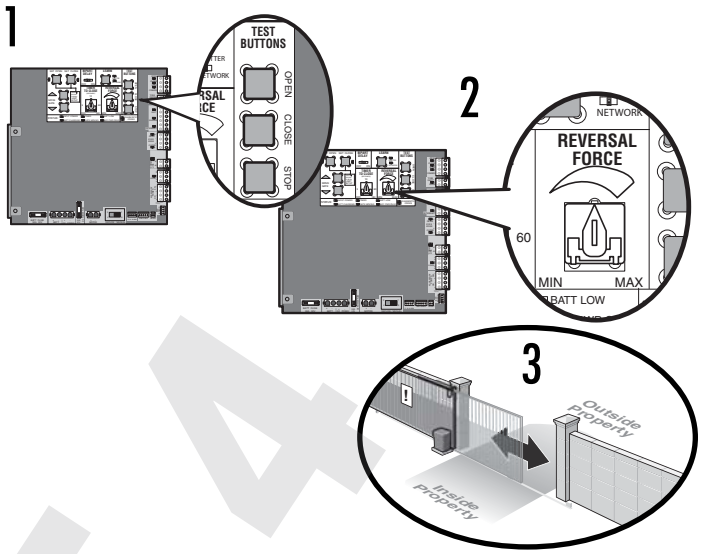
ADJUSTMENT

FORCE ADJUSTMENT

The operator is equipped with an automatic obstruction sensing feature. If the gate encounters an obstruction during motion, the operator will automatically reverse direction of the gate for a short time and then stop the gate.

Based on the length and weight of the gate it may be necessary to make force adjustments. The force setting should be high enough that the gate will not reverse by itself nor cause nuisance interruptions, but low enough to prevent serious injury to a person. The force setting is the same for both the open and close gate directions. Perform the "Obstruction Test" after every force adjustment.



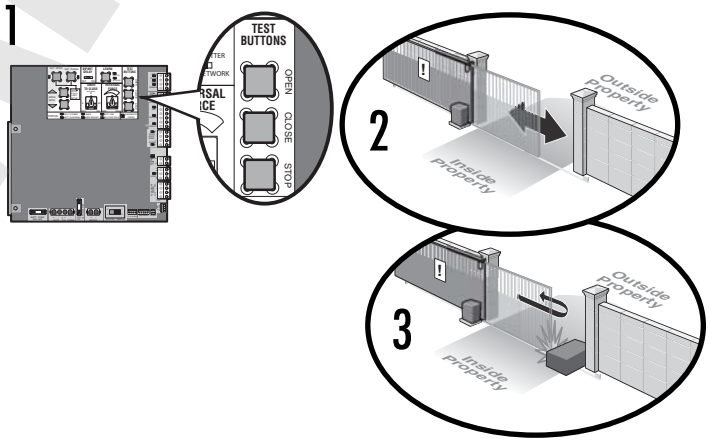
TO ADJUST THE FORCE

1. Open and close the gate with the test buttons.
2. If the gate stops or reverses before reaching the fully open or closed position, increase the force by turning the force control slightly clockwise.

   If the gate cycles correctly limit-to-limit, reduce the force setting by turning the force control slightly counter-clockwise and cycle the gate again. If the gate now stops and reverses before reaching the fully open or closed position, increase the force by turning the force control slightly. Repeat as needed.
3. Perform the "Obstruction Test" after every force setting adjustment.

OBSTRUCTION TEST

After any adjustments are made, test the operator:



1. Open and close the gate with the test buttons, ensuring that the gate is stopping at the proper open and close limit positions.
2. Place a solid object between the open gate and a rigid structure. (Ensure that the gate, the solid object, and the rigid structure can withstand the forces generated during this obstruction test.)
3. Run the gate in the close direction. The gate should stop and reverse upon contact with the solid object. If the gate does not reverse off the solid object, reduce the force setting by turning the force control slightly counter-clockwise, as shown above in the "TO ADJUST THE FORCE" section.
4. Repeat the test for the open direction.

The basic installation is complete.

PROGRAMMING

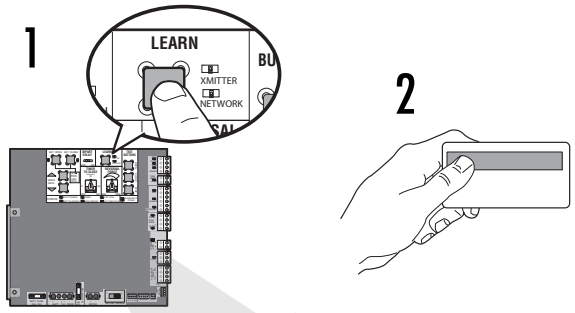
REMOTE CONTROLS

A combined total of 50 Security MAX remote controls and keyless entry PINs can be programmed to the operator.

TO ADD OR REPROGRAM A REMOTE CONTROL (NOT PROVIDED)

1. Press and release the LEARN button (green XMITTER LED will light).
2. Press the remote control button. The operator will automatically exit learn mode and the green XMITTER LED will go out.

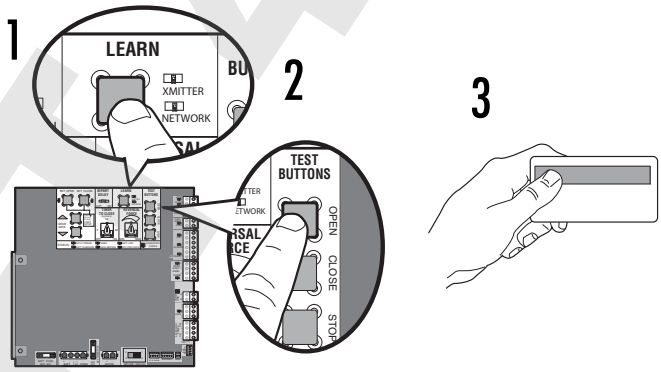
To program additional Security MAX remote controls, repeat the steps until all the remote controls are programmed.



PROGRAM OPEN ONLY ON A 1-BUTTON REMOTE CONTROL

1. Press and release the LEARN button (green XMITTER LED will light).
2. Press the OPEN button.
3. Press the remote control button. The operator will automatically exit learn mode and the green XMITTER LED will go out.

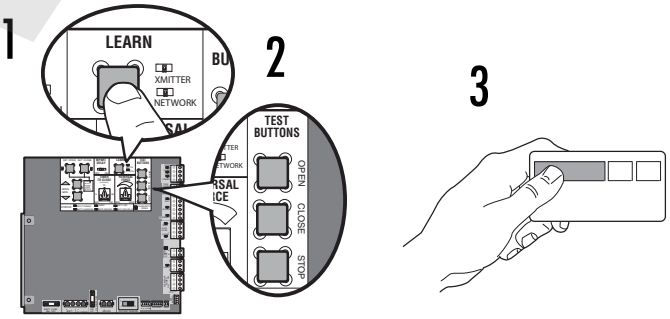
To program additional Security MAX remote controls, repeat the steps until all the remote controls are programmed.



PROGRAM OPEN, STOP, AND CLOSE ON A 3-BUTTON REMOTE CONTROL

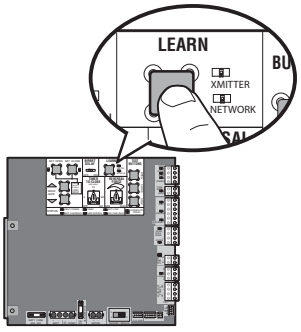
1. Press and release the LEARN button (green XMITTER LED will light).
2. Press the OPEN, CLOSE, or STOP button for the desired function.
3. Press the remote control button for the desired function. The operator will automatically exit learn mode and the green XMITTER LED will go out.

To program additional buttons or Security MAX remote controls, repeat the steps until all the buttons or remote controls are programmed.



ERASE ALL CODES

1. Press and release the LEARN button (green XMITTER LED will light).
2. Press and hold the LEARN button again until the green XMITTER LED goes out (approximately 6 seconds). All remote control codes are now erased.



NOTICE: To comply with FCC and or Industry Canada (IC) rules, adjustment or modifications of this receiver and/or transmitter are prohibited, except for changing the code setting or replacing the battery. THERE ARE NO OTHER USER SERVICEABLE PARTS.

Tested to Comply with FCC Standards FOR HOME OR OFFICE USE. 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.

OPERATION

RESET SWITCH

The reset switch is located on the front of the operator and serves several functions.

Toggling the reset switch will stop a moving gate during a normal open/close cycle, like a stop button. The operator does not need to be reset after doing this.

PROGRAMMING LIMITS RESET

If a mistake is made while programming the limits toggle the reset switch to start over.

MANUAL DISCONNECT

Press the reset switch to RESET/DISCONNECT to allow the gate to be opened and closed manually. To resume normal operation press the reset switch to NORMAL OPERATION.

