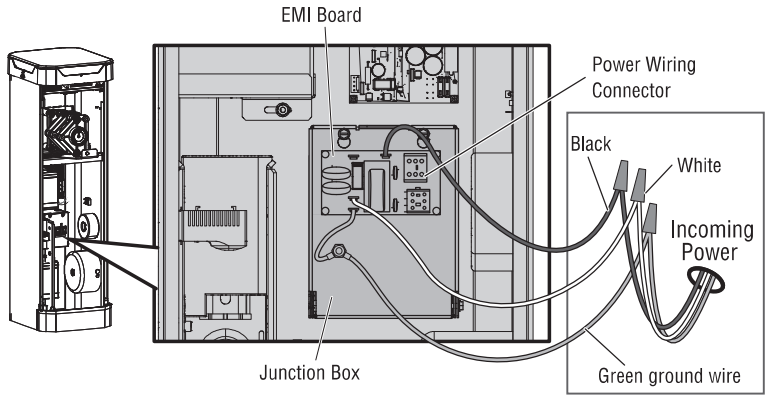
Installation (continued)

All control wiring used to connect external devices to Class 2 circuits of the operator must be (QPTZ) Power-Limited Circuit Cables, Type CL2, CL2P, CL2R, or CL2X or other cable with equivalent or better electrical, mechanical, and flammability ratings.

1. Turn off the AC power from the main power source circuit breaker.
2. Run the AC power wires to the operator.
3. Make sure the operator AC switch is in the OFF position. See "AC Power Switch" on page 29.
4. Open the junction box cover by loosening the top two screws and rotating the cover down.



5. **120 VAC:** Factory default is 120 VAC. Skip to 6.
   240 VAC: Unplug the power wiring connector from the 120 VAC socket (factory default location) and plug it into the 240 VAC socket. ***NOTE:*** *The accessory outlets are disabled and cannot be used with the 240 VAC option.*

   208/240/480/575 VAC: *See instructions for the Optional Transformer Kit Model 3PHCONV.*
6. Connect the green ground wire to the incoming earth ground using a wire nut.
7. Connect the white wire to NEUTRAL using a wire nut.
8. Connect the black wire to HOT using a wire nut.
9. Replace the junction box cover. Ensure the wires are not pinched.
10. Turn on the AC power from the main power source circuit breaker.

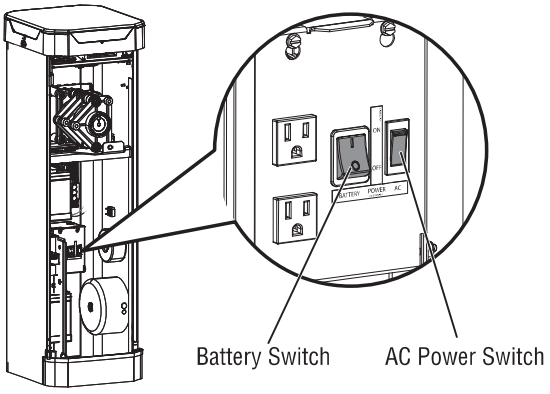
Installation (continued)

AC POWER SWITCH

The AC switch on the operator turns the incoming 120/240 VAC power ON or OFF. The AC switch ONLY turns off AC power to the main control board and DOES NOT turn off battery power.

BATTERY SWITCH

The battery switch turns the battery power on or off. Battery backup functionality is disabled if the battery switch is in the off position.

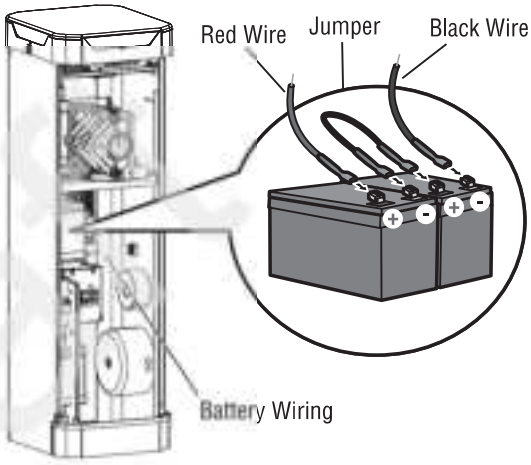


10 Connect Batteries

7AH BATTERIES (STANDARD)

The batteries are charged in the circuit by the integrated transformer.

