

THIS PRODUCT MUST BE
INSTALLED AND SERVICED
IN ACCORDANCE WITH THIS
MANUAL BY A TRAINED GATE
SYSTEMS TECHNICIAN ONLY.

- This operator is for use on vehicular passage gates ONLY and not intended for use on pedestrian passage gates
- All models are intended for use in Class I, II, III, and IV vehicular barrier arm gate applications.
- Visit LiftMaster.com to locate a professional installing dealer in your area.
- This gate operator is compatible with myQ®, myQ® Smart Facility Access™, and Security+ 2.0® accessories.

MODELS

PBG24DCW | PBG24DCG

CBG24DCW | CBG24DCG

IBG24DCW | IBG24DCG



LiftMaster
300 Windsor Drive
Oak Brook, IL 60523



For online troubleshooting and product
information scan QR code, or follow link below:
<https://support.partner.liftmaster.com/s/gate-operators-barrier-gates/techna>

TECHNA
LiftMaster®

Table of Contents

Safety	2	Install Warning Signs	40
Safety Symbol and Signal Word Review	2	Programming	41
Usage Class	3	Antenna Assembly	41
UL325 Safety Requirements	3	Transmitters (Not Provided)	41
Definitions	3	myQ® Smart Facility Access	42
Safety Installation Information	4	Setup a myQ® Smart Facility Access Account	42
Role of Dealers, Installers, and Trained Gate System Technicians	4	Connect Internet	43
Role of End Users/Property Owners	5	Operation	47
Introduction	6	Modes of Operation	47
Carton Inventory	6	Operator Alarm	48
Arm Selection (Not Provided)	6	Maintenance	49
Operator Specifications	7	Maintenance Chart	50
Networking Specifications	9	Batteries	50
Installation	10	Drive Train	50
Site Preparation	10	Troubleshooting	51
Site Preparation for Safety Devices	11	Diagnostic Codes	51
Operator and Arm Installation Options	12	Solar	52
Determine Location for Operator	14	Solar Setup	52
Install the Operator	14	Solar Current Draw	53
Adjust the Counterbalance Spring Assembly	15	Solar Installation	54
Prepare the Arm	17	Repair Parts	56
Install the Barrier Arm	17	Accessories	57
Install External Safety Devices	19	Warranty	59
Earth Ground Rod	26	Appendix	60
Power Wiring	27	SAMS Wiring with Relays Not Energized	60
Connect Batteries	29	Dual Gate Settings	60
Main Control Board Overview	30	Wiring Diagram	61
Control Board LEDs	30	Diagnostic Codes Table	63
Adjustment	34	Two-Way Traffic Mode	68
Limit, Speed, and Force Adjustment	34	Contact Information	69
Operator Configuration	37		
Close and Secure Cabinet	40		

Safety

Safety Symbol and Signal Word Review

This barrier arm gate operator has been designed and tested to offer safe service provided it is installed, operated, maintained and tested in strict accordance with the instructions and warnings contained in this manual.

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.

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

IMPORTANT NOTE:

- BEFORE attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.
- DO NOT attempt repair or service of your barrier arm gate operator unless you are a trained gate systems technician.



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.

	WARNING
	Mechanical
	WARNING
	Electrical
	CAUTION

Safety (continued)

Usage Class

CLASS I - RESIDENTIAL VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in garages or parking areas associated with a residence of one to four single families.

CLASS II - COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR

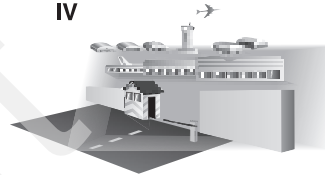
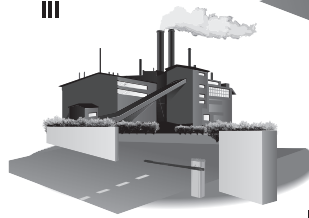
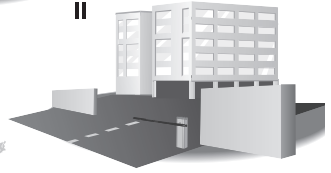
A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single-family units), hotel, garages, retail store, or other buildings accessible by or servicing the general public.