OPERATOR ALARM

If a contact sensor detects an obstruction twice consecutively the alarm will sound (up to 5 minutes) and the operator will need to be reset.

When the inherent force of the operator (RPM/current sensor) detects the following (twice consecutively) the alarm will sound (up to 5 minutes) and the operator will need to be reset:

A. The gate is hitting a wall or vehicle.

B. The gate does not meet specifications.

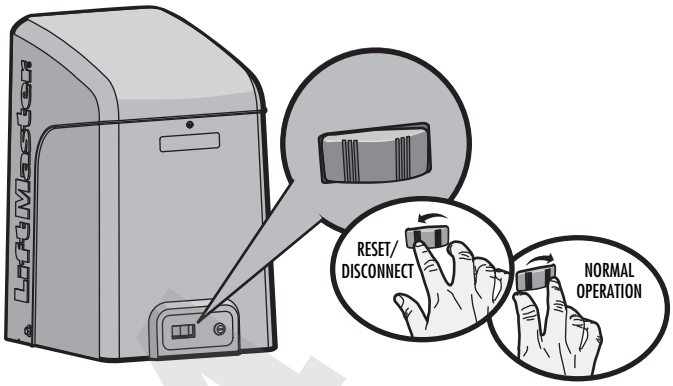
C. Debris is on the gate's track such as mud, rocks, dirt, etc.

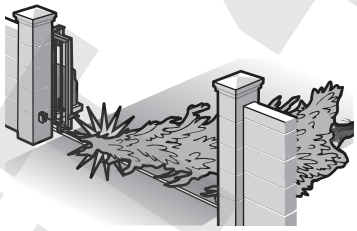
D. The gate has one or more broken axles or wheels.

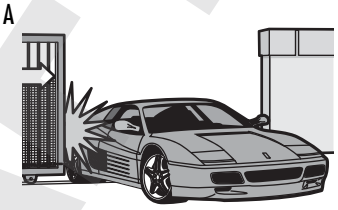
E. The gate wheel is off the gate rail.

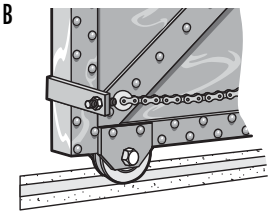
Remove any obstructions. Toggle the reset switch to shut off the alarm and reset the operator. After the operator is reset, normal functions will resume.

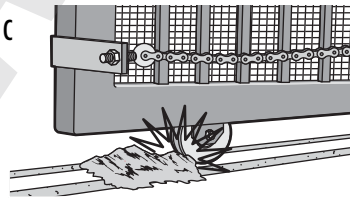
The operator alarm will beep 3 times with a command if the battery is low.

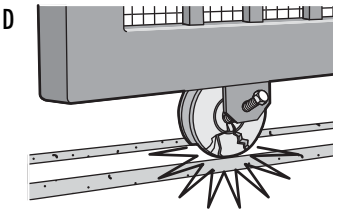


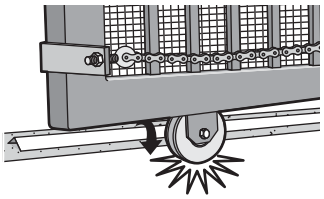












REMOTE CONTROL

Once the remote control has been programmed the operator will operate as follows:

When gate is in the closed position, activation of the remote control button will open the gate. During the open cycle another activation of the remote control will stop the gate and the next activation of the remote control will close the gate.

When the gate is in the open position, activation of the remote control button will close the gate. If the remote control is activated while the gate is closing, the gate will stop and the next activation will open the gate.

GATE OPERATOR SETUP EXAMPLES

The following are example setups for the gate operator. Your specific site requirements may be different. Always setup the operator system to the site requirements, including all necessary secondary entrapment protection systems.

RESIDENTIAL SMALL: One to four residential homes sharing a gated entrance/exit, allowing vehicle access trumps security concerns

RESIDENTIAL LARGE: A residential community (more than four homes) having one or more gated entrances/exits, allowing vehicle access trumps security concerns

COMMERCIAL: Business site where security (gate closed) is important

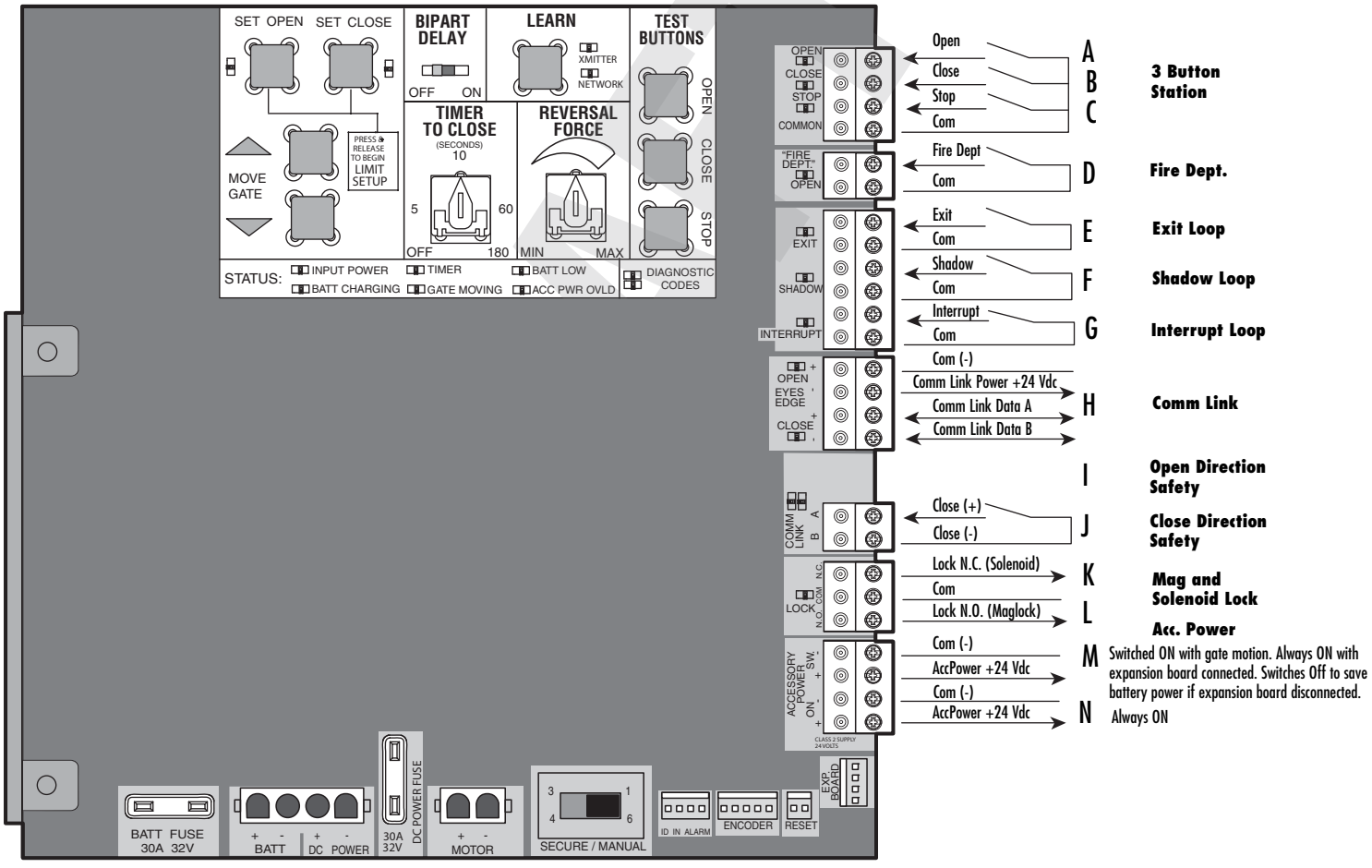
INDUSTRIAL: Large business site where security is required

