall Controller Installation" on page 23 for installation information. Once installed, follow these steps to connect the wiring.
5. Connect the bell wires in parallel to the CTM and CMN terminals on the controller (polarity is not important). To simplify installation, the cable tension monitors can be wired together in the operator junction box, with only one pair of bell wires running down to the controller.
6. Repeat steps 1-5 for the opposite side of the door. Both cable tension monitors must be installed for proper operation.

NOTE: Cable must have tension through entire door travel. Make sure there is no slack in cable on opposite side of door during normal operation. If slack occurs during door travel, adjust cables as required.



Testing

Apply power to the operator. When power is applied to the operator, the LCD display will illuminate, relay A, relay B, and the Timer Defeat.

Test all Entrapment Protection Devices

It is the responsibility of the specifier, purchaser, installer, and property owner to ensure that, on completion, the installation of the entrapment protection devices comply with all relevant federal, state, and local codes and regulations.

TEST THE MONITORED LIGHT CURTAIN (IF APPLICABLE)

1. With the door in the full open position, press the close button.
2. While the door is closing, obstruct any of the light beams on the Monitored Light Curtain (the green LED on the Monitored Light Curtain Receiver will blink when the light beam is obstructed). The door should stop and reverse.

TEST THE PHOTOELECTRIC SENSORS (IF APPLICABLE)

1. Open the door.
2. Place an obstruction in the path of the photoelectric sensors. The LMEP LED will blink on the logic board.
3. Press and hold the CLOSE button. The door should not close.
4. Remove the obstruction.
5. Press and hold the CLOSE button. Door should close. If the LMEP is activated while closing, the door should reverse.

TEST THE EDGE SENSORS (IF APPLICABLE)

1. Open the door
2. Place an obstruction in the path of the door.
3. Press and release the CLOSE button. The door should stop and/or reverse.
4. Remove the obstruction. Press and release the CLOSE button. The door should fully close.

Test Wall Controller Menu Access

1. Press OPEN button. (The door should move in the open direction.)
2. Press STOP button. (The door should stop.)
3. Press and hold the CLOSE button. (The door should move in the close direction.)
4. Release CLOSE button. Door should stop if in C2 or D1 mode. Door will reverse to full open position in E2 mode. The door should continue closing in all other modes.
5. Press STOP button. (The door should stop.)

Test Limit Adjustment

1. Press OPEN button. (The door should open.)
2. Allow the door to fully open.
3. Press and hold the CLOSE button. (The door should close.)
4. Allow the door to fully close.
5. If the limits are not set properly, remove power and adjust limits (see "Set Limits" on page 30).

NOTE: Door travel should stop when the OPEN or CLOSE limits are reached. If door drifting is occurring, spring tension on the door.



WARNING

To avoid **SERIOUS** personal INJURY or DEATH:

- Disconnect electric power **BEFORE** performing ANY adjustments or maintenance.
- ALL maintenance **MUST** be performed by an Authorized Service Technician.

Wiring Diagram

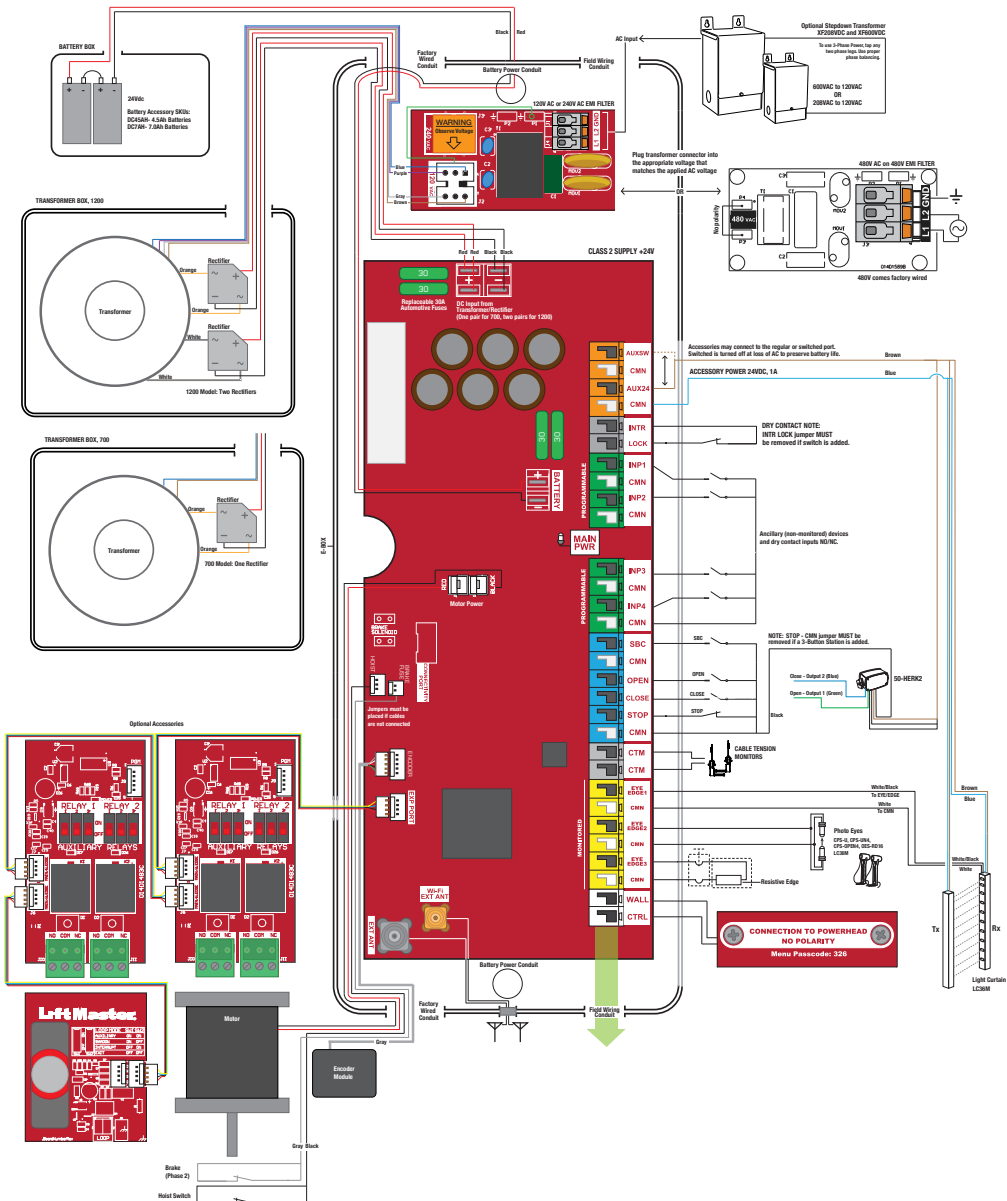


To prevent possible **SERIOUS INJURY** or **DEATH**:

- Disconnect electric power and/or battery **BEFORE** installing, performing **ANY** adjustments, or maintenance. Installation and **ALL** maintenance **MUST** be performed by a trained door systems technician.

For continued protection against fire:

- Replace **ONLY** with fuse of same type and rating.



Programming

Quick Start Commissioning

Follow the below instructions to provision the JHT operator out-of-the-box or after factory reset:

Quick Start Commissioning Menu

Follow device menu prompt to select DOOR HANGING

Follow device menu prompt to select DOOR DRUM

Follow device menu prompt to select DOOR SPROCKET (J/H ONLY)

Follow device menu prompt to set OPEN LIMIT

Follow device menu prompt to set CLOSE LIMIT

Follow device menu prompt to LEARN WIFI

The operator will be in WiFi Learn Mode for 10 minutes if "YES" is selected.



WARNING

To prevent possible **SERIOUS INJURY** or **DEATH**:

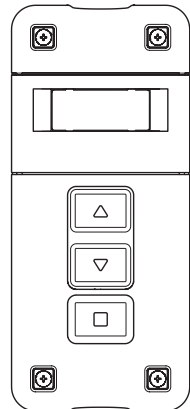
- Disconnect electric power **BEFORE** performing **ANY** adjustments or maintenance.
- **ALL** maintenance **MUST** be performed by a trained door systems technician.
- Please wait several seconds for capacitors to discharge and for display to go out.

Quick Exit of Menu

Hold down the "UP" and red "Stop" buttons for 3 seconds until the screen goes blank and it will exit you out of the menu you are in.

Quick Enter into the Menu

Hold down the "Down" and red "Stop" buttons for 3 seconds until the screen goes blank and it will take you to the main menu.



Manual Commissioning Program Flow

IMPORTANT: All entrapment protection devices will be disconnected during the manual commissioning steps.

The System Settings menus are password-protected.

ENTER PROGRAMMING

1. Press the "STOP/ENTER" and "DOWN" buttons on the inside of the controller at the same time for 3+ seconds to enter the operator menu. If the controller is closed, press the "Stop" then "Close" then "Open" until the unit goes into program mode.
2. Scroll down to "SYSTEMS SETTINGS" with the "UP" and "DOWN" buttons and press "ENTER." You will be prompted to enter the password for the operator.
3. Enter 326 as the password.



Programming (continued)

NOTE: Please obtain the latest Installation Manual by search the model number at liftmaster.com.

SELECT DOOR SETTINGS

SECTIONAL DOORS

STANDARD, HIGH LIFT AND VERTICAL

- To select Door Hanging, Cable Drum (and Sprocket JHDC/ JDC) settings, navigate to the SYSTEM SETTINGS > DOOR SETTINGS submenu.
- Select The Drum Type. Correct Drum Types are required for the correct door profile to run the system.
 - Standard Lift choices: D400-96, D400-144, D5250-18, D525-216, D800-384**
 - Full Vertical choices: D850-132, D1100-216, D1350-336
 - High Lift choices: 48° HL: D400-54, D525-54, 60° HL: D575-120, 144° HL: D6375-164
- Sprocket FOR JHDC / JDC (ONLY) If you have a different sprocket size, use Custom option to add your tooth sprocket.

700lb operators - Standard Lift, High Lift and Full Vertical **16** tooth sprocket recommended

1200lb operators – Standard Lift, High Lift and Full Vertical **22** tooth sprocket recommended

2200lb operators – Standard Lift, High Lift and Full Vertical **32** tooth sprocket recommended (Vertical with D1350-336 – **42** tooth sprocket recommended)

Any other tooth configuration, please use Custom Option and enter your sprocket info.

ROLLING DOOR

- Select Rolling Door
- Select Insulated or Non-Insulated Door Type
- Select Height (increment of 2')

 - 8', 10', 12', 14', 16', 18', up to 40'

- Select Width (increment of 2')

 - 8', 10', 12', 14', 16', 18', up to 40'

- Select Sprocket (SKU dependent, please reference page 4)

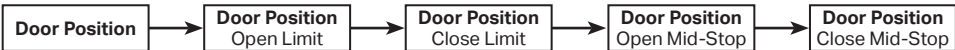
 - Sprocket choices: 50, 60, 72, 82, Custom

IMPORTANT: Once you choose your drum, allow inverter parameter to update. Once the inverter is updated, you can re-enter the menu to set limits and learn force.

SET LIMITS

IMPORTANT: When setting limit positions, it is important that the door runs in the direction of the intended limit. Example: When setting the close limit, only use the CLOSE button. When setting the open limit, only use the OPEN button. Using the opposite direction button will cause the limit positions to drift over time.

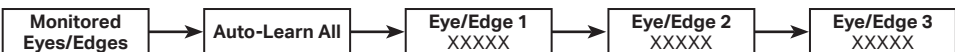
To set limits, navigate to the SYSTEM SETTING > DOOR POSITIONS submenu.



MONITORED EYES/EDGE CONFIGURATION

If monitored entrapment protection devices are wired to the system during the initial power-up, they will be learned to the system, and the operating mode will automatically switch to B2.