CLASS III - INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not accessible by or intended to service the general public.

CLASS IV - RESTRICTED ACCESS VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.



UL325 Safety Requirements

Definitions

ENTRAPMENT: The condition when a person is caught or held in a position that increases the risk of injury.

REQUIREMENTS

- Do not install operator in a manner in which the arm moves within 16 in. (406 mm) of a rigid object in a location up to 6 ft. (1.8m) above the grade. Examples include walls, ceilings, guard sheds, and posts. Doing so creates an entrapment zone.
- It is the responsibility of the trained gate systems technician/installer to identify and eliminate all possible hazards including pinch points and entrapment zones at the installation site.
- All installations must have the provided warning signs in plain view from both sides of the barrier arm to warn pedestrians of the dangers of motorized barrier arm systems. See page 40.
- Do not install any signage or anything other than the optional devices such as LEDs, foam edging, edge sensor, or wireless transmitter recommended by the manufacturer, on the moving barrier arm.
- Ensure barrier arm, when open, does not come in close position to high voltage power wires that may be located above or near the barrier arm gate area.

IMPORTANT SAFETY INSTRUCTIONS



WARNING

To reduce the risk of severe INJURY or DEATH:

- READ AND FOLLOW ALL INSTRUCTIONS.
- NEVER let children operate or play with barrier arm gate system. Keep the remote control away from children.
- ALWAYS keep people and objects away from the barrier arm. NO ONE SHOULD CROSS THE PATH OF THE MOVING BARRIER ARM.
- KEEP BARRIER ARMS PROPERLY MAINTAINED. Read this manual. Have a trained gate systems technician make repairs to barrier arm hardware.
- The entrance is for vehicles ONLY. Pedestrians MUST use separate entrance.

SAVE THESE INSTRUCTIONS.

Safety (continued)

Safety Installation Information

1. Vehicular gate systems provide convenience and security. Gate systems are comprised of many component parts. The gate operator is only one component. Each gate system is specifically designed for an individual application.
2. Gate operating system designers, trained gate systems technicians/installers, and users must take into account the possible hazards associated with each individual application. Improperly designed, installed, or maintained systems can create risks for the user as well as the bystander. Gate system design and installation must reduce exposure to potential hazards.
3. A gate operator can create high levels of force in its function as a component part of a gate system. Therefore, safety features must be incorporated into every gate system design. Specific safety features include:
 - Instructional and Precautionary Signage
 - Photoelectric Sensors (non-contact)
 - Edges Sensors (contact)
4. Install the barrier arm gate operator only when:
 - a. The barrier arm gate operator is appropriate for the construction and the usage class of the barrier arm.
 - b. All exposed pinch points are eliminated or guarded.
5. Do not install signage or anything other than the optional devices such as LEDs, foam edging, edge sensor, or wireless transmitter recommended by the manufacturer, on the barrier arm.
6. The barrier arm gate operator is intended for installation only on passageways used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage.
7. Locate the barrier arm gate operator such that persons will not come in contact with the barrier arm during the entire path of travel of the barrier arm.
8. The barrier arm gate operator must be installed in a location so that enough clearance is supplied between the barrier arm and adjacent structures when opening and closing to reduce the risk of entrapment. When the break away arm bracket is utilized, ensure it does not open into pedestrian walkways.
9. Permanently mounted access controls intended for users to activate the barrier arm, must be located at least 6 feet (1.8 m) away from any moving part of the barrier arm gate operator system and where the user is prevented from reaching over, under, around or through the gate system to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use. Exception: Emergency access controls, only accessible by authorized personnel (e.g. fire, police, EMS), may be placed at any location in the line-of-sight of the gate.
10. For a gate operator utilizing a Stop and/or Reset button, it must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
11. A minimum of two (2) WARNING SIGNS shall be installed in the area of the barrier arm. Each warning sign is to be visible by persons located on the side of the barrier arm on which the sign is installed. Two (2) WARNING SIGNS are provided with this operator. See page 40.
12. When a hard wired contact sensor is installed it shall be located and its wiring arranged so the communication between the sensor and the gate operator is not subject to mechanical damage. A wireless edge transmitter kit must be used with the contact edge sensor.
13. A wireless device such as one that transmits radio frequency (RF) signals to the gate operator shall be located where the transmission of the signals is not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless device shall function under the intended end-use conditions.