Setting	RESIDENTIAL SMALL	RESIDENTIAL LARGE	COMMERCIAL	INDUSTRIAL
Secure – Manual switch setting	Set to MANUAL. If a fault occurs, residents can manually move gate.	Set to MANUAL. If a fault occurs, residents can manually move gate.	Set to SECURE. If a fault occurs, use disconnect and manually move gate.	Set to SECURE. If a fault occurs, use disconnect and manually move gate.
Quick Close switch setting	Normally set to OFF. Normal gate close (timer or control).	Normally set to OFF. Normal gate close (timer or control).	Normally set to OFF. Normal gate close (timer or control).	Set to ON, so that gate closes immediately after vehicle passes interrupt loop.
AC Fail Open switch setting	Normally set to BATT. Run on battery if AC power fails.	Normally set to BATT. For local jurisdiction requirement, set to OPEN so that gate immediately opens upon AC power fail.	Normally set to BATT. Run on battery if AC power fails.	Normally set to BATT. Run on battery if AC power fails.
Low Battery switch setting	Normally set to OPEN. If powered from battery and battery is low, gate stays open.	Normally set to OPEN. If powered from battery and battery is low, gate stays open.	Normally set to CLOSE. If powered from battery and battery is low, gate stays close.	Normally set to CLOSE. If powered from battery and battery is low, gate stays close.
Anti-Tail switch setting	Normally set to OFF. Interrupt loop reverses a closing gate.	Normally set to OFF. Interrupt loop reverses a closing gate.	Set to ON. In attempt to prevent vehicle tail-gating, interrupt loop pauses a closing gate.	Set to ON. In attempt to prevent vehicle tail-gating, interrupt loop pauses a closing gate.
Bipart Delay switch setting	For DUAL-GATE site, set to ON for gate that delays upon opening	For DUAL-GATE site, set to ON for gate that delays upon opening	For DUAL-GATE site, set to ON for gate that delays upon opening	For DUAL-GATE site, set to ON for gate that delays upon opening
Aux Relay Out – Open Limit Switch	Typically not required.	Use with SAMS (Sequence Access Management System)	1) Use with SAMS (Sequence Access Management System) 2) Connect "Gate Open" indicator (e.g. light)	1) Use with SAMS (Sequence Access Management System) 2) Connect "Gate Open" indicator (e.g. light)
Aux Relay Out – Close Limit Switch	Typically not required.	Typically not required.	Connect "Gate Close/Secure" indicator (e.g. light)	Connect "Gate Close/Secure" indicator (e.g. light)
Aux Relay Out – Gate Motion	Attach alert signal (audible or visual alert system)	Attach alert signal (audible or visual alert system)	Attach alert signal (audible or visual alert system)	Attach alert signal (audible or visual alert system)
Aux Relay Out – Pre-Motion Delay	Attach alert signal (audible or visual alert system)	Attach alert signal (audible or visual alert system)	Attach alert signal (audible or visual alert system)	Attach alert signal (audible or visual alert system)
Aux Relay Out – Power	Attach visual alert to know when system is charging batteries (i.e. not running on batteries)	Attach visual alert to know when system is charging batteries (i.e. not running on batteries)	Attach visual alert to know when system is charging batteries (i.e. not running on batteries)	Attach visual alert to know when system is charging batteries (i.e. not running on batteries)
Aux Relay Out – Tamper	Attach alert signal (audible or visual alert system) to indicate if gate is manually tampered with by being pushed off of close limit	Attach alert signal (audible or visual alert system) to indicate if gate is manually tampered with by being pushed off of close limit	Attach alert signal (audible or visual alert system) to indicate if gate is manually tampered with by being pushed off of close limit	Attach alert signal (audible or visual alert system) to indicate if gate is manually tampered with by being pushed off of close limit
Cycle Quantity Feedback	Use during servicing only to determine operator cycles	Use during servicing only to determine operator cycles	Use during servicing only to determine operator cycles	Use during servicing only to determine operator cycles
Fire Dept Open input	Typically not required.	Connect emergency access system (Know box switch, SOS system, etc.)	Typically not required.	Typically not required.
Heater Option	Suggested use if outside temperature remain below 0°F (-20°C).	Suggested use if outside temperature remain below 0°F (-20°C).	Suggested use if outside temperature remain below 0°F (-20°C).	Suggested use if outside temperature remain below 0°F (-20°C).

ADDITIONAL FEATURES

CONTROL BOARD OVERVIEW

SET OPEN Button	The SET OPEN button sets the OPEN limit. See Adjust Limits section.
SET CLOSE Button	The SET CLOSE button sets the CLOSE limit. See Adjust Limits section.
MOVE GATE Button	The MOVE GATE buttons will either open or close the gate when the operator is in Limit setting mode. See Adjust Limits section.
BIPART DELAY Switch	The Bipart delay switch is used only for dual gates. See Bipart Delay section.
LEARN Button	The LEARN button is for programming remote controls and the network.
TIMER-TO-CLOSE dial	The TIMER-TO-CLOSE (TTC) dial can be set to automatically close the gate after a specified time period. The TTC is factory set to OFF. If the TTC is set to the OFF position, then the gate will remain open until the operator receives another command from a control. Rotate the TIMER-TO-CLOSE dial to the desired setting. The range is 0 to 180 seconds, 0 seconds is OFF. ***NOTE:*** *Any radio command, single button control, or CLOSE command on the control board prior to the TTC expiring will close the gate. The TTC is reset by any signals from the open controls, loops, close edges, and close safety sensors (IR's).*
REVERSAL FORCE dial	The REVERSAL FORCE dial adjusts the force. See Force Adjustment section.
TEST BUTTONS	The TEST BUTTONS will operate the gate (OPEN, STOP and CLOSE).
STATUS LEDs	The STATUS LEDs are diagnostic codes for the operator. See Status LED Chart in the Troubleshooting section.



ADDITIONAL FEATURES

ACCESSORY FEATURES ON CONTROL BOARD

A	**Open Input (& common) (3-Button Control Station, 4 terminals total)**	Open command - opens a closed gate. Hard open (maintained switch overrides external safeties and resets alarm condition) If maintained, halts Timer-to-Close at OPEN limit. Opens a closing gate and holds open an open gate.
B	**Close Input (& common) (3-Button Control Station, 4 terminals total)**	Close command - closes an open gate. Hard close (maintained switch overrides external safeties and resets alarm condition)
C	**Stop Input (& common) (3-Button Control Station, 4 terminals total)**	Stop command - stops a moving gate. Hard stop (maintained switch overrides Open and Close commands and resets alarm condition) If maintained, halts Timer-to-Close at OPEN limit. Overrides Open and Close commands.
D	**Fire Dept Open Input (2 terminals)**	Acts as hard open. Maintained input overrides (ignores) external safeties (photo eye and edge), momentary input logic as single button control and safeties remain active, cancels Timer-to-Close, disables Soft Open input (exit loop), Any remote control, single button control, or 3-button control station Close required to close gate To reset the operator back to normal operation mode after a Fire Dept input activation: Clear the Fire Dept input and use the site's normal entry mode activation (remote control, card reader, etc.) to restart TTC, allow Exit Loop, etc. Exit Loop will NOT restart TTC, etc.
E	**Exit Loop Input (2 terminals)**	Loop wire connection for plug-in loop detector when loop is inside secured area near gate. Open command - opens a closed gate. Soft open (maintained switch does not override external safeties and does not reset alarm condition) If maintained, halts Timer-to-Close at OPEN limit. Opens a closing gate and holds open an open gate.
F	**Shadow Loop Input (2 terminals)**	Loop detector connection when loop is positioned under gate. - Holds open gate at open limit - Disregarded at CLOSE limit and during gate motion - Halts Timer to Close at OPEN limit
G	**Interrupt Loop Input (2 terminals)**	Loop detector connection when loop is along the side of the gate. - Holds open gate at open limit - Stops and reverses a closing gate - Halts Timer-to-Close at OPEN limit
H	**Comm Link (2 terminals)**	Commercial Link (two wires) - connects two operators together (primary-secondary wired connection)
I	**Open Safety (2 terminals)**	Open Direction Photo Eyes, IR, Infra-red detector wired or Edge Sensor to Open Safety Input, disregarded during gate closing. Pulsed Photo Eyes = monitored device putting out a pulse train when unblocked. Photo Eyes, IR, Infra-red detector, edge sensor = normally open contact, contact closes with obstruction.
J	**Close Safety (2 terminals)**	Close Direction Photo Eyes, IR, Infra-red detector wired or Edge Sensor to Close Safety Input, disregarded during gate opening, Pulsed Photo Eyes = monitored device putting out a pulse train when unblocked. Photo Eyes, IR, Infra-red detector, edge sensor = normally open contact, contact closes with obstruction.
K	**Lock Outputs: Maglock (2 terminals, N.O. and COM)**	Relay contact output, Normally - open (N.O.) output for maglocks
L	**Solenoid Lock & Common (2 terminals, N.C. and COM)**	Normally - closed (N.C.) output for solenoid locks Relay activates prior to motor activation and during motor run. Relay is off when motor is off.
M	**Accessory Power Out Switched, (2 terminals)**	24 Vdc voltage out to power accessories, will turn off when gate is not in motion to save battery power Always on if Expansion Board is connected.
N	**Accessory Power Out Un-switched, (2 terminals)**	24 Vdc voltage out to power accessories, always ON

ADDITIONAL FEATURES

EXPANSION BOARD OVERVIEW

CAUTION

To AVOID damaging the circuit board, relays or accessories, DO NOT connect more than 42 Vdc (32 Vac) to the AUX relay contact terminal blocks.

QUICK CLOSE Switch

OFF: No change to the gate's normal operation.
ON: When Interrupt loop is deactivated it causes an opening or a stopped gate to close.