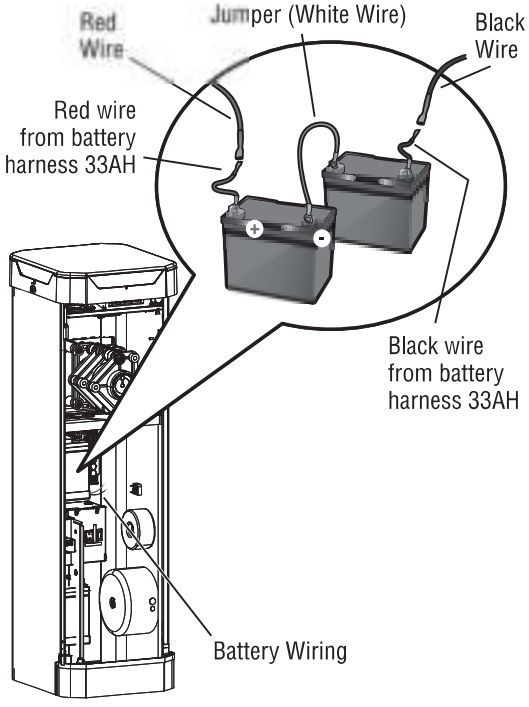
1. Turn the AC power switch to OFF.
2. Turn the battery switch to OFF.
3. Connect a jumper between the positive (+) terminal of the battery to the negative terminal (-) of the other battery.
4. Connect the red battery wire from the operator to the positive (+) terminal of the battery.
5. Connect the black battery wire from the operator to the negative (-) terminal of the battery.
6. Turn the battery switch to ON.
7. Turn the AC power switch to ON to restore AC power.



33AH BATTERIES

The batteries are charged in the circuit by the integrated transformer.

1. Turn the AC power switch to OFF.
2. Turn the battery switch to OFF.
3. Connect a jumper between the positive (+) terminal of the battery to the negative terminal (-) of the other battery.
4. Connect the (+) terminal of the battery to the red battery wire from the operator using the RED harness kit wire.
5. Connect the (-) terminal of the battery to the black battery wire from the operator using the BLACK harness kit wire.
6. Turn the battery switch to ON.
7. Turn the AC power switch to ON to restore AC power.



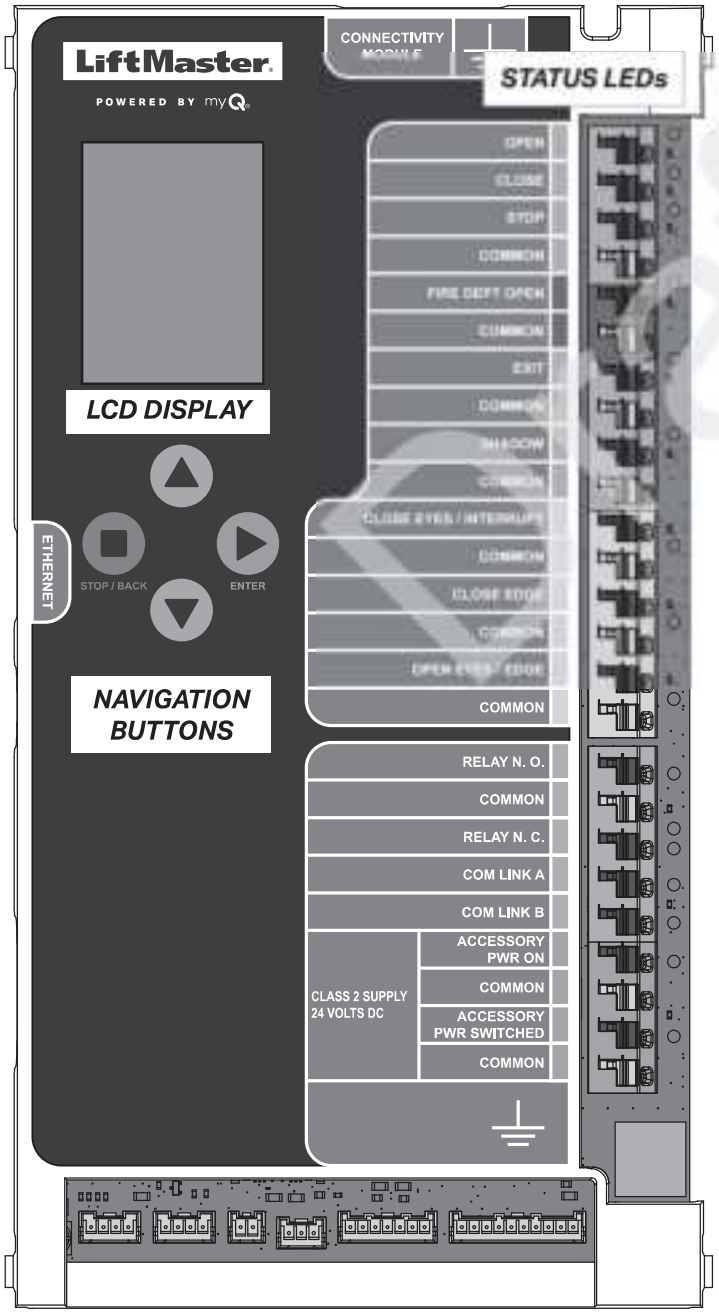
Installation (continued)