Role of Dealers, Installers, and Trained Gate System Technicians

- Ensure entire barrier arm gate system is designed, manufactured and installed to meet all applicable standards and codes including UL 325.
- Demonstrate the basic functions and safety features of the barrier arm gate system to owners/end users/general contractors, including how to turn off power.
- Leave safety instructions, product literature, installation manual, and maintenance manual with end user.
- Explain to the end users and property owners the importance of testing by a trained gate system technician that includes a routine re-testing of the entire system, including any safety devices, and explain the need for the owners to ensure that this testing is performed monthly.

Safety (continued)

Role of End Users/Property Owners

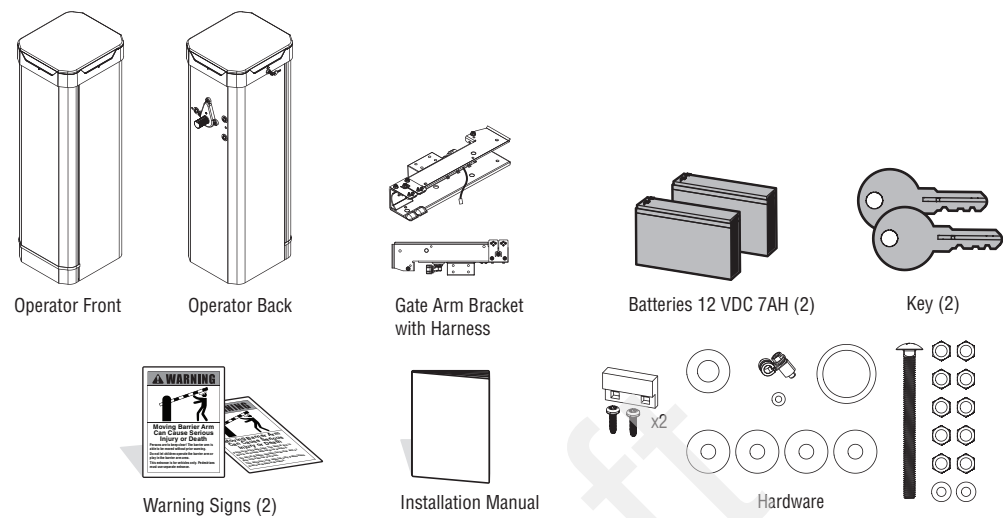
- Contact a trained gate systems technician to maintain and repair the gate system (end users should never attempt to repair the gate system).
- Retain and utilize this installation manual including its maintenance and important safety instructions.
- Routinely check all barrier arm gate operator functions and barrier arm movement.
- Discontinue use if systems operate improperly, the barrier arm or gate operator is damaged, or the barrier arm is difficult to move. Contact trained gate systems technician to repair the barrier arm gate system.
- Prominently display and maintain warning signs on both sides of the barrier arm gate area.

Draft

Introduction

Carton Inventory

NOTE: Operator does not include arm. Please see "Operator and Arm Installation Options" on page 12 for arm selection and operator compatibility below.

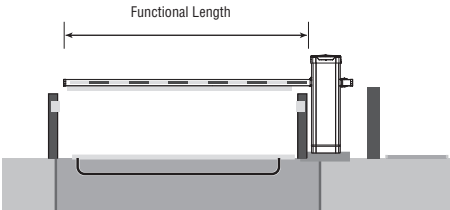


Arm Selection (Not Provided)

ATTENTION: MUST ORDER CORRECT LIFTMASTER ARM FOR THE INDIVIDUAL SITE APPLICATION SEPARATELY. ONLY LIFTMASTER ARMS ARE UL CERTIFIED WITH THE OPERATOR.