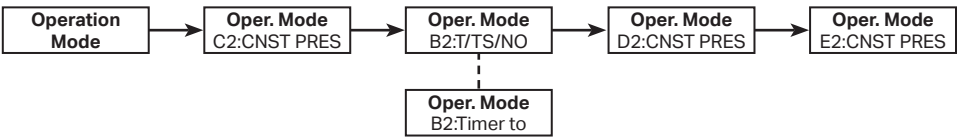
If no monitored sensor is attached, the system will default to C2 mode. To manually program an entrapment protection device, navigate to the SYSTEM SETTINGS > MONITORED EYES/EDGES submenu, otherwise it will Auto-Learn the monitored device.



Programming (continued)

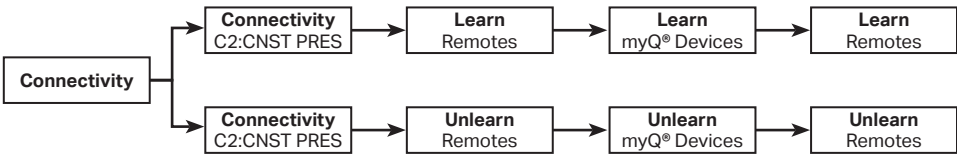
OPERATION MODE (RECOMMENDED)

To change the operating mode from the defaults B2 or C2, navigate to the SYSTEM SETTINGS > OPERATION MODE submenu.



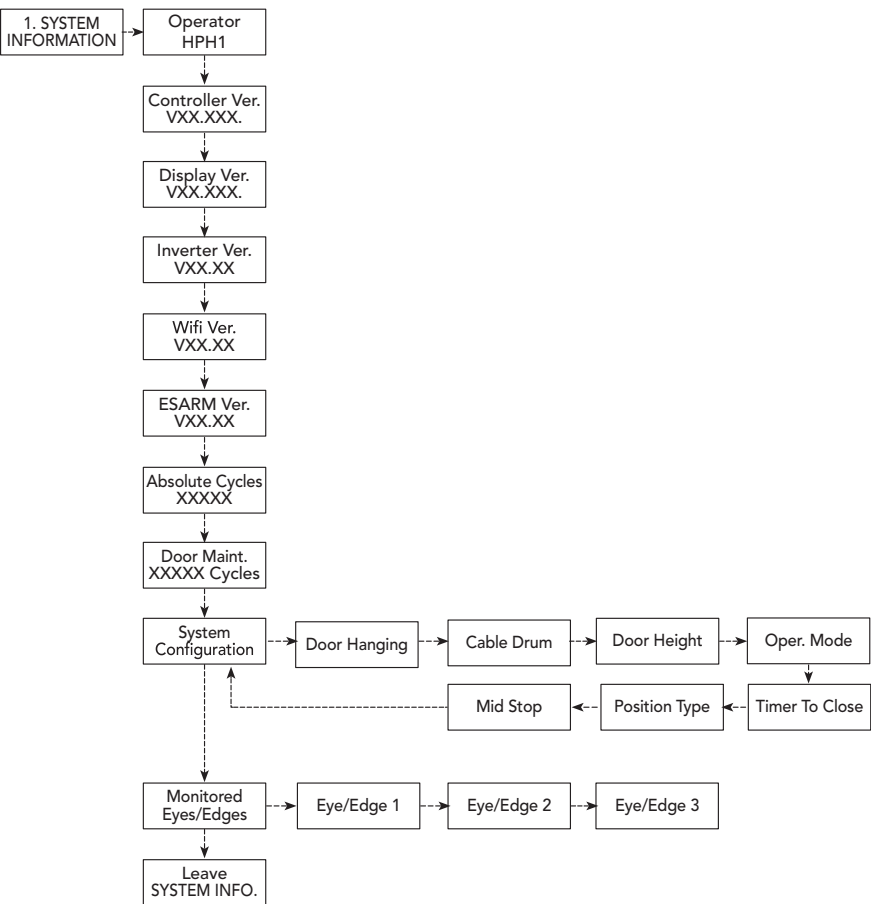
CONNECTIVITY (RECOMMENDED)

To connect the operator to a network, navigate to SYSTEM SETTINGS > CONNECTIVITY > LEARN > LEARN WIFI submenu. See the "myQ® Smart Facility Access" on page 43 to connect your devices to myQ® Business Facility.



Hold ENTER and DOWN for three seconds to open the System Information Menu.

NOTE: This menu tree is only for informational purposes. These settings cannot be changed by the user.



Programming (continued)

Operating Modes

This operator is programmed to function in one of four different operating modes. See the rest of this section for more detailed information.

B2 MODE

- Works with buttons on wall controller, myQ Facility®, wired 3-Button Wall Controller, and 3-Button Transmitter; momentary to open, stop, and close.
- Works with Single Button Control and Single Button Transmitter; momentary to open, stop, close, and stop & reverse.
- A Monitored Entrapment Protection device is required to be connected for downward movement. Monitored Safety devices are Auto-Learned or manually configured through the wall control menu..
- A Monitored Entrapment Protection device activation will reverse the door to its Open limit. An activated Monitored Entrapment Protection device can be overridden with 5 seconds of constant pressure on the Wall Control Close button.

Timer To Close is available in B2 Mode with two settings. The user can select a desired Timer to Close (TTC) timer under the Timers menu.

In B2 the Car Dealer feature is available. The Car Dealer input (typically a treadle switch, loop detector, or motion sensor) will open the door to mid-stop, and TTC will be enabled. Repeated Car Dealer Input will not open the door beyond the mid-stop and will reset the TTC timer. TTC can be set either to one time close or timer secure

In B2 the All Fly feature is available. (FSTS Mode)

- The All Fly input (typically a mushroom button) will open the door to its Open limit, bypassing a mid-stop, and TTC will be enabled.
- The CLOSE button immediately closes the door.
- The STOP button resets the TTC timer (held button will pause, releasing the button will reset).
- The OPEN button resets the TTC timer.
- The controller will make infinite attempts to close the door until the safety obstruction is cleared.
- TTC will be enabled after Monitored Entrapment Protection activation reverses the door to its Open limit.
- Timer Defeat Input will stop TTC timer

B2 / T ONE TIME CLOSE

- After the TTC timer elapses operator will close the door.
- TTC Timer will be active at the Open Limit or at a defined mid-stop.
- The CLOSE button immediately closes the door.
- The STOP button cancels the TTC for that cycle (no automatic motion).
- The OPEN button resets the TTC timer.
- TTC will be disabled if the door reverses from an obstruction.
- Timer Defeat Input will stop the TTC timer

B2 / TS (TIMER SECURE)

- After TTC timer elapses operator will close door.
- TTC Timer will be active anywhere above close limit. The CLOSE button immediately closes the door.
- The STOP button resets the TTC timer (held button will pause, release resets)
- The OPEN button resets the TTC timer.
- LMEP activation resets the timer
- TTC will be enabled after Monitored Entrapment Protection device activation reverses the door to its Open limit. The controller will make infinite attempts to close the door until it reaches close limit.
- Timer Defeat Input will stop the TTC timer

C2 MODE (DEFAULT)

- Works with buttons on wall controller, wired 3-Button Wall Controller, and 3-Button Transmitter*; momentary to open, stop, and constant pressure to close.
- Works with Single Button Control and Single Button Transmitter*; momentary to open, stop, and stop & reverse.
- Works without a Monitored Entrapment Protection device learned, but can operate if a Monitored Entrapment Protection device is learned and connected for downward movement.
- Monitored Entrapment Protection device activation will reverse the door to its Open limit. An activated Monitored Entrapment Protection device can be overridden with 5 seconds of constant pressure on the Wall Control Close button.

*Constant Pressure to Close is not available from a remote control device (transmitter or myQ® Business™).

Programming (continued)

Determine Operating Mode

Read the descriptions of the different wiring types to determine which setting will be correct for each application. Once the wiring type is determined, set the selector dial accordingly.

LIFTMASTER MONITORED ENTRAPMENT PROTECTION (LMEP) DEVICE IS REQUIRED

A LiftMaster Monitored Entrapment Protection Device is required for the following wiring types.

B2

Momentary contact to open, close and stop, plus wiring for sensing device to reverse and auxiliary devices to open and close with open override. Programmable mid stop available with this wiring type. Compatible with 3-Button Station, 1-Button Station, 1 and 3-Button Remote Control.

B2 / T

Momentary contact to open, close, and stop, with open override and Timer-To-Close. Every device that causes the door to open, except any sensing edge input device, activates the Timer-To-Close. Auxiliary controls can be connected to open input to activate the Timer-To-Close.

If the Timer-To-Close has been activated, the open button and radio control can recycle the timer. The stop button will deactivate the timer until the next command input. The Timer-To-Close will function from the programmable mid stop with this wiring type. Compatible with 3-Button Station, 1-Button Station and 1 and 3-Button Remote Control.

NOTE: Programmable "Car Dealer Mode" available.

B2 / TS

This mode will attempt to close the door from any position except when fully closed, or when a safety input is present. The stop button will not disable the Timer-To-Close at any position. To disable the Timer-To-Close in this mode, installation of a defeat switch is required (see "Wiring Diagram" on page 28).

Momentary contact to open, close, and stop with open override and Timer-To-Close. Every device that causes door to open, including a reversing device, activates the Timer-To-Close. Auxiliary controls can be connected to open input to activate the Timer-To-Close. If the timer has been activated, the open button and radio control can recycle the timer. The Timer-To-Close will function from the programmable mid stop with this wiring type. Compatible with 3-Button Station, 1-Button Station and 1 and 3-Button Remote Control.

NOTE: A Programmable "Car Dealer Mode" available.

FSTS

Momentary button contact for open, close and stop programming. User set mid stop. User set Timer-To-Close. The single button station opens the door to the full open limit bypassing the mid stop and activates the

Timer-To-Close, putting the operator in B2/TS mode until the door reaches the down limit, or is stopped in travel. At which time the operator enters the B2 mode. Compatible with 3-Button Station, 1-Button Station, 1 and 3-Button Remote Control. A 1-Button remote control in FSTS mode will open only with the Timer-To-Close, bypassing a programmed mid stop. The Timer-To-Close will reset and reverse when closing.

LIFTMASTER MONITORED ENTRAPMENT PROTECTION DEVICE IS RECOMMENDED.

A LiftMaster Entrapment Protection Device is recommended for the following wiring types.

C2

Momentary contact to open and stop with constant pressure to close, open override plus wiring for sensing device to reverse. Programmable mid stop available with this wiring type. Compatible with 3-Button Station and 1-Button Station.

E2

Momentary contact to open with override and constant pressure to close. Release of close button will cause door to reverse (roll-back feature) plus wiring for sensing device to reverse. Compatible with 3-Button Station.

D1

Constant pressure to open and close with wiring for sensing device to stop. Compatible with 2 or 3-Button Station.

IMPORTANT NOTES:

1. External interlocks may be used with all functional modes.
2. Auxiliary devices are any devices that have only dry contacts. Examples: loop detector, pneumatic or electrical treadles, radio controls, one button stations, pull cords, etc.
3. Open override means that the door may be reversed while closing by activating an opening device without the need to use the stop button first.
4. When the door is in a stopped position other than fully closed, and an LMEP or EDGE input is activated, the Restricted Close(RC) feature will allow a close command when the close button is pressed and held. The operator will begin closing after 5seconds. If the close button is released the door will stop. When in E2 mode, the door will move to the fully open position.

Programming (continued)

Determine and Set Operating Mode

Select the operating mode for your application from the menu in the Wall Controller.