11 Main Control Board Overview

Open the top lid to access the main control board, LCD display, and navigation buttons.

***NOTE:** Avoid servicing the operator, main control board, motor board, and electronics during rain to avoid damage from water.*

1. **LCD Display:** The LCD display presents a navigational menu system which allows for operator configuration, information, status, and diagnostics.
2. **NAVIGATION BUTTONS:** Up and down arrows allow scrolling, and arrow for an "enter" function, and a stop to back out of a menu.
   - To enter the menu use the button with the green arrow as the "enter" function, the up and down arrows to scroll, and the red button with the stop symbol to back out of the menu.
   - The up and down arrows can be used to open or close the gate after limits have been set.
3. **STATUS LEDs:** The STATUS LEDs indicate the status of the operator.



Control Board LEDs

Input LEDs		
OPEN, CLOSE, STOP INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator or expansion board
FIRE DEPT INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
EXIT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
SHADOW	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
CLOSE EYES/ INTERRUPT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
CLOSE EDGE	OFF	Input inactive
	ON	Input active
	BLINK	Input error or active on other operator
OPEN EYES/ EDGE	OFF	Input inactive
	ON	Input active
	BLINK	Input error or active on other operator

Installation (continued)

DISPLAY ICONS

Icon	Icon States	Description
 myQ		The operator is connected to the myQ service.
 Cellular		Cellular module, **if equipped**, is enabled and the operator can access the Internet. Bars represent signal strength. The lower the bars, the weaker the cellular connection. Check antenna installation to improve signal strength.
		Cellular module is installed and enabled, but no cellular connection is active. Enable the cellular module in the LCD menu and check cellular subscription using the operator's Wi-Fi access point page. Check cellular coverage.
	No Cellular Icon	Cellular module is disabled on the LCD menu. OR No cellular module is installed. OR Cellular connection is not currently in use.
 Ethernet		Ethernet is enabled and the operator can access the Internet.
		Ethernet is enabled, but the operator cannot access the Internet. Provide the operator with an Ethernet network connection with access to the Internet. Enable and configure the Ethernet connection using the operator's LCD menu and operator's Wi-Fi access point page.
	No Ethernet Icon	Ethernet connection is disabled on the LCD menu. OR Ethernet connection is not currently in use. Provide the operator with an Ethernet network connection with access to the Internet. Enable and configure the Ethernet connection using the operator's LCD menu and operator's Wi-Fi access point page.