AC FAIL OPEN/BATT Switch

OPEN: Loss of AC power will cause gate to immediately OPEN and remain OPEN until AC power is restored.
BATT: With loss of AC power, gate will remain in present position and operator is powered from batteries.

LOW BATT/EXIT LOOP FAIL Switch

- When AC power is OFF and battery voltage is low the gate will latch at a limit until AC power is restored or batteries voltage increases.
- Option select switch set to OPEN forces gate to latch at the OPEN limit if it is at the OPEN limit or on next open command until AC power is restored or battery voltage increases.
- Option select switch set to CLOSE forces gate to latch at CLOSE limit if at CLOSE limit or on next CLOSE command until AC power restored or battery voltage increases.
- Constant pressure on a hard command input overrides to open or close the gate.
- Low battery detect point = 23 V
- When set to OPEN, if the EXIT plug-in loop detector detects a fault, then the gate will open and remain open until fault is cleared. When set to CLOSE, then plug-in EXIT loop detector faults are ignored (EXIT loop is faulted and inoperative).

ANTI-TAIL OPEN/CLOSE SELECTION switch

OFF: When interrupt loop is activated it causes a closing gate to stop and reverse.
ON: When interrupt loop is activated it causes a closing gate to stop.

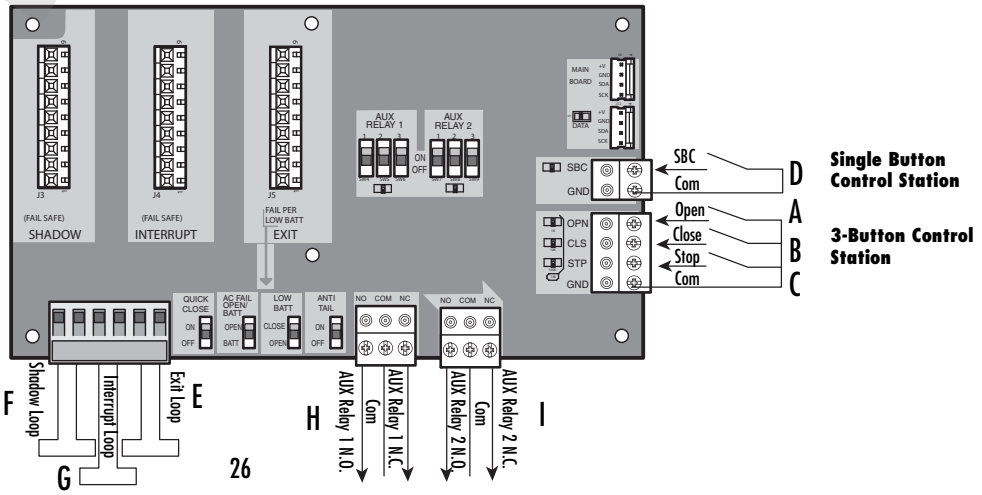
AUX RELAY switches

Set the AUX RELAY switches as needed to obtain the desired function:

AUX RELAY SETTING	SWITCH SETTINGS			NORMALLY-OPEN (N.O.) CONTACT	Normally-Close (N.C.) Contact
	1	2	3		
Off	OFF	OFF	OFF	Not used, relay always off. Use this Aux Relay setting to conserve battery power.	Not used, relay always off. Use this Aux Relay setting to conserve battery power.
Open Limit Switch	ON	OFF	OFF	Contact closes at open limit. Use with SAMS (Sequenced Access Management System, jointly with barrier gate)	Contact closes when not at open limit.
Close Limit Switch	OFF	ON	OFF	Contact closes at close limit. Connect "Gate Close/Secure" indicator (e.g. light).	Contact closes when not at close limit. Connect "Gate Not Closed/Secure" indicator (e.g. light).
Gate Motion	ON	ON	OFF	Contact closes when motor is on (gate in motion). Connect "Gate In Motion" indicator (e.g. warning light or sounder).	Contact closes when motor is off (gate not in motion).
Pre-Motion Delay	OFF	OFF	ON	Contact closes 3 seconds before gate motion and remains closed during gate motion. Connect "Gate In Motion" indicator (e.g. warning light or sounder).	Contact closed always, except 3 seconds before gate motion and remains open during gate motion.
Power	ON	OFF	ON	Contact closes when AC power or solar power is present.	Contact closes when on battery power.
Tamper	OFF	ON	ON	Contact closes if gate is manually tampered with by being pushed off of close limit. Connect alert (e.g. light or sounder).	Contact closed if gate is secure at close limit.
Cycle Quantity Feedback*	ON	ON	ON	Not used, relay always off. See LED blink for Cycle Count.	Not used, relay always off. See LED blink for Cycle Count.

CYCLE COUNT

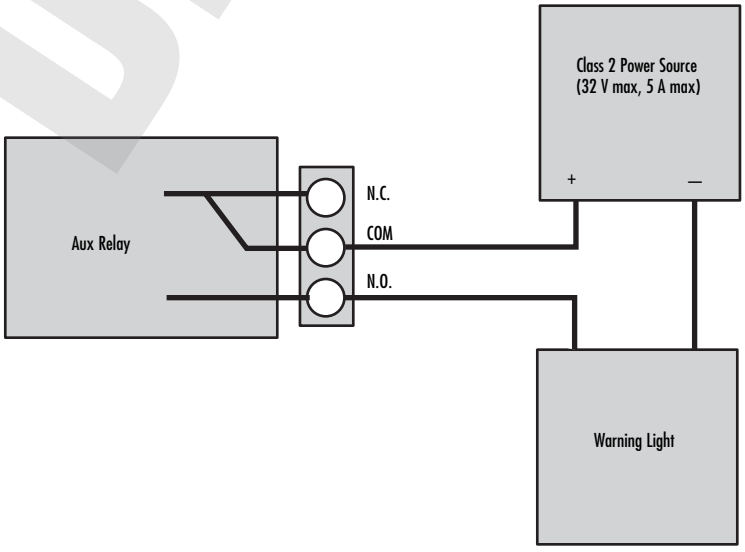
* First, note the current Aux Relay switch positions. To determine the actual cycles that the gate operator has run (in thousands), set all three Aux Relay switches to the ON setting for one Aux Relay. The Expansion Board's OPEN, CLOSE, and STOP LEDs will blink out the cycle count , with OPEN LED blinking 1000's, CLOSE LED blink 10,000's, STOP LED blinking 100,000's, and simultaneously all three LED's blink 1,000,000's (e.g. Open blinks 3 times, Close blinks 6 times, and Stop blinks once. Cycle count is 163,000.). Cycle count displayed is between 1,000 and 9,999,000 cycles. After servicing, set Aux Relay switches back to their appropriate positions. Cycle count cannot be reset or changed. If under 1,000 cycles the Open, Close, and Stop LEDs will turn on for 10 seconds, then turn off.



ACCESSORY FEATURES ON EXPANSION BOARD

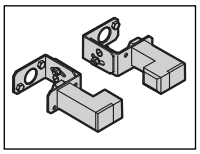
A	**Open Input (& common) (3-Button Control Station, 4 terminals total)**	Open command - opens a closed gate. Soft close (maintained switch does not override external safeties and does not reset alarm condition) If maintained, halts Timer-to-Close at OPEN limit. Opens a closing gate and holds open an open gate.
B	**Close Input (& common) (3-Button Control Station, 4 terminals total)**	Close command - closes an open gate. Soft close (maintained switch does not override external safeties and does not reset alarm condition)
C	**Stop Input (& common) (3-PB station, 4 terminals total)**	Stop command - stops a moving gate. Hard stop (maintained switch overrides Open and Close commands and resets alarm condition) If maintained, halts Timer-to-Close at OPEN limit. Overrides an Open or Close command.
D	**Single Button Control, SBC (2 terminals)**	Gate command sequence - Open, Stop, Close, Stop, ... Soft open (maintained switch does not override external safeties and does not reset alarm condition)
E	**Exit Loop Input (2 terminals)**	Loop wire connection for plug-in loop detector when loop is inside secured area near gate. Open command - opens a closed gate. Soft open (maintained switch does not override external safeties and does not reset alarm condition) If maintained, halts Timer-to-Close at OPEN limit. Opens a closing gate and holds open an open gate.
F	**Shadow Loop Input (2 terminals)**	Loop wire connection for plug-in loop detector when loop is along side gate. - Holds open gate at open - Disregarded at Close limit and during gate motion - Halts Timer-to-Close at Open Limit
G	**Interrupt Loop Input (2 terminals)**	Loop wire connection for plug-in loop detector when loop is positioned under gate. - Holds open gate at open - Stops and reverses a closing gate - Halts Timer-to-Close at Open Limit
H	**AUX Relay #1**	Normally - open and normally - closed relay contacts to control external devices, Function of relay contact activation determined by AUX Relay #1 option switch settings. (For connection of Class 2, low voltage (<32 V), DC or AC, max 5 Amps, power sources only)
I	**AUX Relay #2**	Normally-open and normally-closed relay contacts to control external devices, Function of relay contact activation determined by AUX Relay #2 option switch settings. (For connection of Class 2, low voltage (<32 V), DC or AC, max 5 Amps, power sources only)

AUX RELAY WIRING EXAMPLE



ACCESSORIES

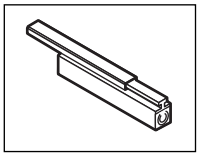
ENTRAPMENT PROTECTION DEVICES



PHOTOELECTRIC SENSORS (NON-CONTACT)

The photoelectric sensors are designed to detect an obstacle in the path of the electronic beam and stop the operator. Includes mounting brackets.