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
B2 - Momentary contact to open, close and stop, plus wiring for sensing device to reverse and auxiliary devices to open and close with open override. Programmable Mid-Stops available with this wiring type. Close Mid Stop available but not shown in table. Compatible with 3-Button Station, 1-Button Station, 1 and 3-Button Remote Control. Monitored Entrapment Protection (LMEP) Device required.	Front panel buttons (membrane) and 3-Button Wall Controller	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
		OPEN button is held (constant pressure)	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit (bypasses Mid-Stop)
			Door opening	No change in state (bypasses Mid-Stop)
			Door closing	Door will auto reverse to OPEN limit (bypasses Mid-Stop)
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit (bypasses Mid-Stop)
		CLOSE button is held (constant pressure)	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
	3-Button Remote Control Programmed as OPEN/CLOSE/STOP	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to closest OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
	Single Button Remote Control Programmed as SBC	Button is pressed	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	Door stops
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during the open cycle	Door closes to the CLOSE limit
			Door stopped during the close cycle	Door opens to the OPEN limit or Mid-Stop

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
B2 (continued)	Single Button Wall Controller (Wired)	Button is pressed	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	Door stops
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during the open cycle	Door closes to the CLOSE limit
			Door stopped during the close cycle	Door opens to the OPEN limit or Mid-Stop
		Button is held (constant pressure)	Door Opening	No change in state (bypasses Mid-Stop)
	myQ® Smart Facility Access	Open is pressed	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
		Close is pressed:	Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
			Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
	Door at Open Mid-Stop	Door closes to the CLOSE limit		
	Door stopped during open or close cycle	Door closes to the CLOSE limit		

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
C2 Momentary contact to open and stop with constant pressure to close (wired devices ONLY), open override plus wiring for sensing device to reverse. Open Mid-Stop available with this mode type. Compatible with 3-Button Station and Single-Button Station	Front panel buttons (membrane) and 3-Button Wall Controller	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes and stops when button is released
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes and stops when button is released
			Door stopped during open or close cycle	Door closes and stops when button is released
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
		OPEN button is held (constant pressure)	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to OPEN limit (bypasses Mid-Stop)
			Door opening	No change in state (bypasses Mid-Stop)
			Door closing	Door will auto reverse to OPEN limit (bypasses Mid-Stop)
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit (bypasses Mid-Stop)
		CLOSE button is held (constant pressure)	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
C2 (continued)	3-Button Remote Control Programmed as OPEN/CLOSE/ STOP	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
		CLOSE button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
	Single Button Remote Control Programmed as SBC	Button is pressed	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	Door stops
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open cycle	No change in state
	Single Button Wall Controller (Wired)	Button is pressed	Door stopped during close cycle	Door opens to the OPEN limit or Mid-Stop
			Operator at OPEN limit	Door closes and stops when button is released
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	Door stops
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
		Button is held (constant pressure)	Door stopped during open cycle	Door closes and stops when button is released
			Door stopped during close cycle	Door opens to the OPEN limit or Mid-Stop
	myQ® Smart Facility Access	Open is pressed	Door Opening	No change in state or Mid-Stop
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
		Close is pressed	Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
E2 - Momentary contact to open with override and constant pressure to close. Release of close button will cause door to reverse (roll-back feature) plus wiring for sensing device to reverse. Compatible with 3-Button Station.	3-Button Wall Controller	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes and auto reverses when button is released
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes and auto reverses when button is released
			Door stopped during open or close cycle	Door closes and auto reverses when button is released
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
		OPEN button is held (constant pressure)	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit (bypasses Mid-Stop)
			Door opening	No change in state (bypasses Mid-Stop)
			Door closing	Door will auto reverse to OPEN limit (bypasses Mid-Stop)
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit (bypasses Mid-Stop)
		CLOSE button is held (constant pressure)	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes and auto reverses when button is released
			Door stopped during open or close cycle	Door closes and auto reverses when button is released
	3-Button Remote Control Programmed as OPEN/ CLOSE/ STOP	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop
		CLOSE button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
	Single Button Remote Control	Button is pressed	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
	Single Button Wall Controller (Wired)	Button is pressed:	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during the open cycle	No change in state
	myQ	Door image is pressed:	Door stopped during the close cycle	No change in state
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
D1 - Constant pressure to open and close with wiring for sensing device to stop. Compatible with 2 or 3-Button Station	3-Button Wall Controller	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens and stops when button is released
			Door opening	No change in state
			Door closing	Door stops
			Door at Open Mid-Stop	Door opens and stops when button is released
			Door stopped during open or close cycle	Door opens and stops when button is released
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes and stops when button is released
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes and stops when button is released
			Door stopped during open or close cycle	Door closes and stops when button is released
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
		OPEN button is held (constant pressure)	Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	Door stops only in the closed position
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	Door opens to the OPEN limit
			Door opening	No change in state
			Door closing	Door stops
	3-Button Remote Control Programmed as OPEN / CLOSE / STOP	OPEN button is pressed momentarily	Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during open or close cycle	Door stops only in the closed position
			Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
		CLOSE button is pressed momentarily	Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
		STOP button is pressed momentarily	Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
	Single Button Remote Control	Button is pressed	Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
	Single Button Wall Controller (Wired)	Button is pressed:	Door at Open Mid-Stop	No change in state
			Door stopped during the open cycle	No change in state
			Door stopped during the close cycle	No change in state
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
	myQ	Door image is pressed:	Door closing	No change in state
			Door at Open Mid-Stop	No change in state
			Door stopped during open or close cycle	No change in state
			Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
T- Momentary contact to open, close, and stop, with open override and Timer-To-Close (TTC). Every device that causes the door to open, except any sensing edge input device, activates the TTC. Auxiliary controls can be connected to open input to activate the TTC. If the TTC has been activated, the open button and radio control can recycle the timer. The stop button will deactivate the timer until the next command input. The TTC will function from the Open limit stop and Open Mid-Stop available with this mode type. Compatible with 3-Button Station, 1-Button Station and 1 and 3-Button Remote Control. Close Mid-Stop is available but not shown in table. Monitored Entrapment Protection (LMEP) Device required.	Front panel buttons (membrane) and 3-Button Wall Controller	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state (Recycle timer)
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop (and activates TTC)
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop (and activates TTC)
			Door at Open Mid-Stop	Door opens to the OPEN limit (and activates TTC)
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop (and activates TTC)
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state (Deactivate timer)
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state (Deactivate timer)
			Door stopped during open or close cycle	No change in state
		OPEN button is held (constant pressure)	Operator at OPEN limit	No change in state (Recycle & hold timer)
			Operator at CLOSE limit	Door opens to the OPEN limit (bypasses Mid-Stop) and activates TTC
			Door opening	No change in state (bypasses Mid-Stop)
			Door closing	Door will auto reverse to OPEN limit (bypasses Mid-Stop) and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit (bypasses Mid-Stop) and activates TTC
		CLOSE button is held (constant pressure)	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
	3-Button Remote Control Programmed as OPEN/ CLOSE/ STOP	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state (Recycle timer)
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state (Deactivate timer)
			Operator at CLOSE limit	No change in state
			Door opening	Door stops
			Door closing	Door stops
			Door at Open Mid-Stop	No change in state (Deactivate timer)
			Door stopped during open or close cycle	No change in state
	Single Button Remote Control Programmed as SBC	Button is pressed	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	Door stops
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during the open cycle	Door closes to the CLOSE limit
			Door stopped during the close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
T (continued)	Single Button Wall Controller (Wired)	Button is pressed	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop
			Door opening	Door stops
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during the open cycle	Door closes to the CLOSE limit
			Door stopped during the close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
	myQ® Smart Facility Access	Open is pressed	Door opening	No change in state
			Operator at OPEN limit	No change in state (Recycle timer)
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door stopped during the open cycle	Door closes to the CLOSE limit
		Close is pressed	Operator at OPEN limit	No change in state
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
TS - This mode will attempt to close the door from any position except when fully closed, or when a safety input is present. The stop button will recycle the Timer-To-Close (TTC) at any position. To disable the TTC in this mode, installation of a defeat switch is required (see wiring diagram). Momentary contact to open, close, and stop with open override and TTC. Every device that causes door to open, including a reversing device, activates the TTC. Auxiliary controls can be connected to open input to activate the TTC. If the timer has been activated, the open button and radio control can recycle the timer. The TTC will function from the Open limit and Open mid stop with this operating mode type. Close Mid Stop available but not shown in table. Compatible with 3-Button Station, 1-Button Station and 1 and 3-Button Remote Control. Monitored Entrapment Protection (LMEP) Device required.	Front panel buttons (membrane) and 3-Button Wall Controller	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state (Recycle TTC)
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state (Recycle TTC)
			Operator at CLOSE limit	No change in state
			Door opening	Door stops and activates TTC
			Door closing	Door stops and activates TTC
			Door at Open Mid-Stop	No change in state (Recycle TTC)
			Door stopped during open or close cycle	No change in state (Recycle TTC)
		OPEN button is held (constant pressure)	Operator at OPEN limit	No change in state (Recycle & hold TTC)
			Operator at CLOSE limit	Door opens to the OPEN limit (bypasses Mid-Stop) and activates TTC
			Door opening	No change in state (bypasses Mid-Stop) and activates TTC
			Door closing	Door will auto reverse to OPEN limit (bypasses Mid-Stop) and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit (bypasses Mid-Stop) and activates TTC
		CLOSE button is held (constant pressure)	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit

Programming (continued)

WIRING TYPE	DEVICE	ACTION	STATE	RESPONSE
TS (continued)	3-Button Remote Control Programmed as OPEN/ CLOSE/STOP	OPEN button is pressed momentarily	Operator at OPEN limit	No change in state (Recycle TTC)
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
		CLOSE button is pressed momentarily	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit
		STOP button is pressed momentarily	Operator at OPEN limit	No change in state (Recycle TTC)
			Operator at CLOSE limit	No change in state
			Door opening	Door stops and activates TTC
			Door closing	Door stops and activates TTC
			Door at Open Mid-Stop	No change in state (Recycle TTC)
			Door stopped during open or close cycle	No change in state (Recycle TTC)
	Single Button Remote Control Programmed as SBC	Button is pressed	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	Door stops and activates TTC
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during the open cycle	Door closes to the CLOSE limit
		Button is pressed	Door stopped during the close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop and activates TTC
			Door opening	Door stops and activates TTC
	Single Button Wall Controller (Wired)	Button is pressed	Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit
			Door stopped during the open cycle	Door closes to the CLOSE limit
			Door stopped during the close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
		Button is held (constant pressure)	Door opening	No change in state or Mid-Stop and activates TTC
			Operator at OPEN limit	No change in state (Recycle TTC)
	myQ® Smart Facility Access	Open is pressed	Operator at CLOSE limit	Door opens to the OPEN limit or Mid-Stop (activates TTC)
			Door opening	No change in state
			Door closing	Door will auto reverse to OPEN limit or Mid-Stop and activates TTC
			Door at Open Mid-Stop	Door opens to the OPEN limit and activates TTC
			Door stopped during open or close cycle	Door opens to the OPEN limit or Mid-Stop and activates TTC
		Close is pressed	Operator at OPEN limit	Door closes to the CLOSE limit
			Operator at CLOSE limit	No change in state
			Door opening	No change in state
			Door closing	No change in state
			Door at Open Mid-Stop	Door closes to the CLOSE limit
			Door stopped during open or close cycle	Door closes to the CLOSE limit

Programming (continued)

Programmable Inputs

- The controller contains three programmable inputs that may be configured to accept several different input devices.
- Navigate through the menus to SYSTEM SETTINGS (enter password) to PROG INPUTS. Select INP1, INP2 or INP3.
- Select a Function from the list. Press Enter.
- Select a Polarity from the list. Press Enter.

Function Options:

- Non-monitored Eye/Edge Input
- Car Dealer Input (typically loop detector, treadle hose, card reader)
- Timer Defeat
- All Fly (previously known as FSTS)

Radio

The controller has a built in Security+ 2.0® radio receiver, that can program up to 90 remote control devices and up to 30 keyless entry devices.

Programming Remote Controls and myQ® Devices

1. Select SYSTEM SETTINGS from the main menu (enter passcode.)
2. Select CONNECTIVITY.
3. Select one of: Learn myQ Devices, Wi-Fi, or Remotes.
4. The operator will indicate the selected accessory is being learned.
5. Repeat as needed for any other devices and remotes.