Straight Arms	Description	Operator Compatibility	Articulated Arms	Description	Operator Compatibility
BGARM10	10' Functional Length Arm	PBG, CBG	BGARM10ART84	10' Functional Length Arm with 84" Clearance	PBG
BGARM10LED	10' Functional Length Arm w/LED	PBG, CBG	BGARM10ART98	10' Functional Length Arm with 98" Clearance	PBG
BGARM12	12' Functional Length Arm	PBG, CBG	BGARM12ART84	10' Functional Length Arm with 84" Clearance	PBG
BGARM12LED	12' Functional Length Arm w/LED	PBG, CBG	BGARM12ART98	10' Functional Length Arm with 98" Clearance	PBG
BGARM14	14' Functional Length Arm	CBG	NOTE: Clearance height is measured from the base of the operator to the bottom of the articulated arm when in the open position.		
BGARM14LED	14' Functional Length Arm w/LED	CBG			
BGARM18	18' Functional Length Arm	IBG			
BGARM24	24' Functional Length Arm	IBG			

NOTE: LED arms come with one LED strip. The system is designed to use one LED strip/arm.



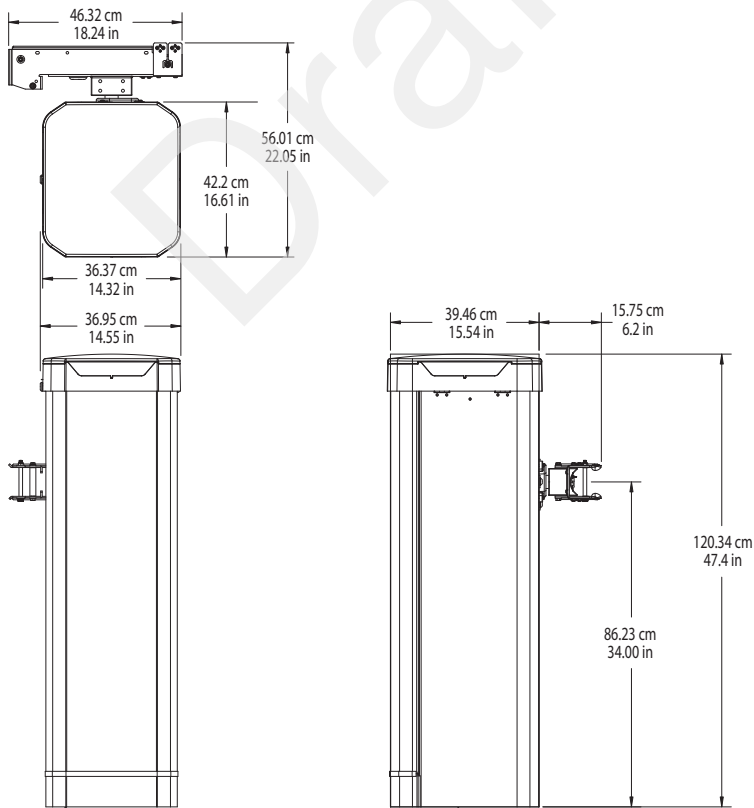
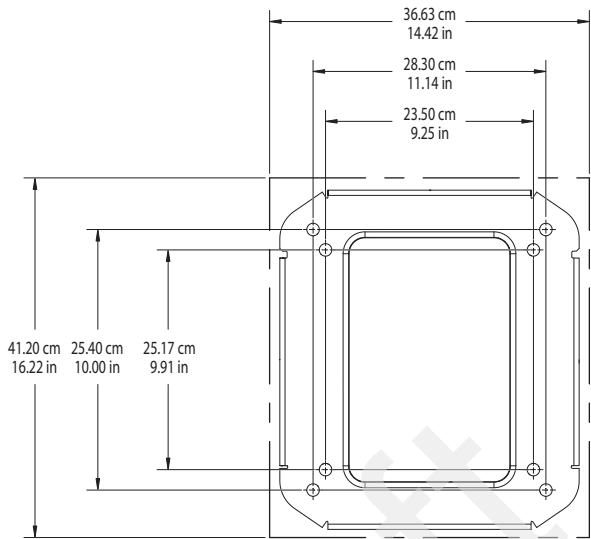
Introduction (continued)