Models AOMRON (retro-reflective), RETROAB (retro-reflective), CPS-UN4 (through beam)



SENSING EDGE (2-WIRE, NON-MONITORED, CONTACT)

Sensing edges can detect an obstacle upon contact and stop the operator.

Models G65MG0204, G65MG0205, G65MGR205, and G65MGS205

SENSING EDGE CHANNEL

Mounting channel for all MG020 type edges.

Model G65ME120C5

REMOTE CONTROLS

Chamberlain offers a variety of LiftMaster remote controls to satisfy your application needs. Single-button to 4-button, visor or key chain. The following remote controls are compatible with operators manufactured by Chamberlain after 1993. Contact your authorized LiftMaster dealer for additional details and options.

3-BUTTON REMOTE CONTROL

The 3-button remote control can be programmed to control the operator. Includes visor clip.

Model 893MAX

3-BUTTON MINI-REMOTE CONTROL

The 3-button remote control can be programmed to control the operator. Includes key ring and fastening strip.

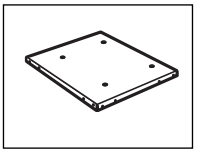
Model 890MAX

KEYLESS ENTRY

Enables homeowner to operate gate operator from outside by entering a 4-digit code on a specially designed keypad.

Model 877MAX

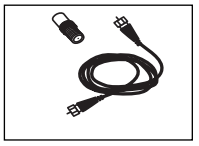
MISCELLANEOUS



POST-MOUNTING PLATE

For post-mounting model CSL24V commercial slide operator (also SL3000 commercial slide operator). Posts not included.

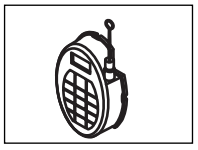
Model MPEL



REMOTE ANTENNA EXTENSION KIT

The remote antenna extension kit allows the antenna to be remotely installed.

Model 86LM

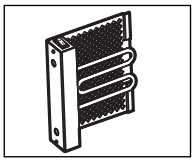


WIRELESS ACCESS CONTROL RECEIVER

Access control receiver for up to 450 remote controls.

Model STAR450-315

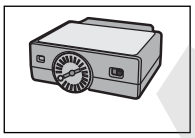
MISCELLANEOUS



HEATER

Keeps operator gearbox and batteries at suitable temperature when outside temperature is below 0°F for extended periods of time.

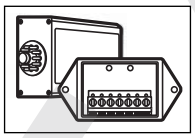
Models HTRKITRSL (includes bracket for optimal 7AH battery location) and G6518SL (replacement heater only)



PLUG-IN LOOP DETECTOR

Conveniently plugs into existing control board.

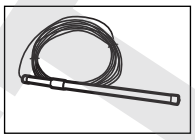
Model LOOPDETLM



LOOP DETECTOR

Low power loop detectors.

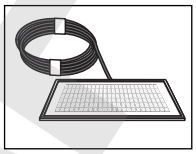
Model LD7LP



VEHICLE SENSING PROBE

The vehicle sensing probe is buried in the ground and can detect a car as it approaches and will then open the gate.

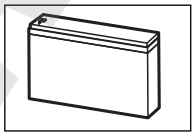
Model CP3



SOLAR PANEL KIT - 10 WATT

This kit is to replace or add a solar panel to the operator application. Up to three solar panels can be connected to the operator.

Model SOLPNL10W12V (requires 2 minimum)



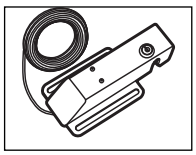
BATTERY FOR GATE ACCESS SYSTEMS

Gate access system batteries replace or upgrade the gate operator batteries.

Model 29-NP712 (standard 7 AMP-Hour Battery, 12 Vdc, to replace original batteries provided with operator, reuse existing harnesses)

Model A12330SGLPK (upgrade 33 AMP-Hour Battery, 12 Vdc, includes 33AH harness. Ideal for solar applications and extended battery backup)

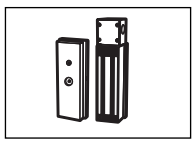
Two identical 12 Vdc batteries are required for each gate operator. Do not mix 7AH and 33AH batteries within a gate operator.



SOLENOID GATE LOCK

The automatic gate lock is a solenoid-driven lock that automatically unlocks when the gate is open and locks when the gate is closed. Can be mounted onto a gate or post. Can be released in case of emergency.

Models GC824 (115 Vac) and CC824-12 (12/24 Vac/dc)



MAGNETIC GATE LOCK

Outdoor magnetic lock, transformer, junction box, mounting plate and hardware. Not for use with Solar Applications. Must be powered separately.

Model MG1300

MAINTENANCE

MAINTENANCE CHART

Disconnect all power (AC, solar, battery) to the operator before servicing. The operator's AC Power switch ONLY turns off AC power to the control board and DOES NOT turn off battery power. ALWAYS disconnect the batteries to service the operator.

DESCRIPTION	TASK	CHECK AT LEAST ONCE EVERY		
		MONTH	6 MONTHS	3 YEARS
Entrapment Protection Devices	Check and test for proper operation	X		
Warning Signs	Make sure they are present	X		
Manual Disconnect	Check and test for proper operation		X	
Drive Chain and Sprockets	Check for excessive slack and lubricate	X		
Belt and Pulley	Check for excessive slack, wear or damage		X	
Gate	Inspect for wear or damage	X		
Accessories	Check all for proper operation		X	
Electrical	Inspect all wire connections		X	
Chassis Mounting Bolts	Check for tightness		X	
Operator	Inspect for wear or damage		X	
Batteries	Replace			X

NOTES:

- *Severe or high cycle usage will require more frequent maintenance checks.*
- *Limits may have to be reset after any major drive chain adjustments.*
- *If lubricating chain, use only lithium spray. Never use grease or silicone spray.*
- *It is suggested that while at the site voltage readings be taken at the operator. Using a digital voltmeter, verify that the incoming voltage to the operator it is within ten percent of the operator's rating.*

BATTERIES

Batteries will degrade over time depending on temperature and usage. For best performance, the batteries should be replaced every 3 years. Use only LiftMaster part 29-NP712 for replacement batteries. The operator comes with two 7AH batteries. Two 33AH (A12330SGLPK) may be used in place of the 7AH batteries.

The batteries contain lead and need to be disposed of properly. Batteries do not perform well in extremely cold temperatures.

The operator alarm will beep 3 times with a command if the battery is low.