Erasing Programmed Devices

1. Select Connectivity from the main menu (enter passcode).
2. Select Erase.
3. Select the type of device to be erased or select "Erase all".
4. Press "UP" button to erase the selected device.
5. Display will confirm erasing selected device.

Reset Defaults

Parameter	Default Value
Operating Mode	B2
Frequency Profile	Maximum Speed
Open Frequency	10HZ
Close Frequency	10HZ
Limits	Must Relearn Limits
Timer to Close	120 sec.
Delay to Open	0
Delay to Close	0
INP1 Function	No Function
INP1 Logic	N.O.
INP2 Function	No Function
INP2 Logic	N.O.
INP3 Function	No Function
INP3 Logic	N.O.
Eye/Edge	Unlearned
Service Counter Interval	5000
Service Counter Value	Is not reset
Absolute Cycle Counter	Is not reset

NOTICE: This device complies with part 15 of the FCC rules and Innovation, Science and Economic Development Canada license-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device must be installed to ensure a minimum 20 cm (8 in.) distance is maintained between users/bystanders and device.

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules and Industry Canada ICES standard. These limits are designed to provide reasonable protection against harmful interference in a commercial

installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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.

Programming (continued)

myQ® Smart Facility Access

One Platform allows you to manage access for unlimited facilities, users and vehicles.

The myQ® Smart Facility Access allows you to control all your access points in the facility from the myQ® website application from anywhere. Monitor and control your vehicular access doors, gated entry locations, and even dock positions from a universal platform. myQ® technology uses a 900Mhz signal or a Wi-Fi connection to communicate securely from your connected devices to myQ® enabled accessories or directly to a Wi-Fi network.

Setup a myQ® Smart Facility Access Account

NOTE: If you have an existing myQ® account, your myQ® Business™ account will have the same password.

We have made the account setup process easier than ever. It's completely self-service. Go to Account.myQ.com and begin the process.

1. Select Country, Name, email, and create password.
2. Verify the email with a 4-digit code.
3. Select property manager or partner.
4. To create a myQ® Facility, select property type, property name, property manager information. You are now ready to access your dashboard and all other myQ® features.
5. Set up the Facility and add users and groups to provide access to the Facility (refer to the available Help in myQ® Business™).
6. You will get a welcome email from LiftMaster. Accept the invitation and register or login to your account.
7. Set up the Facility and add users & groups to provide access to the Facility (refer to the available Help in myQ® Business™).
8. Follow on-screen prompts to get your Variable Speed Door Operator and additional devices connected.

Provisioning Wi-Fi

Follow the below instructions to pair the operator:

1. Press the "STOP/ENTER" and "DOWN" buttons at the same time for 3+ seconds to enter the operator menu.
2. Scroll down to "SYSTEM SETTINGS" with the "UP" and "DOWN" buttons and press "ENTER". You will be prompted to enter the password for the operator.
3. Enter 326 as the password.
4. Scroll down to "CONNECTIVITY" and press "ENTER".
5. Press "ENTER" again to select "CONNECTIVITY LEARN".
6. Scroll down to "LEARN WIFI" and press "ENTER". The operator will now be in Learn Mode.
7. Using your own device (laptop, tablet, or smart phone) go to your device's Wi-Fi setting and search for the Wi-Fi network called myQ-*nnn* where the *nnn* is the last 3 serial numbers of your operator. Select that Wi-Fi network.
8. Once your device (laptop, tablet, or smart phone) is connected to the operator, open a web browser and go to setup.myqdevice.com on your device and follow the instructions.

Auxiliary Relays Accessory Kit (AUXREL)

Configure the Relay Adapter

This operator allows for the programming of a single mid-stop door position.

To set the open mid-stop position:

1. In Programming Mode, go to Door Position => Open Mid-Stop or Close Mid-Stop.
2. Use the Up/Down buttons to move the door to the desired position.
3. Select Save = Enter

To erase the mid-stop, select Erase Open Mid-Stop or Erase Close-Mid Stop option, then select Save=Enter.

NOTE: Restoring defaults or resetting limits will erase the mid-stop position.

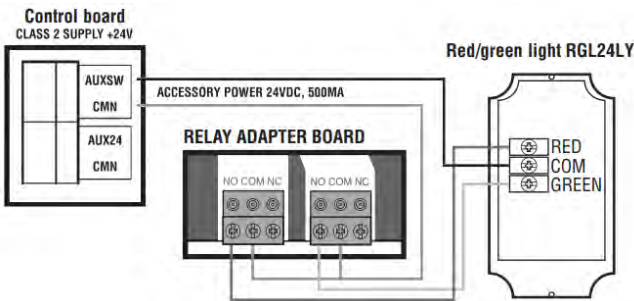
AUXILIARY RELAYS

- **Aux Relay Switches:** Set the AUX RELAY switches as needed to obtain the desired function as shown below.
- **J6 Input:** Communicator bus connects control board, expansion board, or relay adapter board.
- **J7 Input:** Communicator bus connects control board, expansion board, or relay adapter board.
- **AUX24:** Supplies +24Vdc up to 1AMP to wired accessories.

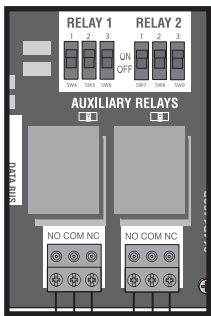
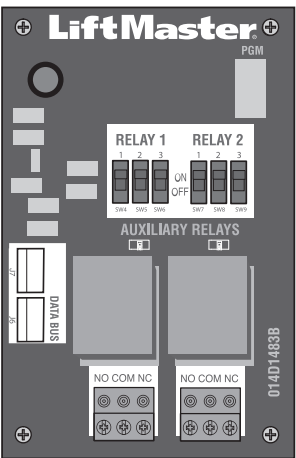
RED/GREEN LIGHT FUNCTIONALITY						
Red light wired to AUX RELAY 1. Green light wired to AUX RELAY 2.						
DOOR STATE	AUX RELAY 1 SWITCHES			AUX RELAY 2 SWITCHES		
	1 OFF	2 OFF	3 OFF	1 ON	2 ON	3 ON
Closed	Red light OFF*			Green light OFF		
Opening	Red light ON/Flash			Green light OFF		
Open	Red light OFF			Green light ON		
Closing	Red light ON/Flash			Green light OFF		
Defined Mid Stop	N/A			N/A		
Undefined Mid Stop	Red light ON			Green light OFF		
Timer more than 5 seconds	Red light OFF			Green light ON		
Timer less than 5 seconds	Red light ON/Flash			Green light OFF		

* For red light ON when gate is closed, set switch 1 on AUX RELAY 1 to ON.

4.



RELAY ADAPTER BOARD



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RELAY ADAPTER BOARD

Troubleshooting

Additional Troubleshooting

The table below is a guide for best practice system troubleshooting, containing potential causes and corrective actions.

Symptom	Possible Causes	Diagnosis	Resolution
Powerhead main board is off (no LEDs are lit or blinking) (continued)	Transformer is overheating	Transformer has an internal thermal protection device which disconnects AC power if the transformer overheats. If the transformer is allowed to cool, AC power should reconnect and restore power to the operator.	Transformer should not normally overheat. If overheating occurs: Check door for imbalance and/or resistance Check ambient temperature and ensure it is within the operational ratings of the door operator. Ensure that air can move freely around the door operator, and that dust or other foreign matter is not preventing airflow.
	AC power absent or out of range	Verify input AC voltage: Measure AC voltage between 'L1' and 'L2' terminals at EMI filter board input connector. Verify voltage is within specifications. If voltage is outside specifications, see resolution.	If voltage is absent, restore power to the operator. Check for tripped breakers, blown fuses, faulty AC wiring, open disconnects, etc. If voltage is out of specification, consult an electrician.
	AC input voltage mis-selected (120V/240V models only)	Check whether the transformer connector is plugged in to the connectors on the EMI filter board marked '120V' or '240V.' Verify this matches the input AC voltage supplied to the operator.	If 240V power is applied when 120V is selected, damage to other components of the operator electronics may have occurred. Ensure voltage selection is corrected and verify the operator functions.
	Blown DC input fuses on main board	Check fuses: Measure voltage across DC IN fuses. If voltage is greater than 0.5V, fuses are blown. See resolution. Fuses may also be visually inspected. Fuses should have their internal metallic fuse element intact. If there is a break in the fuse element, fuse is blown.	Replace both DC IN fuses with automotive style ATO or ATC fuses, 30A 32V. Both DC IN fuses must be present and intact for proper operation of the door operator.
	Faulty Powerhead main board	Perform this test only after first checking fuses. Measure DC voltage between 'DC IN' + and - terminals. Voltage should be between 30 and 48 volts DC with motor stopped. If voltage is present and MAIN PWR LED is not lit, see resolution.	Turn off AC power and disconnect batteries (if present) for at least 30 seconds, then reconnect batteries (if present) and turn on AC power. If no LEDs are lit after cycling power, cycle power again as above but disconnect all cabling from mainboard except for main power wiring before restoring batteries/ AC power. If LEDs still do not light, replace main board. If LEDs light after disconnecting other devices, suspect a short or overload from a connected device.

Troubleshooting (continued)

Symptom	Possible Causes	Diagnosis	Resolution
Powerhead main board is off (no LEDs are lit or blinking) (continued)	Faulty EMI filter board	Verify EMI filter board: Perform this test only after first verifying input AC voltage . Measure AC voltage at EMI filter board output. Measure from brown wire to blue wire. [todo: check wire colors for 480V] Verify voltage is within specifications.	If input voltage is within specification but output voltage is outside specifications or is absent, replace the EMI filter board.
	Faulty Transformer	Verify Transformer: Perform this test only after first verifying the EMI filter board. Disconnect transformer output winding from rectifier(s) and measure the AC voltage across transformer output winding. Voltage should be between 22 and 35 volts AC. If voltage is out of range, see resolution.	If voltage is too high or too low, check that 120V/240V input voltage selection is correct. If voltage is absent: transformer has thermal protection to automatically disconnect input voltage if the transformer overheats. Allow transformer to cool if it is hot, and then re-test. If transformer is cool and voltage is still absent, replace the transformer.
	Faulty wiring or connections	Inspect all connections and wiring from EMI filter board, transformer, rectifiers, and DC IN terminals on the main board. Ensure there are no loose connections, cut wires, broken insulation, etc. Verify wiring matches wiring diagram.	Correct any issues found with wiring or connections.
	Faulty Rectifier	Verify Rectifier: If the transformer and all wiring is verified but DC voltage is still not present at the main board DC IN terminals, the rectifiers are most likely faulty. If an electrical meter with a diode test function is available, each of the 4 diodes internal to the bridge rectifiers may be checked using the diode check functionality: 1) check each diode in the forward direction and verify they conduct with ~ 1V drop or less 2) check each diode in the reverse direction and verify they do not conduct (meter will read the same as disconnected leads)	Replace faulty rectifier(s). Rectifier mounting screws must be tight enough to ensure good thermal contact with the chassis through the thermal interface pad. However, the rectifier screw must not be too tight or it could be damaged. [torque spec here, even?] Interface between the rectifier and the chassis should be clean of any foreign substances before a new rectifier is installed.
	Short or overload in device connected to main board	Turn off power and disconnect batteries from main board. Disconnect all cabling from main board except for main power. Restore power and verify LEDs light. Reconnect wiring to main board one device at a time testing to see if any device causes the main board to fail to light LEDs.	If any device is found to cause an issue, the device may be faulty and should be repaired or replaced as necessary.