Operator Specifications

	PBG24DCW, PBG24DCG Parking Operator	CBG24DCW, CBG24DCG Commercial/Community Operator	IBG24DCW/IBG24DCG Industrial Operator
Colors Available	White, Charcoal		
Usage Classification	Class I, II, III, and IV		
Maximum Functional Arm Length	12 feet	14 feet	24 feet
Open / Close Time	1.9 seconds	2.5 seconds	6 seconds
Duty Cycle	Continuous		
Main AC Supply	120 VAC single phase, 12.5 Amps including Accessory Outlets OR 240 VAC single phase, 3.5 Amps		TBD
Optional Transformer Kit	When Optional Transformer Kit Model 3PHCONV is installed in the field, operator is rated phase-to-phase. 208/240/480/575 VAC, 5.2/4.5/2.3/1.9 A, 60 Hz, 1 PH		
System Operating Voltage	24 VDC Transformer Run / Battery Backup		
Accessory Power	24 VDC, 1A max. for ON + SW (switched)		
Solar Power Max	24 VDC, 60 Watts max.		
Operating Temperature	Without Heater: -20°C to 60°C (-4°F to 140°F) With Optional Heater: -40°C to 60°C (-40°F to 140°F)		
120 VAC accessory power outlets	6 Amps When the 3PHCONV kit is used, the outlets are rated 1 Amp 240 VAC not supported		
Safety Device Inputs	Main control board maximum capacity: Up to 2 safety devices in close direction and 1 safety device in open direction. Expansion board maximum capacity: Up to 3 safety devices configurable to either the close or open direction. ATTENTION: If an edge sensor is being integrated into this system, use a wireless edge kit. If a wired edge is used, there is risk of wire damage in the gate arm bracket. See "Site Preparation for Safety Devices" on page 11 for additional details.		
Operating Wind Force	60 mph max.		

Introduction (continued)

Top View of Cabinet Footprint



Introduction (continued)

Networking Specifications

Ethernet Compatibility	10 Mbps / 100 Mbps Ethernet
Wi-Fi® Compatibility	802.11 b/g/n 2.4 GHz
Wi-Fi® Security	Operator is compatible with routers using the following security protocols: WPA3-Personal (SAE) (Recommended), WPA2-PSK (AES), WPA2-PSK (TKIP), WPA2 Personal, WPA-PSK (AES), and WPA-PSK (TKIP). Operator is NOT compatible with routers using the following security protocols; WPA3-Enterprise, WPA2-Enterprise, WEP, Open (No password or encryption).
Wi-Fi® Range	Up to 500 feet (152.4 m), Open Air/Line-of-Sight (range varies depending on obstructions)
LiftMaster Radio Compatibility	Security+ 2.0®
Wireless Communication to Access Controllers	Up to 1500 feet (450 m), Open Air/Line-of-Sight (range varies depending on obstructions), Compatible with LiftMaster CAPX Access Control Systems

INTERNET REQUIREMENTS

When selecting a router, use the information below to ensure compatibility.

The operator can be connected to a router via a wired connection or Wi-Fi. LiftMaster recommends an Internet speed of 5Mbps download speed, 5Mbps upload speed.