DRIVE CHAIN

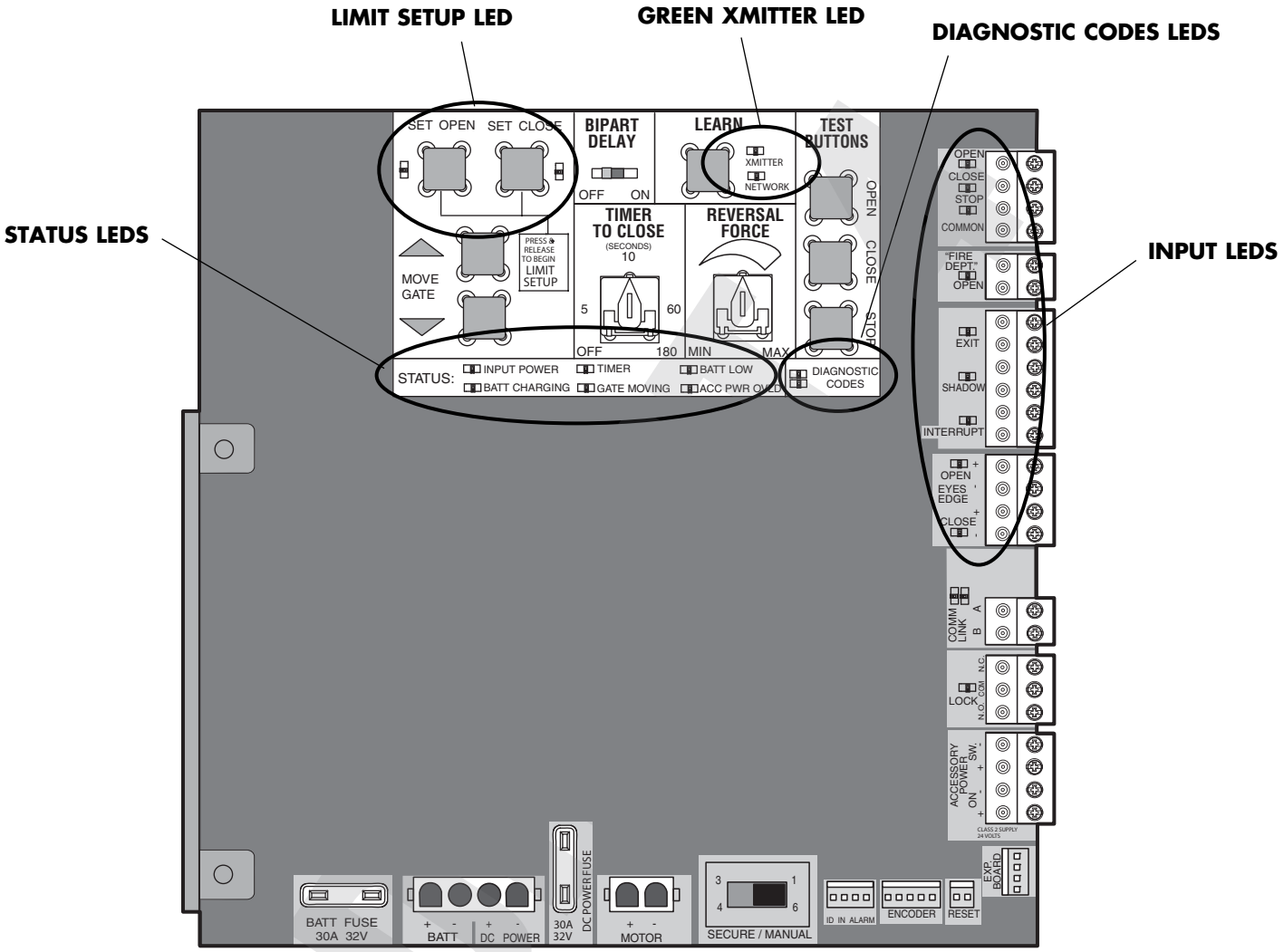
Over time, the drive chain on the operator will stretch and need to be tightened. To tighten the drive chain adjust either of the two chain eye bolts.

NOTE: *The chain should have no more than 1 inch of sag for every 10 feet of chain length.*

TROUBLESHOOTING

CONTROL BOARD LEDS

The control board is equipped with many LEDs that have a variety of functions. The control board LEDs indicate the status of the operator, assist with programming, and diagnose potential problems with the operator.



LIMIT SETUP LEDS			
SET OPEN LED	**SET CLOSE LED**	**OPERATOR MODE**	**EXPLANATION**
BLINKING	BLINKING	NORMAL MODE	Limits are not set.
OFF	OFF	NORMAL MODE	Limits are set.
BLINKING	BLINKING	LIMIT SETTING MODE	Limits are not set.
BLINKING	OFF	LIMIT SETTING MODE	Open limit is not set.
OFF	BLINKING	LIMIT SETTING MODE	Close limit is not set.
ON	ON	LIMIT SETTING MODE	Limits are set.

GREEN XMITTER LED	
XMITTER LED	**EXPLANATION**
OFF	No remote control activity, normal operation.
ON	Programming mode active.
FAST	Recognized remote control signal.
FASTER	Unrecognized remote control signal.
FASTEST	Remote controls are being erased.

CONTROL BOARD LEDS

DIAGNOSTIC CODES LEDS

YELLOW DIAGNOSTIC LED

# BLINKS	MEANING	CORRECTION
1 BLINK	*Low Power Mode*	(not an error)
2 BLINKS	*ID resistor failure*	Check ID resistor wiring, clear limit settings and reset limits
3 BLINKS	*Exceeded Maximum Run Timer*	Check gate travel, if necessary adjust force setting
5 BLINKS	*RPM (obstruction)*	Check for obstruction, if necessary adjust force setting
6 BLINKS	*Current (obstruction)*	Check for obstruction, if necessary adjust force setting
7 BLINKS	*Position failure*	Check gate travel, clear limit settings and reset limits

RED DIAGNOSTIC LED

# BLINKS	MEANING	CORRECTION
2 BLINKS	*Current Sense*	Motor control circuit fault, replace control board
3 BLINKS	*FET Failure*	Motor control circuit fault, replace control board
4 BLINKS	*RAM Failure*	Memory failure, replace control board
5 BLINKS	*Flash Memory Failure*	Memory failure, replace control board
6 BLINKS	*EEPROM Failure*	Memory failure, replace control board
7 BLINKS	*Watchdog Failure*	Controller failure, replace control board

STATUS LEDS

INPUT POWER	OFF	OFF state
	ON	AC charger or Solar power available
BATT CHARGING	OFF	Not charging
	ON	Trickle charge
	FAST BLINK	High current charge
	FASTER BLINK	Over voltage error
TIMER	OFF	The timer is disabled
	ON	The timer is enabled
	MEDIUM BLINK	The timer is running
	FAST BLINK	The timer is halted
	FASTER BLINK	The timer is cancelled
GATE MOVING	OFF	The gate is stopped
	ON	The gate is opening or closing
	FASTEST BLINK	The operator is in E2
BATT LOW	OFF	No battery error
	ON	Battery low error
	SLOW BLINK	Battery dead error
	MEDIUM BLINK	Battery over current error
	FAST BLINK	Battery over voltage error
	FASTER BLINK	Extreme temperature error
	FASTEST BLINK	Battery disconnected error
ACC PWR OVLD	OFF	OFF state
	ON	Accessory overload protector opened

INPUT LEDS

OPEN INPUT	OFF	Input inactive
	ON	Input active
	FAST BLINK	Input active on other operator
CLOSE INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
STOP INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
FIRE DEPT INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
SBC INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
OPEN SAFETY INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator
CLOSE SAFETY INPUT	OFF	Input inactive
	ON	Input active
	BLINK	Input active on other operator

TROUBLESHOOTING

TROUBLESHOOTING CHART

FAULT	POSSIBLE CAUSES	CORRECTIONS
Operator does not run and diagnostic LED not on.	a) No power to control board b) Open fuse c) If on battery power only, low or dead batteries d) Defective control board	a) Check AC and battery power b) Check fuses c) Charge batteries by AC or solar power or replace batteries d) Replace defective control board
Control board powers up, but motor does not run.	a) Check DIAGNOSTIC LEDs b) Reset switch set to RESET c) Stop button active d) If on battery power only, low or dead batteries e) Open or Close input active f) Entrapment Protection Device active g) Vehicle loop detector or probe active h) Defective control board	a) Use Diagnostic code to identify issue b) Check Reset switch c) Check Stop button is not "stuck on" d) Charges batteries by AC or solar power or replace batteries e) Check all Open and Close inputs for a "stuck on" input f) Check all Entrapment Protection Device inputs for a "stuck on" sensor g) Check all vehicle detector inputs for a "stuck on" detector h) Replace defective control board
Relay clicks with command, but motor does not turn on.	a) Chain jammed b) Defective motor or motor wires c) Defective control board	a) Check chain. Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed. b) Inspect motor and motor wires for open wire, shorted wires, damage, etc. Else, replace motor. c) Replace defective control board.
Gate moves, but cannot set correct limits.	a) Gate does not move to a limit position b) Gate is too difficult to move	a) Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed. b) Gate must move easily and freely through its entire range, limit-to-limit. Repair gate as needed.
Gate does not fully open or fully close when setting limits.	a) Gate does not move to a limit position b) Gate is too difficult to move	a) Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed. b) Gate must move easily and freely through its entire range, limit-to-limit. Repair gate as needed.
Operator does not respond to a wired control/command (example: Open, Close, SBC, etc.)	a) Check DIAGNOSTIC LEDs b) Check Open and Close command input LEDs c) Stop button is active d) Reset switch is set to RESET e) If on battery power only, low or dead batteries f) Entrapment Protection Device active g) Vehicle loop detector or vehicle probe active h) Defective control board	a) Use Diagnostic code to identify issue b) Check all Open and Close inputs for a "stuck on" input c) Check Stop button is not "stuck on" d) Check Reset switch e) Charges batteries by AC or solar power or replace batteries f) Check all Entrapment Protection Device inputs for a "stuck on" sensor g) Check all vehicle detector inputs for a "stuck on" detector h) Replace defective control board
Operator does not respond to a wireless control or transmitter	a) Check DIAGNOSTIC LEDs b) Check XMITTER LED when wireless control is active c) Stop button is active d) Reset switch is set to RESET e) Poor radio reception f) Defective control board	a) Use Diagnostic code to identify issue b) Activate wireless control and check XMITTER LED is on. Re-learn wireless control/ transmitter to control board. Replace wireless control as needed. c) Check Stop button is not "stuck on" d) Check Reset switch e) Check if similar wired control operates correctly. Check if wireless controls works properly when within a few feet of operator. Check operator's antenna and antenna wire. Check other wireless controls or devices. f) Replace defective control board