Troubleshooting (continued)

Symptom	Possible Causes	Diagnosis	Resolution
LCD wall control is off or not functioning (display shows nothing or is unlit, and wall control is unresponsive) (continued)	Multiple LCD wall controls wired to a single operator.	Only one LCD wall control is supported per operator. Check that only one is connected to the WALL CTRL terminals on the powerhead main board.	Disconnect any additional LCD wall controls and wire just one LCD wall control. If additional control stations are desired, use the SBC or OPEN, CLOSE, and STOP terminals instead.
	Wall control is wired to incorrect terminals on the powerhead main board.	Confirm that wall control wiring is run to the WALL CTRL terminals on the powerhead main board.	Move wall control wiring to the WALL CTRL terminals
	No power to powerhead main board	Verify MAIN PWR LED is lit on the mainboard. If it is unlit, main board may not have power.	Follow troubleshooting for symptom "Powerhead main board is off"
	Wall control circuit shorted	Test for wall control short circuit: Power cycle the operator. Check WALL CTRL LED on powerhead main board. If LED is unlit, a short circuit is detected on the WALL CTRL terminals by the main board and the wall control is disabled.	Turn off AC power and disconnect batteries (if present). Remove wall control wiring from main board terminals. Restore batteries and AC power. If WALL CTRL LED remains unlit, short circuit may be internal to main board. Replace main board. If WALL CTRL LED is blinking, short is in wall control wiring or wall control. Reconnect wiring to main board. Disconnect wall control from wiring. Repeat test. If WALL CTRL LED is blinking, short is in wall control. Replace wall control. If WALL CTRL LED is off, short is in wiring. Check wiring and correct the issue.
	Bad connection between wiring and wall control	Visually inspect the wiring connections to the wall control screw terminals. Wires should be sandwiched between the screw and the exposed metallic pads on the circuit board. Ensure insulated part of wire is not caught between screw and circuit board.	Correct any issues noted during inspection
	No voltage output from powerhead main board WALL CTRL terminals	Verify main board WALL CTRL terminals: Disconnect wall control wires. Measure DC voltage at WALL CTRL terminals. Voltage should be between 11 and 13V DC.	If voltage is absent or out of range, turn off power to operator and disconnect batteries if present. Wait 30 seconds and then reconnect batteries and reapply AC power. If fault persists, replace main board

Troubleshooting (continued)

Symptom	Possible Causes	Diagnosis	Resolution
LCD wall control is off or not functioning (display shows nothing or is unlit, and wall control is unresponsive) (end)	Faulty wiring	Perform this test only after verifying main board WALL CTRL terminals. Verify wall control wiring: Disconnect wires from wall control and measure the DC voltage on the wiring at the end near the wall control. If voltage is not between 11 and 13 volts DC, wiring is faulty.	If voltage is absent or out of range, turn off power to operator and disconnect batteries if present. Wait 30 seconds and then reconnect batteries and reapply AC power. If fault persists, replace or repair wall control wiring.
	Faulty wall control	Perform this test only after verifying wall control wiring. Check voltage at wall control: With a voltmeter, test for 12VDC at the screw terminals on the rear of the wall control. If 12V is present and wall control is not active, wall control is faulty. If 12V is absent only when the wall control is connected, wall control may have internal short circuit.	Replace faulty wall control.
Main board DC IN fuses blow immediately upon powerup	Stray wiring/metal contacting main board	Visually inspect E-box. Check for any metallic objects or bare wires that may be inadvertently touching the main board.	Prevent metallic objects or bare wires from touching the main board. Turn power off and replace fuses, then re-apply power.
	Internal short on main board	Turn off AC power. Disconnect all wiring from main board except DC IN power wiring. Replace fuses and reapply power. If fuses still blow immediately, fault is in main board.	replace main board
Door moves in wrong direction when pressing up/down buttons	Reverse mounting mode configured wrong (reverse limits)	Check the setting for the reverse mounting mode (reverse limits)	ensure the setting is correct
	Wiring for open and close terminals swapped (does not apply to LCD wall control)	Check that open button is connected to OPEN terminal and close button is connected to CLOSE terminal.	Correct wiring.
(ONLY applies to units with Battery Backup) Unit reports that it is on battery power even when AC power is present	AC power path issues	Disconnect batteries, check if powerhead main board powers off.	If powerhead main board loses power, leave batteries disconnected and follow troubleshooting for 'Powerhead main board is off'
	AC input voltage mis-selected (120V/240V models only)	Check whether the transformer connector is plugged in to the connectors on the EMI filter board marked '120V' or '240V.' Verify this matches the input AC voltage supplied to the operator.	Note that if incorrect voltage is applied to the operator, damage to the operator electronics may have occurred. Ensure voltage selection is correct and verify operator functionality.
	AC power out of range	Verify input AC voltage: Measure AC voltage between 'L1' and 'L2' terminals at EMI filter board input connector. Verify voltage is within specifications. If voltage is outside specifications, see resolution.	Ensure the circuit supplying the operator is the correct voltage class for the operator (e.g. 120V, 240V, or 480V) If voltage is out of specification for the circuit, consult an electrician.

Troubleshooting (continued)

Symptom	Possible Causes	Diagnosis	Resolution
Door runs slowly/at half speed	Wall control disconnected or damaged	If communications to the wall control is absent, system will run at half speed.	LCD Wall control is strongly recommended to be connected. If it is desired to run the system without a wall control, temporarily or permanently, the system can be returned to full speed operation by replacing the wall control wiring with a jumper wire. If the wall control is present but not functioning, see 'LCD wall control is off or not functioning'
Operator turns off despite backup battery being connected	Dead or worn batteries	Low battery voltage	Allow batteries to recharge Replace worn out batteries. Batteries must both be replaced together. Do not mix old and new batteries.
	Blown battery fuses on main board	Visually inspect battery fuses or check continuity	If fuses are blown, replace both fuses together
Operator runs momentarily then stops in limit learn mode	Encoder wiring fault	Inspect encoder cable for disconnection, bad connection, cut cable, etc.	Correct any issues found with encoder wiring
	Encoder fault or encoder interface fault	Go to limit learn process. Number displayed while in door limit learn mode is the encoder position. Jog door several inches in either direction and release button. Number displayed should change. Make sure to cancel changes or set limit again when finished.	If encoder position does not change with door movement, the encoder, encoder wiring, and powerhead main board are suspect. Check all three for any visible damage. Attempt power cycling and restoring factory defaults. Replace or repair suspected faulty components.

Troubleshooting (continued)

If an error occurs, the idle screen is replaced by a screen showing the error code and a description of the error.

Error messages originate in one of three categories:

- Motor drive and power circuitry
- Door control codes related to the motor and encoder
- Option codes related to accessories used with the industrial DC operator.

Consult the Table of Error Codes below to determine the cause and corrective action. Depending on the type of error, user interaction may be required to clear the error. The error window closes when the error has been cleared/corrected.

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
	MOVE THE DOOR	Displayed in limit learn mode. The position encoder requires some movement before the position can be determined on powerup. Once the position has been successfully determined, the position will be maintained until power is lost.	Door has not been moved since the last power cycle	Upon initial powerup, this message will be displayed in the limit learn menu if no other movement has occurred.	Move the door slightly in either direction using the up or down buttons on the wall control. 'MOVE THE DOOR' message will disappear. If door does not move, or moves and stops, see troubleshooting steps for F04 UNAUTHORIZED STOP. If door moves without issue but 'MOVE THE DOOR' stays on the screen, see troubleshooting steps for F91 ENCODER.
F01	F01 CLOSE LIMIT	Door has moved beyond the lower end position	Operator has been manually hoisted below the lower end position (hoisted jackshaft models only)	Check position of door/operator with manual hoist	Move position back within normal limits. Adjust door position limits if necessary.
			Door is falling or drifting downward when operator is stopped	Check for excessive door imbalance in down direction	Rebalance door replace broken springs ensure correct springs and drums are used
F02	F02 OPEN LIMIT	Door has moved beyond the upper end position	Operator has been manually hoisted above the upper position limit (hoisted jackshaft models only)	Check position of door/operator with manual hoist	Move position back within normal limits. Adjust door position limits if necessary.
			Door is drifting upward when operator is stopped	Check for excessive door imbalance in up direction	Rebalance door Ensure correct springs and drums are used
F04	F04 UNAUTH. STOP (continued)	No motor motion was detected when the operator was attempting to move the motor.	Door encountered obstruction or other mechanical jam	Check doorway for obstruction. Check to ensure the mechanical system moves properly and without hangups or excessive resistance.	Remove obstruction
			Motor cable is disconnected or wiring fault	Check that motor cable is plugged into the powerhead main board completely. Ensure that motor cable is intact and in good condition.	Ensure motor connector is fully seated. Repair any problems with the cabling. If cabling is beyond repair, replace motor.

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F04	F04 UNAUTH. STOP (end)	No motor motion was detected when the operator was attempting to move the motor.	Worn motor brushes	Motor DC resistance should be less than 3 ohms. If it is greater than 3 ohms, the brushes may fail to maintain contact with the commutator internal to the motor.	Replace motor Replace motor brushes (extended duty models only)
			Powerhead main board motor drive fault	Measure DC voltage across motor terminals at main board. In idle state, voltage should be 0. Activate door operator with open/close. Voltage may vary over a wide range, from several volts up to about 40 volts DC.	If voltage is absent during activation, check for other fault codes and correct as necessary. If no other fault codes are present, power cycle the operator and try again. If fault persists, reset settings to factory defaults and reconfigure the operators. If fault still persists, replace main board.
			Encoder wiring fault	Inspect encoder cable for disconnection, bad connection, cut cable, etc.	Correct any issues found with encoder wiring
			Encoder fault or encoder interface fault	Go to limit learn process. Number displayed while in door limit learn mode is the encoder position. Jog door several inches in either direction and release button. Number displayed should change. Make sure to cancel changes or set limit again when finished.	If encoder position does not change with door movement, the encoder, encoder wiring, and powerhead main board are suspect. Check all three for any visible damage. Attempt power cycling and restoring factory defaults. Replace or repair suspected faulty components.
			Motor drive fault occurred	Check for other fault codes	Review other fault codes and perform problem resolution as necessary.
F08	F08 NO CONFIG	Configuration was not found or was reset to factory setting	New operator is not configured.	If the operator is new, the configuration is initially unset.	Configure the operator per the normal process.
			Operator was factory reset from the menu	If the operator is factory reset, the configuration will be unset.	Configure the operator per the normal process.
F14	F14 SET LIMITS	End positions are not set or stored	Limits were never set out of box	New product as shipped does not have any limits set	Learn door limits
			Settings were reset or invalidated from the menu	F14 error	Re-learn door limits

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F19	F19 SYSTEM ID	System ID is not configured in the system. System ID is needed by the powerhead main board to correctly run the operator. (service kit boards only)	System ID is unset (service board replacement)	F19 error	Configure system ID in the menu by using the LCD wall control. Ensure system ID is chosen properly. Operator may not function properly if the chosen system ID does not match the operator.
F23	F23 OVERTEMP	Motor drive circuitry temperature is too high. Message is displayed until the circuitry cools down.	Door imbalance or excessive resistance	Inspect door for imbalance or excessive resistance	Repair or correct conditions resulting in excessive door imbalance/resistance
			Poor airflow/cooling	Check area around operator for adequate ventilation space on the sides, above, and below the operator. Check the electronics enclosure for dust or other debris near or behind the PCBA that restricts airflow or cooling.	Correct any airflow restrictions around or inside the operator to improve cooling of the electronics.
			Ambient temperature too hot	Measure ambient temperature near the powerhead when the overheating is occurring. Check against the temperature range specification for the product.	Product must be used within the specified operating temperature range or risk of damage to the operator is possible.
			Excessive gear reducer or motor drag	Check that the motor and gearbox rotate freely and smoothly when disconnected from the door	Correct any issues found, or replace any faulty or worn components producing excessive drag
			Faulty powerhead main board	If OVERTEMP fault never clears, even when the electronics have cooled, the main board may be faulty.	Replace main board.
			Faulty motor drawing excessive current	If motor is getting excessively hot or does not spin smoothly when powered, there could be an issue with the motor	Replace motor