Operator is compatible with routers using the following Wi-Fi communication protocols:

- 802.11b
- 802.11g
- 802.11n

ADDITIONAL COMPATIBILITY CONSIDERATIONS

- Don't use Wi-Fi extender devices. These may introduce latency in the connection leading to a choppy connection.
- If using a Wi-Fi signal strength tool or app, you must ensure a continuous Wi-Fi signal strength connection of at least -65 DBM (numbers closer to zero indicate a stronger signal strength) at the operator location for an acceptable connection to the local network.
- Hidden network SSID's are not supported. The network must be selectable from the operator display.
- Wi-Fi networks requiring secondary authentication are not supported, e.g., hotels and airport Wi-Fi.
- When checking signal strength in operator network configuration mode, we recommend at least two bars, as shown on the operator LCD screen.
- If two bars are not available, relocate the router, or move the operator antenna higher up or to a location resulting in two or more bars.

Installation

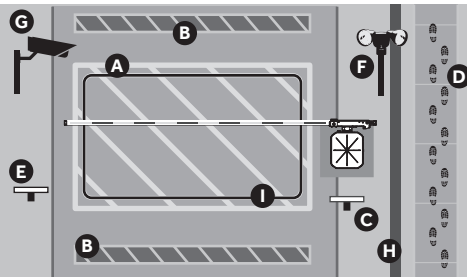
WARNING

- The entrance is for vehicular traffic ONLY. Pedestrians MUST use a separate entrance.
- Do not install operator in a manner in which the barrier arm moves within 16 in. (406 mm) of a rigid object in a location up to 6 ft. (1.8 m) above the grade. Examples include walls, ceilings, guard shack, and posts. Doing so creates an entrapment zone.
- Ensure the barrier arm, when open, does not come in close position to high voltage power wires that may be located above or near the barrier arm gate area.

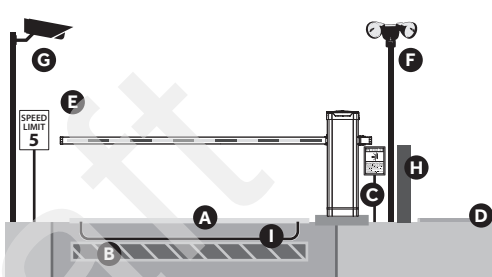
Site Preparation

Recommendations for site preparation for barrier arm gate operator installation. Every installation is unique. It is the responsibility of the installer to ensure the barrier arm gate operator is installed in a safe manner. If the area surrounding the barrier arm gate operator is expected to have high pedestrian traffic, it is recommended that safety devices, such as Liftmaster photoelectric sensors or wireless edge sensors, be installed at the site.

Bird's Eye View



Ground-Level View



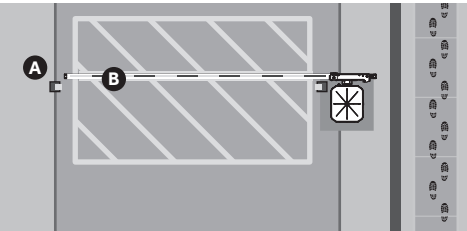
A	Caution Lines	Permanently fix caution lines under travel of arm indicating a no stopping or standing zone. When the swingaway mounting style is used, the swing radius of the arm should be marked on the pavement with caution lines.
B	Speed Bump	Permanently fix speed bump on both sides of roadway at a straight angle, to slow traffic. At minimum of 6 feet away from barrier arm.
C	UL Warning Signs (Two Required)	Permanently fix the two required UL warning signs in the area of the barrier arm gate operator. Each warning sign is to be visible by persons located on each side of the barrier arm gate operator on which the warning sign is installed. See page 40.
D	Pedestrian Access	If pedestrian traffic is in the vicinity of the barrier arm gate operator, a separate pedestrian entry/exit must be clearly visible to promote pedestrian usage and located so pedestrians do not come in contact with the barrier arm. Partition/barrier from vehicular traffic is recommended when possible. See callout H.
E	Speed Limit Sign	Recommend installing a permanently fixed lighted speed limit sign within line of sight from both sides of roadway. Recommended 5mph.
F	Perimeter Lighting	Recommend installing perimeter lighting to create awareness of the area surrounding the barrier operator. If the swingaway mounting style is used, the lighting should be placed outside the swing radius of the arm.
G	Cameras	Install cameras to record operation and deter unwanted operation.
H	Partition/Barrier	Separation between vehicle and foot traffic.
I	Exit, or Reversing Loop	Protect property and manage the flow of traffic with an inground loop that reverses a closing arm for vehicle detection.