TROUBLESHOOTING

TROUBLESHOOTING CHART

FAULT	POSSIBLE CAUSES	CORRECTIONS
Gate stops during travel and reverses immediately.	a) Check DIAGNOSTIC LEDs b) Inherent force obstruction detection c) External Entrapment Protection Device activation d) Control (Open, Close) becoming active e) Vehicle loop detector active f) Low battery voltage	a) Use Diagnostic code to identify issue b) Check for obstruction in gate's path or travel. Use manual disconnect, manually move gate, and ensure gate moves easily and freely through its entire range, limit-to-limit. Remove obstruction or repair gate as needed. c) Check all Entrapment Protection Device inputs for an active sensor d) Check all Open and Close inputs for an active input e) Check all vehicle detector inputs for an active detector f) Battery voltage must be 23.0 Vdc or higher. Charge batteries by AC or solar power or replace batteries
Gate opens, but will not close.	a) Check DIAGNOSTIC LEDs b) Open control active c) Close Entrapment Protection Device active d) Vehicle loop detector active e) Loss of AC power with AC FAIL set to OPEN f) Low battery with LOW BATT set to OPEN g) Fire Dept input active	a) Use Diagnostic code to identify issue b) Check all Open inputs for an active input c) Check all Entrapment Protection Device inputs for an active sensor d) Check all vehicle detector inputs for an active detector e) Check AC power and AC Fail option setting f) Battery voltage must be 23.0 Vdc or higher. Charge batteries by AC or solar power or replace batteries g) Check Fire Dept input
Gate closes, but will not open.	a) Check DIAGNOSTIC LEDs b) Open Entrapment Protection Device active c) Vehicle loop detector active d) Loss of AC power with AC FAIL set to CLOSE e) Low battery with LOW BATT option set to CLOSE	a) Use Diagnostic code to identify issue b) Check all Entrapment Protection Device inputs for an active sensor c) Check all vehicle detector inputs for an active detector d) Check AC power and AC Fail option setting e) Check if AC power is available. If no AC power, then running on batteries and battery voltage must be 23.0 Vdc or higher. Charge batteries by AC or solar power or replace batteries
Gate does not close from Timer-to-Close.	a) Timer-to-Close not set b) Open control active c) Close Entrapment Protection Device active d) Vehicle loop detector active e) Loss of AC power with AC FAIL set to OPEN f) Low battery with LOW BATT option set to OPEN g) Fire Dept input active	a) Check Timer-to-Close (TTC) setting b) Check all Open inputs for an active input c) Check all Entrapment Protection Device inputs for an active sensor d) Check all vehicle detector inputs for an active detector e) Check AC power and AC Fail option setting f) Check if AC power is available. If no AC power, then running on batteries and battery voltage must be 23.0 Vdc or higher. Charge batteries by AC or solar power or replace batteries g) Check Fire Dept input
Vehicle Exit loop activation does not cause gate to open.	a) Check DIAGNOSTIC LEDs b) Exit vehicle detector setup incorrectly c) Defective Exit loop detector or loop wire d) Low battery with LOW BATT option set to CLOSE	a) Use Diagnostic code to identify issue b) Review Exit loop detector settings. Adjust settings as needed. c) Check Exit loop wire. Replace defective Exit loop detector. d) Check if AC power is available. If no AC power, then running on batteries and battery voltage must be 23.0 Vdc or higher. Charge batteries by AC or solar power or replace batteries
Vehicle Interrupt loop does not cause gate to stop and reverse.	a) Check DIAGNOSTIC LEDs b) Vehicle detector setup incorrectly c) Defective vehicle loop detector or loop wire	a) Use Diagnostic code to identify issue b) Review Exit loop detector settings. Adjust settings as needed c) Check Exit loop wire. Replace defective Exit loop detector
Vehicle Shadow loop does not keep gate at open limit.	a) Check DIAGNOSTIC LEDs b) Vehicle detector setup incorrectly c) Defective vehicle loop detector or loop wire	a) Use Diagnostic code to identify issue b) Review Exit loop detector settings. Adjust settings as needed c) Check Exit loop wire. Replace defective Exit loop detector

TROUBLESHOOTING

TROUBLESHOOTING CHART

FAULT	POSSIBLE CAUSES	CORRECTIONS
Obstruction in gates path does not cause gate to stop and reverse	a) Force setting too high	a) Adjust force setting. Retest that obstruction in gate's path causes gate to stop and reverse direction.
Photoelectric sensor does not stop or reverse gate.	a) Incorrect photoelectric sensor wiring b) Defective photoelectric sensor	a) Check photoelectric sensor wiring. Retest that obstructing photoelectric sensor causes moving gate to stop, and may reverse direction. b) Replace defective photoelectric sensor. Retest that obstructing photoelectric sensor causes moving gate to stop, and may reverse direction.
Edge sensor does not stop or reverse gate.	a) Incorrect edge sensor wiring b) Defective edge sensor	a) Check edge sensor wiring. Retest that activating edge sensor causes moving gate to stop and reverse direction. b) Replace defective edge sensor. Retest that activating edge sensor causes moving gate to stop and reverse direction.
Alarm sounds for 5 minutes or alarm sounds with a command.	a) Double entrapment occurred	a) Check for cause of entrapment (obstruction) detection and correct. Toggle the reset switch to shut off alarm and reset the operator.
Alarm beeps three times with a command.	a) Low battery	a) Check if AC power is available. If no AC power, then running on batteries and battery voltage must be 23.0 Vdc or higher. Charge batteries by AC or solar power or replace batteries
On dual-gate system, one gate is not commanding the other.	a) Defective or incorrect operator-to-operator wiring b) Incorrect operator-to-operator wireless learning	a) Check operator-to-operator wiring. b) Relearn the wireless network of one operator to the other operator.
On dual-gate system, incorrect gate opens first or closes first.	a) Incorrect Bipart switch setting	a) Change setting of both operator's Bipart switch settings. One operator should have Bipart switch ON (operator that opens first) and the other operator should have Bipart switch OFF (operator that opens second)
Alarm beeps when running.		
Expansion board function not controlling gate.	a) Defective main board to expansion board wiring b) Incorrect input wiring to expansion board c) Defective expansion board or defective main board	a) Check main board to expansion board wiring. If required, replace wire cable. b) Check wiring to all inputs on expansion board. c) Replace defective expansion board or defective main board
Maglock not working correctly.	a) Maglock wired incorrectly	a) Check that Maglock is wired to N.O. and COM terminals. Check that Maglock has power (do not power maglock from control board accessory power terminals). If shorting lock's NO and COM wires does not activate Maglock, then replace Maglock or Maglock wiring
Solenoid lock not working correctly.	a) Solenoid wired incorrectly	a) Check that Solenoid is wired to N.C. and COM terminals. Check that Solenoid has power (do not power solenoid from control board accessory power terminals). If shorting lock's NC and COM wires does not activate Solenoid, then replace Solenoid lock or Solenoid wiring
Switched (SW) Accessory power remaining on.	a) Main control board is not going to low power mode.	a) Expansion board cannot be used for low power mode, therefore disconnect expansion board if low power mode is required.
Accessories connected to Switch (SW) Accessory power not working correctly, turning off, or resetting.	a) Main control board is going to low power mode.	a) With expansion board disconnected and running on batteries (no AC power or solar power available), main board will go into low power mode. Move accessory power to Accy Power ON terminals (+, -). Connect expansion board to prevent low power mode.

TROUBLESHOOTING

FAULT	POSSIBLE CAUSES	CORRECTIONS
Accessories connected to Accessory power not working correctly, turning off, or resetting.	a) Accessory power protector active b) Defective control board	a) Disconnect all accessory powered devices and measure accessory power voltage (should be 23 – 30 Vdc). If voltage is correct, connect accessories one at a time, measuring accessory voltage after every new connection. b) Replace defective control board
Quick Close not working correctly.	a) Quick Close setting incorrect b) Interrupt loop detector or loop wire defective c) Defective Expansion board	a) Check that Quick Close setting is ON b) Check operation of Interrupt Loop detector c) Replace defective Expansion board
Anti-Tailgating not working correctly.	a) Anti-Tail setting incorrect b) Interrupt loop detector or loop wire defective c) Defective Expansion board	a) Check that Anti-Tail setting is ON b) Check operation of Interrupt Loop detector c) Replace defective Expansion board
AUX Relay not working correctly.	a) AUX Relay setting incorrect b) AUX Relay wiring incorrect c) Defective Expansion board	a) Check AUX Relay switches settings b) Check that wiring is connected to either N.O. and COM or to N.C. and COM. c) Set AUX Relay to another setting and test. Replace defective expansion board.