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F26	F26 OVER VOLT	Motor drive circuitry detected an overvoltage condition	AC input voltage mis-selected (120V/240V models only)	Check whether the transformer connector is plugged in to the connectors on the EMI filter board marked '120V' or '240V.' Verify this matches the input AC voltage supplied to the operator.	If 240V power is applied when 120V is selected, damage to other components of the operator electronics may have occurred. Ensure voltage selection is corrected and verify the operator functions.
			Door imbalance causes motor regeneration	Inspect door for imbalance or broken springs	repair or correct conditions resulting in excessive door imbalance
			AC power out of range	Verify input AC voltage: Measure AC voltage between 'L1' and 'L2' terminals at EMI filter board input connector. Verify voltage is within specifications. If voltage is outside specifications, see resolution.	Ensure the circuit supplying the operator is the correct voltage class for the operator (e.g. 120V, 240V, or 480V) If voltage is out of specification for the circuit, consult an electrician.
F31 F32 F33 F34	F31 OPEN F32 HELD F32 CLOSE F33 HELD F33 STOP F34 HELD F34 SBC HELD	Wall control buttons held/ stuck for at least 1 minute. Open/Close/ Stop/SBC inputs triggered for at least 1 minute.	Wall control buttons stuck	Check that all buttons return to the normal state properly when released.	Repair, clean, or replace sticking buttons or controls as necessary.
			Wiring short circuit	Inspect wiring for open/ close/stop/SBC terminals for short circuits	Correct any wiring faults found
			Faulty accessory connected to OPEN/CLOSE/ STOP/SBC terminals	Disconnect accessories from the terminals.	If problem is resolved by disconnection of other external accessories, suspect a wiring issue, faulty accessory, or incompatible accessory.
			Faulty LCD wall control	Swap wall control with known-good unit	If known-good wall control resolves the issue, fault is with previous wall control
			Faulty powerhead main board	Remove all accessories from OPEN/CLOSE/STOP/ SBC terminals. Ensure wall control is replaced with a known-good unit for diagnosis.	Try power cycling the operator and restoring factory defaults. If problems persist, replace powerhead main PCBA

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F41 F44 F47	F41 EYE/ EDG1 BLK F44 EYE/ EDG2 BLK F47 EYE/ EDG3 BLK	Monitored eyes/ edges 1/2/3 blocked for 3 minutes or more	Obstruction in doorway is blocking eye or contacting edge	Check for obstructions	If obstructions are present, remove the obstruction
			improperly configured eye/ edge input	Check system settings item in the menu to check the device type setting for the input	Ensure the safety device type matches the device that is actually installed
			Unapproved safety device is being used	Ensure the safety device is approved for use with the operator	Replace the safety device with one that is approved for use with the operator
			Photoeyes misaligned	Check alignment	If eyes are misaligned, correct the alignment
			Wiring fault to photoeye emitter	Check that the photoeye emitter is powered and wired correctly. LED on emitter is lit.	Correct wiring faults
			Resistive type edge shorted or shorted wiring	Check for short circuits in the wiring or in the resistive edge.	Correct any wiring faults
			Sunlight causing photoeye blocking condition	Block sunlight from shining in the receiver and check if photoeye remains blocked	Resolution for this issue may be difficult. Swapping the emitter and receiver can sometimes provide relief from the issue, but other times just causes the issue to surface at another time of day.
			Damaged photo eyes or edge	Swap safety device with known-good device A properly functioning resistive edge should measure 8-14 kOhm in the normal unobstructed state	If a known-good safety device works, replace the faulty safety device
			Damaged powerhead main board	Swap safety device with known-good device connected directly to the powerhead main board	If the main board still won't detect known- good safety devices connected directly to the board, power cycle the operator. If the problem persists, reset to factory defaults and configure again. If problem still persists, replace the powerhead main board.

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F42 F45 F48	F42 EYE/ EDG1 MIS F45 EYE/ EDG2 MIS F48 EYE/ EDG3 MIS	Monitored eyes/ edges 1/2/3 learned, but no longer detected as present.	Certain safety devices may show as missing when they are blocked, even if they are present and functioning	See F41/F44/F47 errors: safety device blocked	Ensure only safety devices approved for use with the operator are used. Correct blocked safety device condition
			Improperly configured photoeye input	Check system settings item in the menu to check the device type setting for the input	Ensure the safety device type matches the device that is actually installed
			Unapproved safety device is being used	Ensure the safety device is approved for use with the operator	Replace the safety device with one that is approved for use with the operator
			Wiring fault to safety device	Check for LED status on photoeye type devices. Check wiring for short or open circuit Ensure wires are wired into correct terminals and that polarity is correct for polarity-sensitive devices	Correct wiring faults
			Damaged photo eyes or edge	Swap safety device with known-good device	If a known-good safety device works, replace the faulty safety device
			Damaged powerhead main board	Swap safety device with known-good device connected directly to the powerhead main board	If the main board still won't detect known- good safety devices connected directly to the board, power cycle the operator. If the problem persists, reset to factory defaults and configure again. If problem still persists, replace the powerhead main board.
F43 F46 F49	F43 EYE/ EDG1 BLK F46 EYE/ EDG2 BLK F49 EYE/ EDG3 BLK	Monitored eyes/ edges 1/2/3 were blocked or missing when the door was commanded to move.	See sections for F41/F42/F44/ F45/F47/F46 as applicable	-	-

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F51 F52 F53 F54 F55 F56 F57 F58	F51 INP1 BLOCK F52 INP1 CMND F53 INP2 BLOCK F54 INP2 CMND F55 INP3 BLOCK F56 INP3 CMND F57 INP4 BLOCK F58 INP4 CMND	Unmonitored eye/edge device triggered for 3 minutes or more on input 1/2/3/4, or blocked when door motion was requested	Obstruction in doorway is blocking unmonitored eye/edge device	Check for obstructions	If obstructions are present, remove the obstruction
			Improperly configured input	Check system settings item in the menu to check the device type setting for the input	Ensure the device type matches the device that is actually installed
			Incompatible device is being used	INP1/2/3/4 inputs are compatible with dry-contact type devices. Ensure the device being used is a dry-contact type device.	If the device is incompatible, replace with one that is, or move the device to another input which is compatible with the device
			Wiring fault to device	Check wiring for short or open circuit Ensure wires are wired into correct terminals	Correct wiring faults
			Damaged device	Swap device with known-good device	If a known-good device works, replace the faulty device
			Damaged powerhead main board	Disconnect unmonitored eye/edge. Open circuit condition is equivalent to an unobstructed unmonitored eye/edge device.	If the main board still detects an obstruction with no device connected, power cycle the operator. If the problem persists, reset to factory defaults and configure again. If problem still persists, replace the powerhead main board.

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F61	F61 CTM FAULT	Cable Tension Monitor (CTM) device triggered or missing	Cable tension lost	Check that CTM devices have proper cable tension beneath the roller on the arm, and that the roller is properly riding on the cable. Ensure the cables are properly wrapped on the cable drums.	If cable tension is lost, carefully resolve the issue, check that limits are set properly, and monitor the issue to ensure it is resolved. Ensure no binding occurs in door travel that could produce slack cables.
			Improperly configured input	Check system settings item in the menu to check the the setting for the CTM input.	Ensure the configured number of CTM devices matches the number that are actually installed. Relearn CTM(s) if necessary.
			CTM wiring fault	Check wiring for short or open circuit Ensure wires are wired into the correct terminals	Correct wiring faults
			Damaged CTM device	Swap CTM(s) with known-good device Or verify CTM with multimeter on ohms range. A single CTM with the hinge open should measure 1000 Ohms (1 kOhm). When closed, a CTM should measure open-circuit.	If a known-good CTM works, replace the faulty CTM
			Damaged powerhead main board	Swap CTM(s) with known-good CTM(s) connected directly to the powerhead main board	If the main board still won't detect known-good CTM(s) connected directly to the board, the fault may exist with the main board. Attempt power cycling the unit and, failing that, resetting to factory defaults. If problem still persists, replace the main board.
F62	F62 WLESS BLK	Wireless edge blocked	Obstruction in doorway is blocking eye or contacting edge	Check for obstructions	If obstructions are present, remove the obstruction
			Unapproved safety device is being used	Ensure the safety device is approved for use with the wireless edge kit	Replace the safety device with one that is approved for use with the wireless edge kit
			Wiring fault to safety device	Check wiring for short or open circuit	Correct wiring faults
			Damaged edge	Swap safety device with known-good device	If a known-good safety device works, replace the faulty safety device
			Damaged wireless edge transmitter	Swap safety device with known-good device connected directly to the transmitter	If the wireless edge still shows blocked with known-good safety devices connected directly, power cycle the operator and the wireless edge transmitter. If problem still persists, replace the transmitter.

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F63 F64	F63 WE BLE MISS F64 WE BLE MISS	Wireless edge receiver lost BLE (wireless) communications with edge F64 - CLOSE direction edge F63 - OPEN direction edge	Transmitter/receiver pairing issue	WE BLE MISS error	Pair transmitters to the receiver
			Dead battery in transmitter	Check transmitter battery power	Replace batteries
			Interference in 2.4GHz band	Check for other devices using the 2.4GHz band that may be causing interference If other 2.4GHz devices have interference problems (e.g. Bluetooth® headset) there is likely interference.	Reduce 2.4GHz band congestion
			Distance between transmitter and receiver is too far	Intermittent or complete loss of signal	Shorten distance between transmitter and receiver
			Bad transmitter	Swap transmitter(s) with known-good transmitter(s) and pair to the receiver	If a known-good transmitter resolves the issue, replace the bad transmitter
			Bad receiver	Swap receiver with known-good receiver and pair to the transmitters	If known-good receiver resolves the issue, replace the bad receiver
F65 F66	F65 WE I2C MISS F66 WE I2C MISS	Wireless edge is configured, but the main powerhead board cannot communicate with the wireless edge receiver. F66 - CLOSE direction edge F65 - OPEN direction edge	Wireless edge removed	Wireless edge intentionally removed	If the wireless edge is no longer wanted, it can be unlearned from the safety devices menu by using the LCD wall control.
			Communication cable disconnected or damaged	Check cable between receiver and powerhead main board for disconnection or damage to the cabling.	Correct any issues or replace any faulty parts.
			Firmware glitch or transient condition	Power cycle the operator completely. If the power cycle does not resolve the issue, restore factory defaults settings and reconfigure the operator.	If the steps listed in the diagnosis resolve the issue, there may have been a transient condition that caused and issue that was resolved. If the issue occurs excessively, the problem may lie elsewhere.
			Bad receiver module or bad powerhead main board	Replace the receiver module with a known good unit.	If the problem is resolved, replace the receiver with a new one. If the known good unit still does not work, replace the powerhead main board.
			Other bad accessory on the I2C expansion bus	Temporarily remove other accessories from between the wireless edge receiver and the powerhead main board	If issue is resolved, add accessories back one by one to find the accessory that causes the issue, then troubleshoot that device

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F68	F68 WE CRITBATT	Wireless edge transmitter has low battery	The battery in the wireless edge transmitter is low	Check battery condition in wireless edge transmitter	Replace battery in wireless edge transmitter.
F89	F89 WC DISC	Indicates wall control is not detected	Wall control is intentionally disconnected	See resolution	Liftmaster strongly recommends using an LCD wall control with the operator. If the wall control is intentionally disconnected, this error can be cleared by placing a jumper wire between the WALL CTRL terminals on the powerhead main board. If the jumper is removed and a wall control reconnected, the system may require a power cycle to recognize the new wall control.
			Wall control is wired but off or not functional	Check wall control for display backlight, text on the display, and function of open/close/stop buttons	If LCD wall control isn't functioning properly, see diagnosis for fault 'LCD wall control is off or not functioning'
F91	F91 ENCODER	The system has detected irregularities in the signals received from the encoder.	Direction of rotation incorrect	Watch operator output shaft when commanding operator to open. If output shaft rotates in the close direction, then rotation direction is incorrect.	Ensure motor red and black wires match the labeling on the powerhead main board near the motor connector. Ensure reverse mount setting is set properly.
			System ID mismatch between powerhead main board and operator chassis can cause the encoder to not be recognized.	Check that the system ID in the system information menu matches the model of the operator	Main board system ID must match the operator. Replacement service kit main boards allow setting the system ID using the menu on the LCD wall control. Factory installed boards cannot have the System ID set manually.
			Door is drifting up or down due to imbalance when starting	Check for excessive door imbalance	Rebalance door
			Encoder wiring fault	Inspect encoder cable for disconnection, bad connection, cut cable, etc.	Correct any issues found with encoder wiring
			Encoder fault or encoder interface fault	Go to limit learn process. Number displayed while in door limit learn mode is the encoder position. Jog door several inches in either direction and release button. Number displayed should change. Make sure to cancel changes or set limit again when finished.	If encoder position does not change with door movement, ensure system ID in the system information menu matches the operator. If the system ID matches but the problem persists, the encoder, encoder wiring, and powerhead main board are suspect. Check all three for any visible damage. Replace or repair suspected faulty components.