Installation (continued)

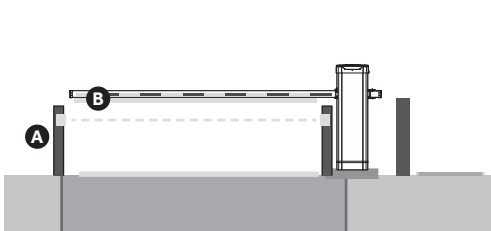
Site Preparation for Safety Devices

Every installation is unique. It is the responsibility of the installer to ensure the barrier arm gate operator is installed in a safe manner. If the area surrounding the barrier arm gate operator is expected to have high pedestrian traffic, it is recommended that safety devices, such as Liftmaster photoelectric sensors or wireless edge sensors, be installed at the site. See “Safety Devices” on page 57 for acceptable devices.

Bird's Eye View



Ground-Level View



A	Non-contact sensor	When a non-contact sensor is used, it is recommended to permanently fix the sensor under the path of barrier arm. Recommended to mount sensor between 21"-27" above grade. WARNING: Never use a non-contact sensor, microwave sensor OR any motion activated detection device to provide a close command to the barrier arm operator. This can be dangerous and is not recommended.
B	Contact sensor	When a contact sensor is used, it should be mounted to the bottom of the barrier arm in the existing channel. A wireless edge sensor is the only contact sensor supported by this system. This system does not support a hardwired edge sensor.

Installation (continued)

CAUTION

- To AVOID damaging gas, power or other underground utility lines, contact underground utility locating companies BEFORE digging more than 18 inches (46 cm) deep. In the US, call 811.
- Permanent wiring is to be employed as required by local codes. It is important to ensure proper grounding of the unit.
- To avoid creating an entrapment zone, do not install this vehicular barrier arm gate operator in a manner in which the arm moves within 16 in. (406mm) of a rigid object in a location up to 6ft. (1.8m) above grade. Examples include walls, ceilings, posts, pillars, columns, or guard shack.

Operator and Arm Installation Options

NOTE: The Barrier Arm is not included and must be purchased separately. See “Accessories” on page 57.

The barrier arm gate operator may be installed with right-hand or left-hand operation. The barrier arm may be installed with or without the Arm Breakaway setup.

CAUTION: If the Arm Breakaway setup is not used, damage to the operator may occur.

NOTE: The barrier must be fully open (arm/bracket in the vertical position) before modifying the counterbalance spring assembly.

1. Determine whether the operator installation shall use Right-Hand Operation or Left-Hand Operation.

HANDING OPTIONS

The barrier arm gate operator may be installed with right-hand or left-hand operation.

See the image to determine the handing in relation to the operator when facing the opening of the cabinet.

COUNTERBALANCE SPRINGS DIRECTION

The arrow of each installed spring must point in the direction of the arm in the closed position for left- or right-handing. The counterbalance spring assembly comes from the factory in the right-handed configuration.