WIRING DIAGRAM

NON SOLAR

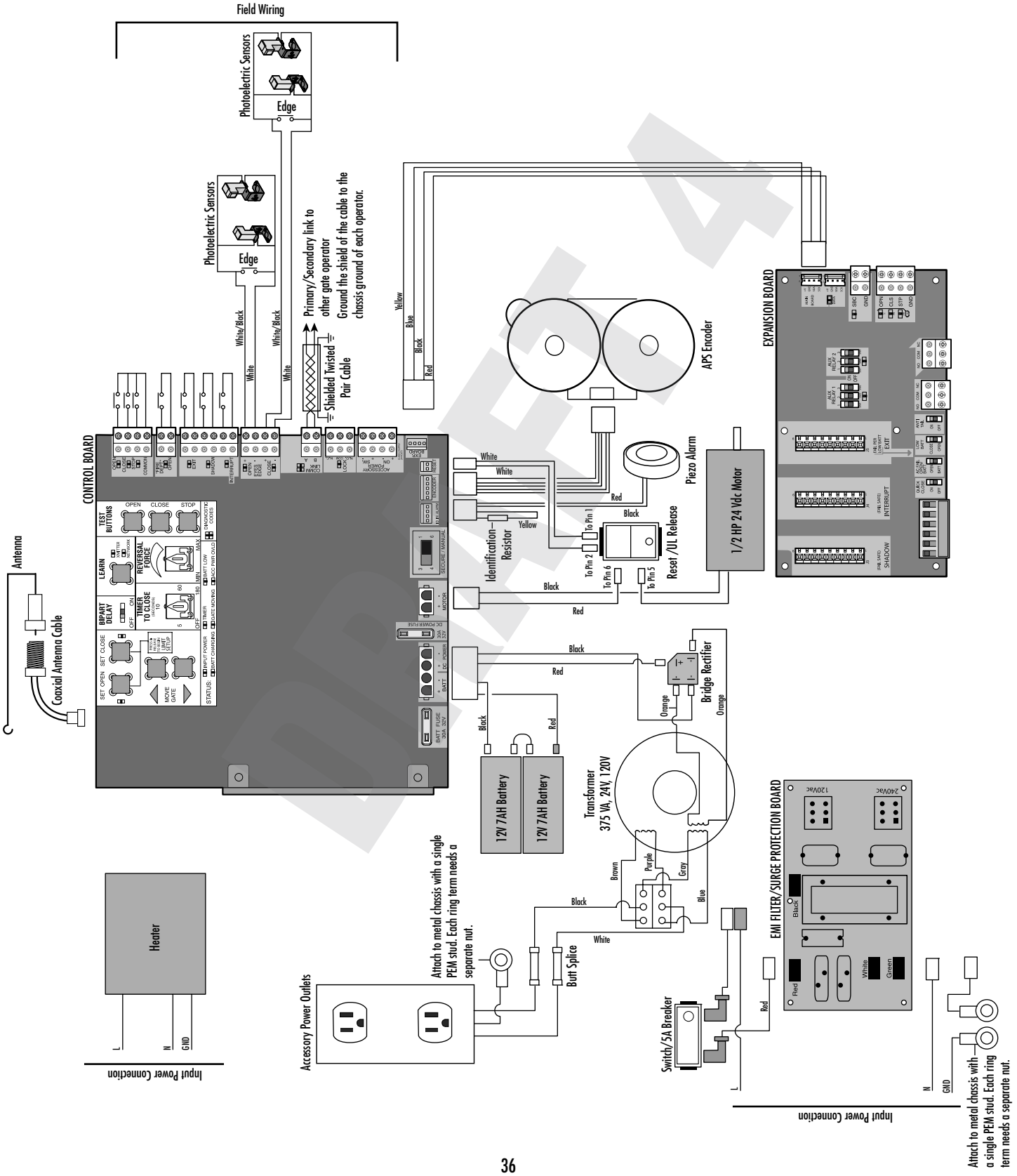
⚠ WARNING

To protect against fire and electrocution:

- DISCONNECT power and battery BEFORE installing or servicing operator.

For continued protection against fire:

- Replace ONLY with fuse of same type and rating.



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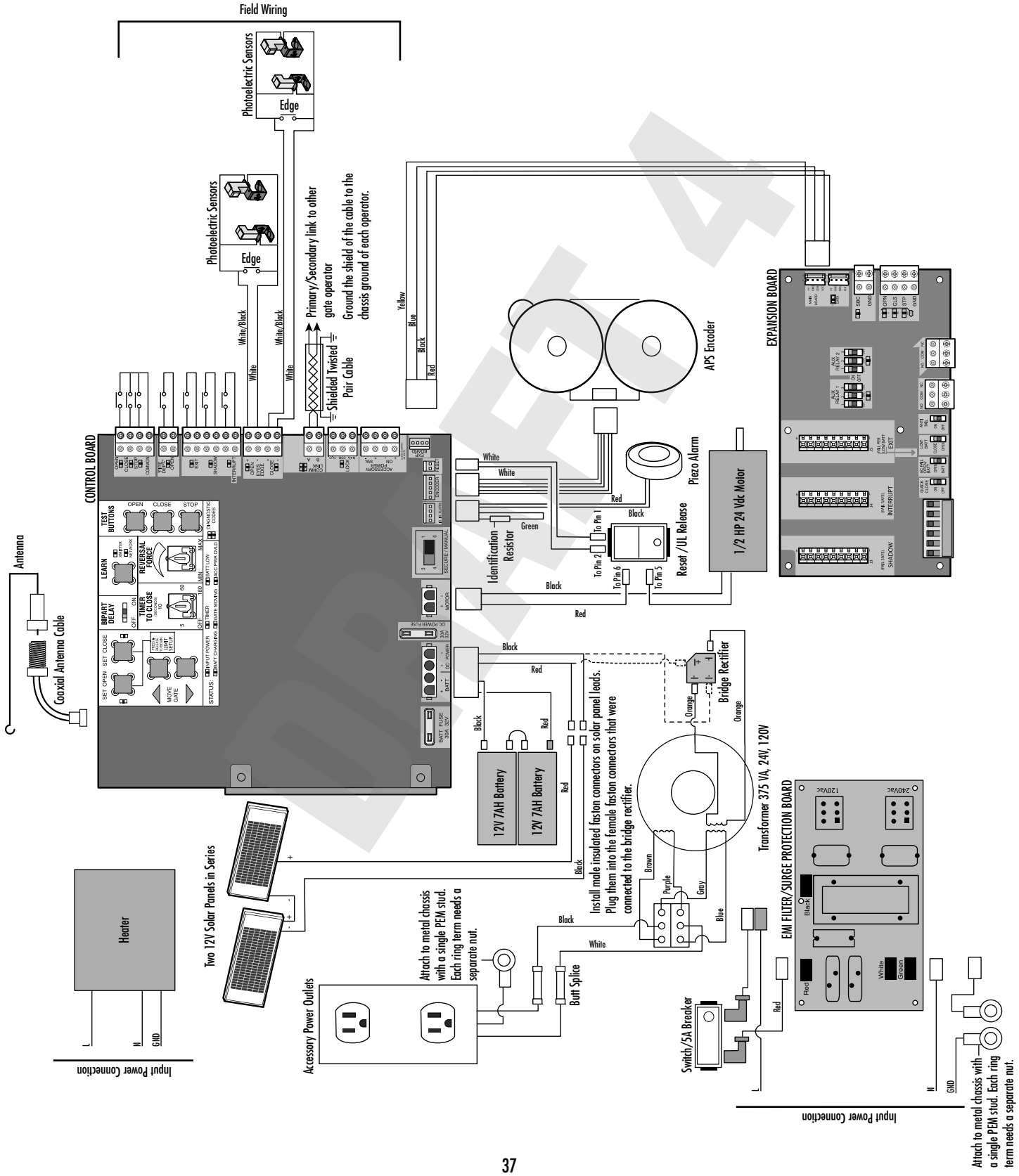

WARRANTY

7 YEAR RESIDENTIAL / 5 YEAR COMMERCIAL CSL24V™ AND CSL24VH™ LIMITED WARRANTY

The Chamberlain Group, Inc. ("Seller") warrants to the first purchaser of this product, for the structure in which this product is originally installed, that it is free from defect in materials and/or workmanship for a period of 7 year residential/ 5 year commercial from the date of purchase [and that the CSL24V™ and CSL24V™ are free from defect in materials and/or workmanship for a period of 7 year residential/ 5 year commercial from the date of purchase]. The proper operation of this product is dependent on your compliance with the instructions regarding installation, operation, 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 **1-800-528-2806**, toll free, before dismantling this product. Then send this product, pre-paid and insured, to our service center for warranty repair. You will be advised of shipping instructions when you call. 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.

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