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F95	F95 MOTOR COMM	Message with invalid format received from motor MCU.	Powerhead main board firmware glitch or hardware damage.	Fault is internal to the powerhead main board. See resolution.	Power cycle the operator. If the issue persists, reset the settings to factory defaults and reconfigure the operator. If the issue still persists, replace powerhead main PCBA.
F96	F96 INTR LOCK	INTR LOCK circuit was broken	Hoist is engaged	Check that the hoist mechanism is disengaged.	Pull the green rope to disengage the hoist.
			INTR LOCK devices disconnected or missing	Check to ensure INTR LOCK devices are properly connected to the INTR LOCK terminals. INTR LOCK terminals should have jumper placed if no devices are connected.	Reconnect INTR LOCK devices. If no INTR LOCK devices are intended to be used, then place a wire jumper between both terminals.
		INTR LOCK circuit consists of the INTR LOCK wiring terminals and the hoist chain interlock switch. Operators without a hoist include a jumper to bypass the hoist chain interlock switch connections.	Hoist switch cable or hoist switch jumper disconnected or missing	Check to ensure hoist switch or jumper are properly connected.	Correct any wiring issues with the hoist switch cable or hoist switch jumper.
			Device connected to INTR LOCK terminals is open or INTR LOCK device is faulty	Check that any devices connected to INTR LOCK terminal are in their normal, closed state to allow the operator to move	Restore INTR LOCK devices to their normal state. If a faulty device is attached, repair or replace the device.
			Wiring fault	Check for open circuit or short circuit wiring faults for the INTR LOCK wiring.	If any wiring fault is found, correct the fault.
			Damaged powerhead main board	Disconnect INTR LOCK devices and replace with jumper. If fault goes away, issue is not with powerhead main board.	If the main board still won't resolve the fault with a jumper connected directly to the board, the fault may exist with the main board. Attempt power cycling the unit and, failing that, resetting to factory defaults. If problem still persists, replace the main board.
F101	F101 BBU LOW	Battery is present but discharged (voltage is low)	Backup battery is discharged due to loss of AC power.	Check to ensure that AC power is present and in normal operating range for the operator	Restore AC power and ensure battery recharges properly
			Battery is worn out or has failed	Batteries can be tested with a suitable battery tester. Older batteries are more likely to be worn out, as are batteries that are used often.	Replace batteries. Always replace both batteries as a set. Do not mix old and new batteries or use mismatched types.

Troubleshooting (continued)

Code	Display Message	Description	Possible Causes	Diagnosis	Resolution
F102	F102 BBU DISCONN	Battery is learned to the system but the battery is not detected	Backup battery is disconnected	Verify all battery wiring is connected securely and properly to the correct terminals and with the correct polarity.	Correct any wiring issues.
			Battery is worn out or has failed	Batteries can be tested with a suitable battery tester. Older batteries are more likely to be worn out, as are batteries that are used often.	Replace batteries. Always replace both batteries as a set. Do not mix old and new batteries or use mismatched types.
			Battery fuses blown	Visually inspect battery fuses or measure the fuses with a multimeter for continuity.	If fuses are blown, replace both together with new fuses.
F105	F105 AC FAIL	AC failure. System is running on battery.	Power outage	Check for proper voltage at the input of the operator	Error code will resolve when power is restored
			Input voltage outside specifications	Check for proper voltage at the input of the operator	Ensure voltage supplied to the operator is within the specified operating range
F106	F106 WC SHORT	Indicates wall control is removed and jumpered out.	Wall control is intentionally disconnected	Error message is informational only.	Liftmaster strongly recommends using the provided LCD wall control with the operator.
			Wiring short circuit	Inspect wiring for short circuits, damage, etc.	Resolve any faults found, then power cycle the operator
			Damaged wall control	Replace wall control with known-good unit, then power cycle the operator	If known good wall control resolves the issue, replace the bad wall control
F120	F120 MAINT DUE	Maintenance counter reached preset limit	Maintenance counter reached preset limit	F120 error code	Reset maintenance counter using the menu through the wall control
F121	F121 OVER CYCLED	Standard/extended cycle count reached	Operator has been cycled too many times in a short period of time	Refer to specified cycle ratings for the operator model that is installed	Reduce cycle rate to ensure it is within specifications for the operator

Maintenance

Maintenance Schedule

For use with Maintenance Alert System. Check at the intervals listed in the following chart.



WARNING

- To avoid **SERIOUS** personal **INJURY** or **DEATH**:
- Disconnect electric power **BEFORE** performing ANY adjustments or maintenance.
 - ALL maintenance **MUST** be performed by a trained door systems technician.

Item	Procedure	Every Month	Every 3 Months or 5,000 Cycles	Every 6 Months or 10,000 Cycles
Drive Chain	• Check for excessive slack. • Check and adjust as required. • Lubricate.		●●	
Sprockets	Check set screw tightness.		●	
Fasteners	Check and tighten as required.			●
Manual Hoist (if applicable)	Check and operate.			●
Shafts	Check for wear and lubricate.		●●	
LiftMaster Monitored Entrapment Protection	Check alignment and functionality.	●		

- Use SAE 30 Oil (Never use grease or silicone spray)

 - Do not lubricate motor. Motor bearings are rated for continuous operation.
- Inspect and service whenever a malfunction is observed or suspected.

How to order repair parts: [LiftMaster.com](https://www.liftmaster.com)

Accessories

ENTRAPMENT PROTECTION DEVICES (MONITORED)

CPS-U - Dual-Sided Infrared Photoelectric Sensors



- NEMA 1 general purpose enclosure.
- Dual-sided infrared sensors.
- For indoor use.
- Maximum range of 30 feet (9.1 m).

LMTBUL - Monitored Thru-Beam Photoelectric Sensors



- Max Range: 90 ft. (27.4 m)
- Cable Length: 10 ft. (3 m)
- Operating Temperature: -40°C to 65°C (-40°F to 149°F)
- Outdoor Rating: Nema 4X
- Heater: Thermostatically controlled
- Input Voltage:
- Sensor: Black/red wires 6.8 VDC, 20mA
- Heater: Green/white wires 10-40VDC or 8-28 VAC, 4 watts max., 170mA per pair @ 24 VDC/VAC, 340mA per pair @ 12 VDC/VAC

LMRRUL - Monitored Retro-Reflective Photoelectric Sensors



- Max Range: 50 ft. (15.2 m)
- Cable Length: 10 ft. (3 m)
- Operating Temperature: -40°C to 65°C (-40°F to 149°F)
- Outdoor Rating: Nema 4X
- Heater: Thermostatically controlled
- Input Voltage:
- Sensor: Black/red wires 6.8 VDC, 20mA
- Heater: Green/white wires 10-40VDC or 8-28 VAC, 4 watts max., 170mA per pair @ 24 VDC/VAC, 340mA per pair @ 12 VDC/VAC

CPS-UN4 - Monitored Thru-Beam Photoelectric Sensors



- Heavy-duty housing for industrial applications.
- NEMA 4 enclosure protects against direct spray.
- Dual-sided infrared sensors.
- For indoor/outdoor use.
- Maximum range of 45 feet (13.7 m).

CPS-RPEN4 - Monitored Retro-Reflective Photoelectric Sensors



- Polarized reflector for use in applications with highly reflective surfaces.
- NEMA 4X enclosure protects against direct water spray and corrosion.
- Retro-reflective sensor.
- For indoor/outdoor use.
- Maximum range of 50 feet (15 m).

CPS-OPEN4 - Monitored Dual-Sided Photoelectric Sensors



- Flexible housings maintain alignment in areas with a high propensity for sensor contact.
- NEMA 4X enclosure protects against direct water spray and corrosion.
- Dual-sided infrared sensors.
- For indoor/outdoor use.
- Maximum range of 45 feet (13.7 m).

LMWEKITU - Wireless Edge Kit



- Long range Bluetooth® communication provides up to 130 ft. range
- Accepts up to 4 transmitters, 2 wired edges per transmitter
- Approved for US/ CAN/ MX, Puerto Rico, Columbia, Costa Rica
- Meets UL325 requirements

LMWETXU - Wireless Edge Kit



- Long range Bluetooth® communication provides up to 130 ft. range
- Accepts up to 4 transmitters, 2 wired edges per transmitter
- Approved for US/ CAN/ MX, Puerto Rico, Columbia, Costa Rica
- Meets UL325 requirements

OES-SD16 - Optical Edge System



- 16 feet (4.9 m) Sectional 2-Wire Door Edge Kit with infrared optical sensors, rubber door edge and all mounting hardware (channel sold separately).

OES-SD24 - Optical Edge System



- 24 feet (7.3 m) Sectional 2-Wire Door Edge Kit with infrared optical sensors, rubber door edge and all mounting hardware (channel sold separately).

OES-RD16 - Optical Edge System



- 16 feet (4.9 m) Rolling 2-Wire Door Edge Kit with infrared optical sensors, rubber door edge and all mounting hardware (door channel not required).

Optical Edge System (OES)

- Rubber door edge is durable, flexible and easy to install.
- Premium rubber can be cut to length for exact fit.
- NEMA 6 rating protects against moisture and standing water.
- Infrared optical sensors eliminate the need for electrical contacts.
- Maximum range of 33 feet (10 m).
- Sectional and rolling door edges are also available in 50 foot (15 m) bulk rolls, along with individual components for additional savings on large installation jobs.

S50, L50 - Monitored Edge Sensors

L50, L50E, S50, S50E

CPS-EI - Edge Interface 4-Wire Monitored

For use with approved 4-wire sensing edges listed on this Accessory page.

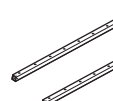
ASO Monitored 4-Wire, 2-Wire Sentir Series 45.30

1502.2015, 1502.2014

ASO Monitored 4-Wire, 2-Wire Sentir Series 35.55

1502-2990, 1502-2993, 1502-2991, 1502-2994, 1502-2992, 1502-2995

LC36M - Monitored Light Curtain



- Monitored, primary entrapment protection device that forms a 3-foot cross pattern of invisible light beams for maximum personnel and property protection.

Accessories (continued)

ENTRAPMENT PROTECTION DEVICES (NON-MONITORED)

65-8202 - Vehicle Detection System



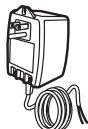
Pneumatic Sensing Edge Kit with exterior air switch, 2-wire coil cord and 14 foot (4.3 m) air hose.

65-5202 - Vehicle Detection System



Pneumatic Sensing Edge Kit with exterior air switch, 2-wire take-up reel (20 feet [6 m] extended) and 14 foot (4.3 m) air hose.

100MAPS - Plug-In Power Supply



Provides power to the LC-36A Light Curtain.