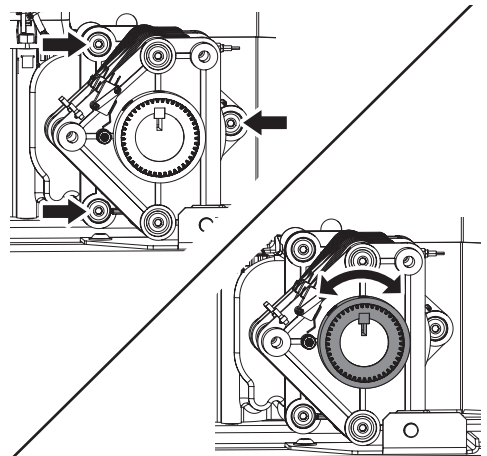
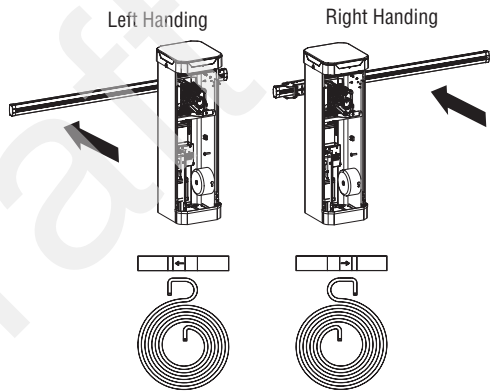
Reinstall all springs in the proper direction when the handing is changed. For instructions, see “Reverse the Spring Handing” on page 16.

WARNING: FOLLOW THE STEPS OUTLINED IN “REMOVING SPRING TENSION” TO ENSURE THAT ALL TENSION IS RELEASED FROM SPRINGS PRIOR TO REMOVING BOLTS, OR THE END PLATE.

REMOVING SPRING TENSION

ATTENTION: The steps below must be used to safely remove springs from a PBG, CBG, or IBG operator. They allow the spring assembly to disengage from the gearbox while it is still mounted in place.

1. Locate the three bolts that attach the spring assembly to the gearbox. Using a socket wrench and extension to avoid accidental contact with the loaded springs inside the cabinet enclosure, loosen each screw by 3 full rotations only. Do NOT fully remove these bolts yet.
2. Use a flathead screwdriver or pry bar around the edges of the spring assembly to disengage it from the gearbox, avoiding contact with the springs and center hub. **Do not use hands or body to release tension.**
3. Verify the springs are loose before removing the three bolts completely. The shaft of the spring assembly should be able to move a few degrees by hand if the springs are disengaged.



NOTE: The Handing of the Barrier Arm may be changed from right-hand to left-hand operation, and vice versa.

Installation (continued)

ARM SWINGAWAY SETUP (OPTIONAL)

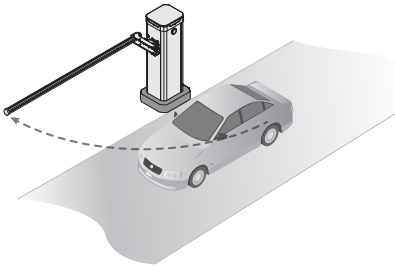
When using the Arm Swingaway System, the barrier arm swingaway direction can be set up for outward or inward swingaway.

NOTE: The Arm Swingaway setup barrier arm can pivot and only swingaway in one direction (outward or inward) at a time, based on the installed option.

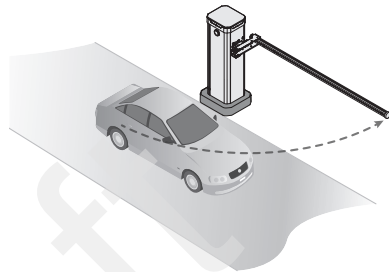
Arm Setup with Outward Swingaway

The arm can be installed on the arm bracket to pivot and swingaway outwards away from the operator.

Left Handed Outward Swingaway



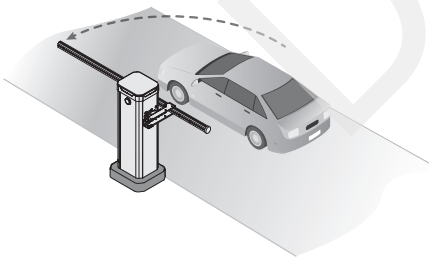
Right Handed Outward Swingaway



Arm Setup with Inward Swingaway

The arm can be installed on the arm bracket to pivot and swingaway inwards towards the operator.

Left Handed Inward Swingaway



Right Handed Inward Swingaway