Installation (continued)

Icon	Icon States	Description
 Wi-Fi		Wi-Fi is enabled and the operator can access the Internet. Curved bars represent signal strength. The lower the bars, the weaker the Wi-Fi connection. Check antenna installation and Wi-Fi host access point to improve signal strength.
		Wi-Fi is enabled, but the operator cannot access the Internet. Provide the operator with a Wi-Fi network connection using a valid SSID and password for the operator Wi-Fi to access the Internet. Enable and configure the Wi-Fi connection using the operator's LCD menu and operator's Wi-Fi access point page.
	No Wi-Fi Icon	Wi-Fi connection is disabled on the LCD menu. OR Wi-Fi connection is not currently in use. Provide the operator with a Wi-Fi network connection using a valid SSID and password for the operator Wi-Fi to access the Internet. Enable and configure the Wi-Fi connection using the operator's LCD menu and operator's Wi-Fi access point page.
 Bluetooth		Bluetooth is enabled and the operator has an active Bluetooth connection.
		Bluetooth is enabled but the operator is not connected with a Bluetooth device.
	No Bluetooth Icon	Bluetooth is disabled on the LCD menu. Enable the Bluetooth connection using the operator's LCD menu.

Installation (continued)

Icon	Icon States	Description
 **Battery**		Battery is charging.
		Battery is fully charged and is maintained on a float charge.
		Operator running on battery power only. Check the operator AC Power Switch is in the ON position.
		Battery is critically low. Battery is not being charged. The operator is not able to move the barrier gate arm when the battery is critically low. The position of the barrier gate arm will remain in the position according to the setting on the Low Battery Menu Setting.
		No battery detected. Check battery and connections. Check the operator Battery Switch is in the ON position.
 **Time-to-Close**		Timer-to-Close is ON and set to a value. Example shows 10 seconds.
		Timer-to-Close is OFF.
 **Remote Control Transmitters**		The operator has not learned any remote control transmitters.
		Example: The operator has learned 12 remote control transmitters.

Adjustment

Limit, Speed, and Force Adjustment

⚠ WARNING

To reduce the risk of SEVERE INJURY or DEATH:.

- NEVER increase force beyond minimum amount required to move barrier arm.
- NEVER use force adjustments to compensate for a binding or sticking barrier arm.
- If one control (force, speed or travel limits) is adjusted, the other controls may also need adjustment.
- After ANY adjustments are made, the reversal system MUST be tested. Barrier arm MUST reverse on contact with an object.
- Faster barrier arm speed increases risk to pedestrians. Use minimum speed necessary to move barrier arm.

INTRODUCTION

Your operator is designed with an LCD menu to make travel limit and force adjustments easy. The adjustments allow you to program where the barrier arm will stop in the open and close position.

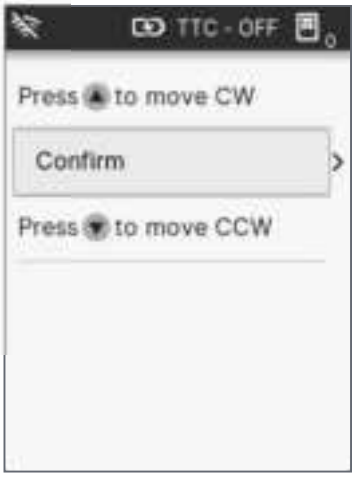
After the limits are programmed via the LCD menu, the force may also be fine tuned using the LCD Menu. The limits can be set using the main control board (below).

SET ARM LENGTH

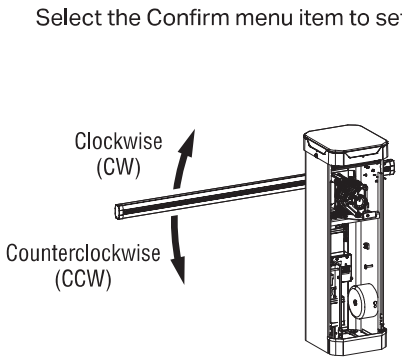
1. On the LCD menu, navigate to "Arm Length > Enter".
2. Press the Up/Down navigation buttons to select the length of the arm.
3. Press the Enter button to confirm.

SET THE LIMITS

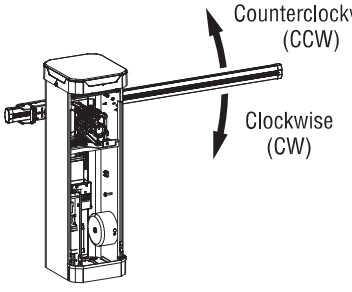
For dual gate applications the limits have to be set for each operator. The barrier arm MUST be attached to the operator before setting the limits and force.