NOTE: Use if main board accessory power is consumed and additional power is required.

MYQ ACCESSORIES

828LM - LiftMaster® Internet Gateway



Enables owners of Commercial Door Operators to open and close their doors and turn on/off lights in or around their facility using a mobile device or computer from anywhere in the world.

REMOTE CONTROLS WITH SECURITY+ AND CONNECTIVITY

811LMX - Programmable DIP Switch Single-Button Remote Control



Ideal for commercial door applications requiring a large number of remotes for a common space.

Approved for US/CAN/MX, Puerto Rico, Columbia, Costa Rica.

891LMC - Programmable DIP Switch Three-Button Remote Control



Includes Red, Yellow and Green markings which Indicates Open, Close, Stop.

Approved for US/CAN/MX, Puerto Rico, Columbia, Costa Rica.

893LMC - Programmable DIP Switch Three-Button Remote Control



Approved for US/CAN/MX, Puerto Rico, Columbia, Costa Rica.

877LM - Wireless Keypad



Able to be programmed with temporary access codes for visitors or delivery personnel.

RADIO

STAR1000 - Commercial Access Control Receiver



Connects up to 1000 LiftMaster® remote controls. Supports suspending and unsuspending remote controls to withhold and reinstate access.

850LM - Universal Receiver



Featuring Security+ 2.0® technology. Designed for both gated communities and commercial buildings to support and manage multiple access points multiple remote controls.

WALL CONTROLLER

DCWALLCTL



Floor Level Wall Controller with LCD display.

NOTE: The door operator will only support a single DCWALLCTL display

02-101 - 1-Button Wall Controller



Steel enclosure.

02-102 - 2-Button Wall Controller



Steel enclosure.

02-103L - 3-Button Wall Controller



Steel enclosure with Maintenance Alert System.

02-110 - Key Wall Controller



Indoor flush mount, NEMA 1 with Stop button.

02-401M - 1-Button Wall Controller



Indoor/outdoor surface mount, single button to activate opening one commercial door.

CABLE TENSION MONITOR

K41-0157-000 - HPH1 & HPH2 Cable Tension Monitor (Right)

K41-0156-000 - HPH1 & HPH2 Cable Tension Monitor (Left)

Accessories (continued)

MOUNTING BRACKETS

FOHMODDC

Heavy gauge steel bracket for vertical or horizontal mount on either front or top of coil on a rolling door. May be welded. For use with JDC and JHDC.

HOISTMOUNTMODDC

Heavy gauge steel bracket for converting existing GH mount for JDC or JHDC operators.

CHAIN TENSIONERS (FOR JACKSHAFT TYPE OPERATORS)

CHAINTENSDC

For 1" (2.5cm) shafts. Recommended to properly tension drive chain between operator shaft and door shaft.

OPTION CARDS

Pluggable Loop Detector Board (Accessory Kit: LPEXPKIT)



Plug and play loop detector board adds EXIT and INTERRUPT functionality to operators. Prevents door from closing on a vehicle in the loop path. Power efficient for maximum cycles on Battery Backup. Includes diagnostic and test feature on board. See instructions included in LPEXP packaging for more installation details.

Note: SHADOW and AUXILIARY modes are not supported for DC operators. Ensure switches on LPEXP board match the settings in the table below:

LOOP MODE	SWITCH1	SWITCH2
EXIT	OFF	OFF
INTERRUPT	OFF	ON
SHADOW	NOT SUPPORTED	
AUXILIARY	NOT SUPPORTED	

Auxiliary Relay Board (Accessory Kit: HPAHAUX)



Easy to install accessory board to use for Auxiliary Limit Switches, other auxiliary devices such as lights, bells, horn/strobes and other warning devices.

ADDITIONAL CONTROL ACCESSORIES

86LM (15' [4.6 m])/86LMT (25' [7.6 m]) - Antenna Extension Kit



The antenna extension kit can be used with EXT-ANT for maximum radio receiver range.

RGL24LY - Red/Green Traffic Light



Indicates when a commercial door reaches the open position. Provides assurance of safe entering and exiting of the facility, reducing the potential for costly accidents.

RGL-CTL - Red/Green Traffic Light-Compact



Similar to RGL24LY function, but high-intensity LEDs and fully sealed enclosure. Ideal for single lane operations that require focused visibility.

50-HERK2 - Motion Detector 24V



Microwave motion detector with two independently programmable channels.

50450 - Switch Sectional Door Interlock



NEMA 4 switch disables operator control circuit when door is locked preventing electrical operation of the door.

Field Installable Accessory Kits

DC45AH

DC7AH

DCWALLCTL - 6-Pack Ctn.

XF208VDC - 208V Transformer Kit

XF600VDC - 600V Transformer Kit

AUXREL - Auxiliary Relay Board

LPEXP - Loop Detector Board

SLIDEKIT - Slide Door Accessory Kit

DUALAUXTROLLEY - Dual Aux Trolley Kit

BRAKEKITDCOPS - Brake Kit(s)

HORIZMODDC - Horizontal Mount Accessory Kit

CENTERMODDC - Center Mount Accessory Kit

HANDCRANKDC - Hand Crank Accessory Kit

DISCONNECTJDC - Disconnect for Jackshaft Operator Kit

HTRCOMMD - Heater Kit

FOHMODDC - Front of Hood Mount

CHAINTENSDC - Chain Tensioner

HOISTMOUNTMODDC - GH to JHDC Mount Mode Plate

Sprocket Kits

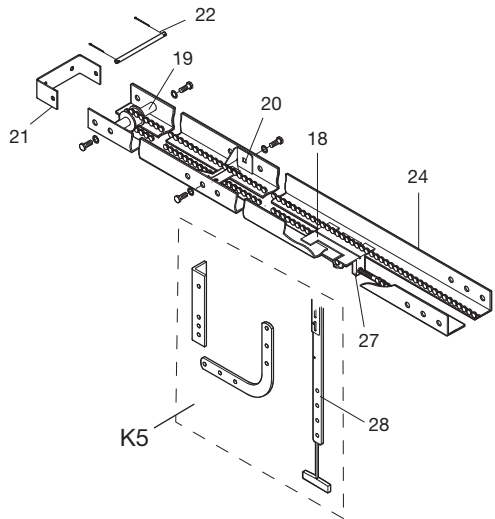
See "Door Sprockets" on page 16

Service Parts

Model TDC

SERVICE KITS

Item	Part #	Description
	K41-0372-000	Drive Sprocket 41 (1200/2200)
	K41-0373-000	Drive Sprocket 48 (700)



DOOR DRIVE CHAIN KITS

Item	Part #	Description	Item	Part #	Description
	022-0033	#48 Chain (1/3 & 1/2 HP) Doors 8' to 10'	15	15-48B10G1	Sprocket, 41B10x3/4"
	022-0034	#41 Chain (3/4 & 1 HP) Doors 8' to 10'	16	19-41047	Roller Chain, #41x47 Pitches
	022-0035	#48 Chain (1/3 & 1/2 HP) Doors to 12'	17	19-48033M	Limit Chain, #48x33 Pitches
	022-0036	#41 Chain (3/4 & 1 HP) Doors to 12'	18	75-10170	Trolley
	022-0037	#48 Chain (1/3 & 1/2 HP) Doors to 14'	19	75-10174	Front Idler Assembly
	022-0038	#41 Chain (3/4 & 1 HP) Doors to 14'	20	K75-10259	Tracker Spacer
	022-0039	#48 Chain (1/3 & 1/2 HP) Doors to 16'	21	10-10205	Header Bracket
	022-0040	#41 Chain (3/4 & 1 HP) Doors to 16'	22	11-10130	Header Pivot Pin
	022-0041	#48 Chain (1/3 & 1/2 HP) Doors to 18'	K5	K75-12870	Door Arm Kit Complete with: Curved Arm, Straight Arm, Door Bracket and Hardware.
	022-0042	#41 Chain (3/4 & 1 HP) Doors to 18'	24		Door Track* (Call for pricing and availability)
	022-0043	#48 Chain (1/3 & 1/2 HP) Doors to 20'	25	10-10011M1	Frame
	022-0044	#41 Chain (3/4 & 1 HP) Doors to 20'	26	K75-10030	Frame Spacer
	022-0455		27	1110197	Take Up Bolt
			28	K75-17034	Heavy Duty Straight Arm

Service Parts

Model JHDC

SERVICE KITS

Item	Part #	Description
	190925FT12	Hoist Chain
	K41-0269-000	Disengage Rope (red), Engage Rope (green), two screws
	15-50B12LGH	Drive Sprocket

Model TDC, JDC, and JHDC Common Parts

SERVICE KITS

Item	Part #	Description	Item	Part #	Description
	K41-0374-000	24 DC Motor, Gear Box & Encoder (Jack Shaft 700)		K41-0394-000	EMI Board 2200 (480Vac)
	K41-0375-000	24 DC Motor, Gear Box & Encoder (Jack Shaft 1200)		K41-0395-000	Control Box with Cover
	K41-0376-000	24 DC Motor, Gear Box & Encoder (Jack Shaft 2200)		K41-0380-000	Bridge Rectifier 700/1200
	K41-0377-000	24 DC Motor, Gear Box & Encoder (Trolley 700)		TBD	Bridge Rectifier 2200
	K41-0378-000	24 DC Motor, Gear Box & Encoder (Trolley 1200)		K41-0381-000	Toroidal Transformer 700Lb/120Vac-240VAC
	K41-0379-000	24 DC Motor, Gear Box & Encoder (Trolley 2200)		K41-0382-000	Toroidal Transformer 700Lb/480VAC
	K41-0409-000	1200 Extended duty Motor, Gear Box & Encoder Trolley		K41-0383-000	Toroidal Transformer 1200Lb/120Vac-240VAC
	K41-0410-000	1200 Extended duty Motor, Gear Box & Encoder Hoist		K41-0384-000	Toroidal Transformer 1200Lb/480VAC
	K41-0388-000	Main board (with Battery Backup)		K41-0385-000	Toroidal Transformer 2200Lb/120Vac-240VAC
	K41-0389-000	EMI Board 700 (120VAC 240VAC)		K41-0386-000	Toroidal Transformer 2200Lb/480VAC
	K41-0390-000	EMI Board 700 (480Vac)		K77-36541	Antenna
	K41-0391-000	EMI Board 1200 (120VAC 240VAC)		K41-0387-000	Encoder (with drive sprocket, snap ring, mounting plate, screws)
	K41-0392-000	EMI Board 1200 (480Vac)		TBD	Brake 24VDC (for 2200 operators)
	K41-0393-000	EMI Board 2200 (120VAC 240VAC)			

Warranty

LIFTMASTER® LIMITED WARRANTY

LiftMaster ("Seller") warrants to the first retail purchaser of this product, for the residence in which this product is originally installed, that it is free from defects in materials and/or workmanship for a specific period of time as defined below (the "Warranty Period"). The warranty period commences from the date of purchase.

WARRANTY PERIOD		
Parts	Motor and Controller	Accessories
1 Year	2 years	1 year

The proper operation of this product is dependent on your compliance with the instructions regarding installation, operation, and maintenance and testing. Failure to comply strictly with those instructions will void this limited warranty in its entirety.

If, during the limited warranty period, this product appears to contain a defect covered by this limited warranty, call 1-800-528-9131, toll free, before dismantling this product. You will be advised of disassembly and shipping instructions when you call. Then send the product or component, pre-paid and insured, as directed to our service center for warranty repair. Please include a brief description of the problem and a dated proof-of-purchase receipt with any product returned for warranty repair. Products returned to Seller for warranty repair, which upon receipt by Seller are confirmed to be defective and covered by this limited warranty, will be repaired or replaced (at Seller's sole option) at no cost to you and returned pre-paid. Defective parts will be repaired or replaced with new or factory-rebuilt parts at Seller's sole option. [You are responsible for any costs incurred in removing and/or reinstalling the product or any component].

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