1. On the LCD Menu, navigate to "Limit Learn".
2. Select Right Hand, or Left Hand (refer to the image below to determine arm direction).
3. **Check spring module orientation. If right handed, spring module arrows will point right. If left handed, spring module arrows will point left. The arm in the down position should match the spring direction.**
4. **Check that arm is installed and in the vertical (open) position prior to adding tension to springs.**
5. Press the Up/Down navigation buttons to move the arm to the Open Limit.
6. Select the Confirm menu item to set the Open Limit.
7. On the LCD Menu, navigate to "Limit Learn > Set Lower > Enter".
8. Press the Up/Down navigation buttons to move the arm to the Close Limit.
9. Select the Confirm menu item to set the Close Limit.



Left Handing



Right Handing

Vertical Position

Adjustment (continued)

SPEED CONTROL

Open / Close Speed	PBG24DCW, PBG24DCG Maximum 12 feet Arm Length	CBG24DCW, CBG24DCG Maximum 14 feet Arm Length	IBG24DCW, IBG24DCG Maximum 24 feet Arm Length
Fast Speed	**1.9 seconds**	**2.5 seconds**	**6.0 seconds**
Medium Speed	**Approximately 3.0 seconds**	**Approximately 3.75 seconds**	**Approximately 9.0 seconds**
Slow Speed (Default)	**Approximately 4.0 seconds**	**Approximately 5.0 seconds**	**Approximately 12.0 seconds**

The operator's Open / Close speed is preset to Slow Speed from the factory.

1. To adjust the speed, on the LCD Menu, navigate to Arm Speed to Increase or Decrease between Fast, Medium, or Slow.
2. Set the Arm Length to match the length of the installed arm by navigating the LCD Menu to Arm Length.

For a Tandem Gate setup, use the same barrier arm speed setting for both operators.

After any speed adjustment:

1. After any speed adjustment, perform the Obstruction Test. See "Obstruction Test" on page 36.

FINE TUNE THE FORCE

Once the initial limits have been set, the REVERSAL FORCE in the menu is used for fine tuning the force where wind or environmental changes may affect the barrier arm travel. The REVERSAL FORCE is set to minimum at the factory. Based on the length and weight of the barrier arm, it may be necessary to make additional force adjustments. The force setting should be high enough that the barrier arm does not reverse by itself nor cause nuisance interruptions, but low enough to prevent serious injury to a person or serious damage to an object struck by the barrier arm. The force setting is the same for both the open and close barrier arm directions.

1. Open and close the barrier arm with the up and down arrow buttons.
2. If the barrier arm stops or reverses before reaching the fully open or closed position, increase the force setting in the LCD menu.
3. Perform the "Obstruction Test" after every limit, speed, and force setting adjustment, see "Obstruction Test" on page 36.

Adjustment (continued)

ADJUST THE LIMITS

After both limits are set and the operator is ready to run, one limit can be adjusted independently from the other by following steps 1-3 of "Set the Limits" on page 34.

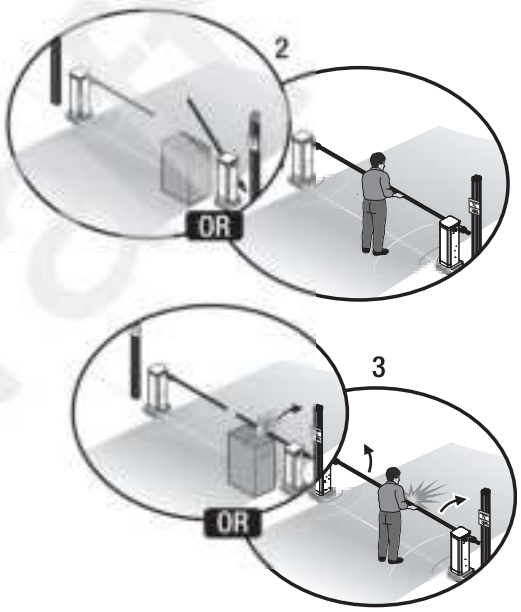
After any limit adjustment:

1. After any limit adjustment, perform the Obstruction Test. See "Obstruction Test" on page 36.

OBSTRUCTION TEST

The operator is equipped with an inherent (built in to the operator) obstruction sensing device. If the barrier arm encounters an obstruction during motion, the operator reverses direction of the barrier arm and then stops. The following procedure tests ONLY the inherent (built in to the operator) obstruction sensing device:

1. Open and close the barrier arm with the up and down arrow buttons, ensuring that the barrier arm is stopping at the proper open and close limit positions.
2. Either place an object between the open barrier arm and the ground or obstruct the barrier arm by hand. Make sure that any external safety devices, such as an edge or photoelectric sensor, is NOT activated by the object or by hand.
3. Run the barrier arm in the close direction. The barrier arm should stop and reverse upon contact with the object or hand. If the barrier arm does not reverse, reduce the force setting. The barrier arm should have enough force to reach both the open and close limits, but it MUST reverse after contact with an object or hand.
4. Repeat the test for the open direction and for each operator.



Always perform the obstruction test after any adjustments are made to the operator system.

LED ADJUSTMENTS

CABINET SIGNAL and ARM SIGNAL LED SETTING OPTIONS

The Cabinet Signal LEDs and the Arm Signal LEDs can be set independently to separate settings.

Cabinet Signal LED setting options selection:

1. On the LCD Menu, navigate to "Cabinet Signal LEDs > Enter".
2. Navigate to highlight a setting option and select using Enter.

Arm Signal LED setting options selection:

1. On the LCD Menu, navigate to "Arm Signal LEDs > Enter".
2. Navigate to highlight a setting option and select using Enter.

Arm LED Setting Options	Arm Signal LEDs Behavior
Default Setting - All OFF	When Arm is in Closed Position, the Arm Signal LEDs are OFF. When Arm is Closing or Opening (in motion), the Arm Signal LEDs are OFF. When Arm is in Open Position, the Arm Signal LEDs are OFF.
RED Only Setting	When Arm is in Closed Position, the Arm Signal LEDs are ON RED. When Arm is Closing or Opening (in motion), the Arm Signal LEDs are FLASHING RED. When Arm is in Open Position, the Arm Signal LEDs are OFF.
GREEN On Open Setting	When Arm is in Closed Position, the Arm Signal LEDs are ON RED. When Arm is Closing or Opening (in motion), the Arm Signal LEDs are FLASHING RED. When Arm is in Open Position, the Arm Signal LEDs are ON GREEN.

Cabinet LED Setting Options	Cabinet Signal LEDs Behavior
Default Setting - RED Only	When Arm is in Closed Position, the Cabinet Signal LEDs are ON RED. When Arm is Closing or Opening (in motion), the Cabinet Signal LEDs are FLASHING RED. When Arm is in Open Position, the Cabinet Signal LEDs are OFF.
GREEN On Open Setting	When Arm is in Closed Position, the Cabinet Signal LEDs are ON RED. When Arm is Closing or Opening (in motion), the Cabinet Signal LEDs are FLASHING RED. When Arm is in Open Position, the Cabinet Signal LEDs are ON GREEN.
All OFF Setting	When Arm is in Closed Position, the Cabinet Signal LEDs are ON RED. When Arm is Closing or Opening (in motion), the Cabinet Signal LEDs are FLASHING RED. When Arm is in Open Position, the Cabinet Signal LEDs are ON GREEN.

12 Operator Configuration

The operator can be setup to support the following scenarios.

- Tandem Setup-Wireless: See "Tandem Wireless Setup" on page 38.
- Tandem Setup-Wired: See "Wired Tandem-Setup" on page 39.
- SAMS (Sequence Access Management System): See "SAMS Wiring with Relays Not Energized" on page 60.
- Two-Way Traffic: See "Two-Way Traffic Mode" on page 68.

NOTE: *For dual gate applications, each operator must have its own Internet network connection (Ethernet or Wi-Fi) to allow each operator to receive firmware updates.*

TANDEM SETUP

There are two options for tandem communication: wired or wireless. Follow the directions according to your application. Do not use wired and wireless communication simultaneously. Use only the same operator models in a tandem gate setup. Wired communication recommended for better response and battery standby performance over wireless.

NOTE: *If one operator in the pair becomes inoperable, the remaining operational unit can be commanded by inputs wired directly to the unit or wireless devices learned to that unit. Inputs/devices wired or learned to the inoperable unit will be ignored.*