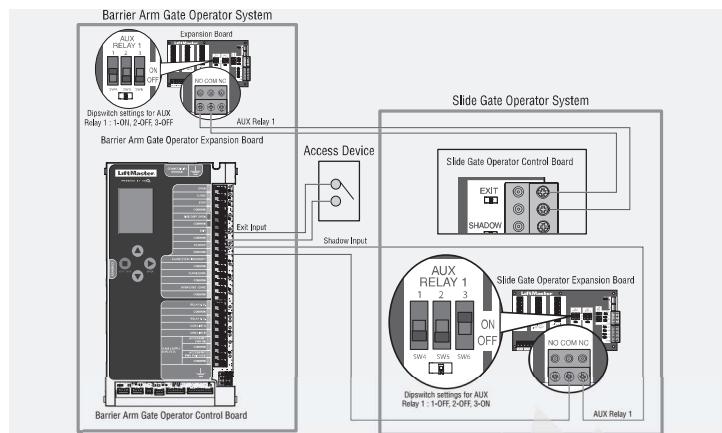


# Appendix

## SAMS Wiring with Relays Not Energized

### SAMS OPERATION

To keep vehicles from rushing the gate, the barrier arm stays in closed position until the gate reaches fully open position then the barrier arm is released to open and allow vehicles to pass.



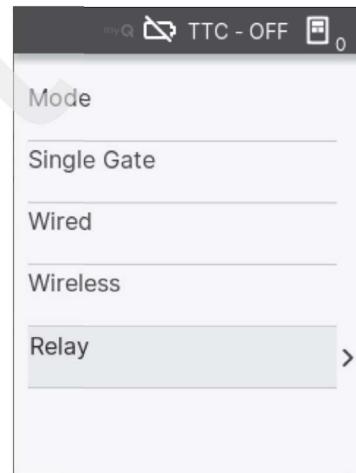
### Enable Relay Mode / Sams Sync Option

On the LCD menu, navigate to "Operator Pairing > Mode > Relay > Enter". The LCD screen displays a confirmation of the change.

The Operator Pairing Sync Option is automatically set to SAMS when mode is set to Relay.

### Dual Gate Settings

**Note:** We recommend that all accessories, except safety devices, and board configurations are set on the primary operator.



### MAIN CONTROL BOARD

Feature	Primary Operator	Secondary Operator
Timer-to-Close	Set the TTC in display menu	OFF
Speed	Set the speed control on each operator to the desired setting. Speed can be adjusted via display menu (see "Speed Control" on page 35 for more details).	
BATTERY Fail	Set each operator to the desired setting. Power Fail can be set via display menu.	

### EXPANSION BOARD

Feature	Primary Operator	Secondary Operator
QUICK CLOSE	Set switch to desired setting on operator with interrupt loop connected.	
ANTI-TAIL	Set switch to desired setting on operator with interrupt loop connected.	
AC FAIL	Set switch on each operator to desired setting.	
EXIT FAIL	Set switch to desired setting on operator with exit loop connected.	

# Appendix (continued)

## WARNING

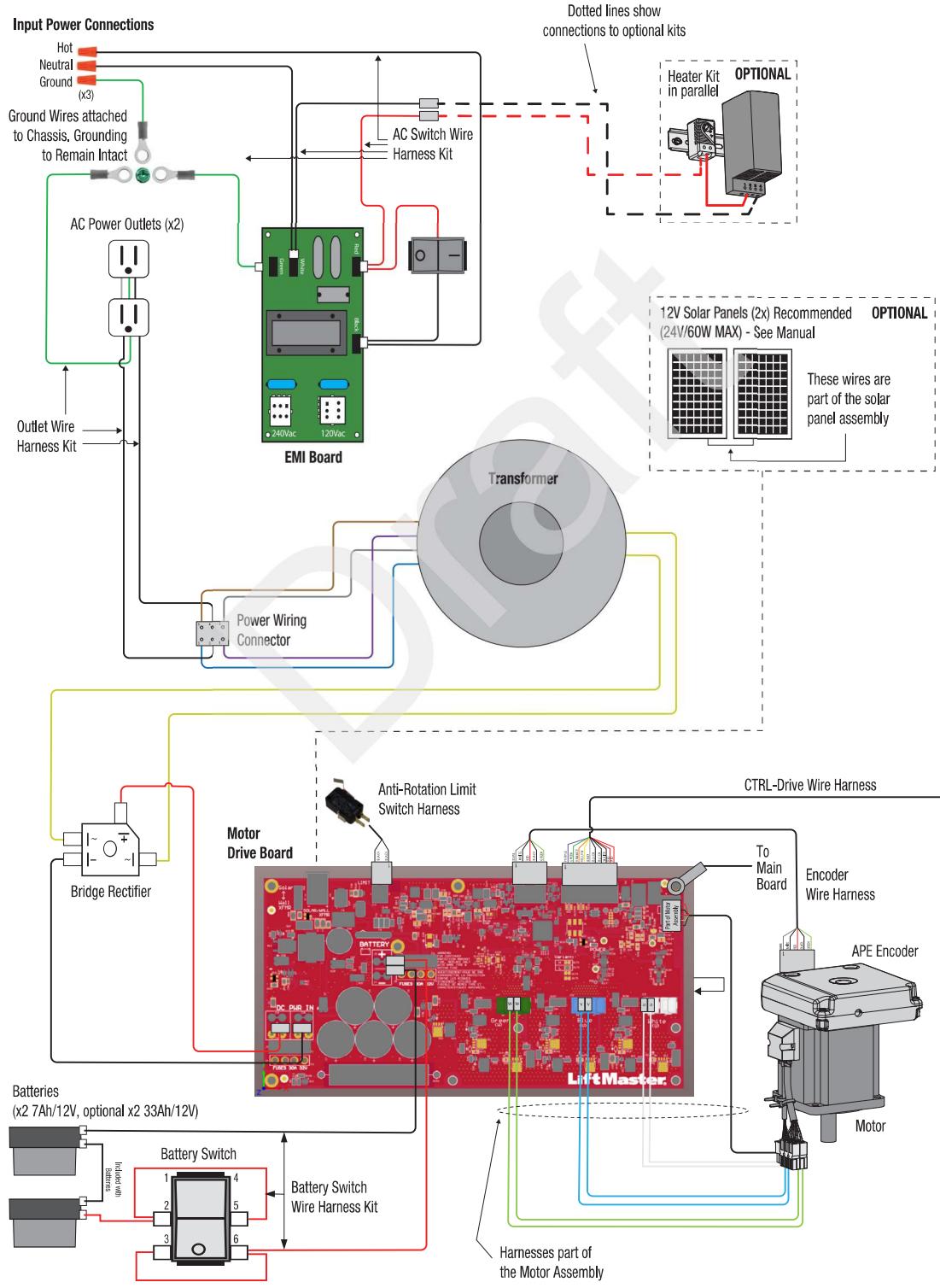
To protect against fire and electrocution:

- DISCONNECT power (AC or solar and battery) BEFORE installing or servicing operator.

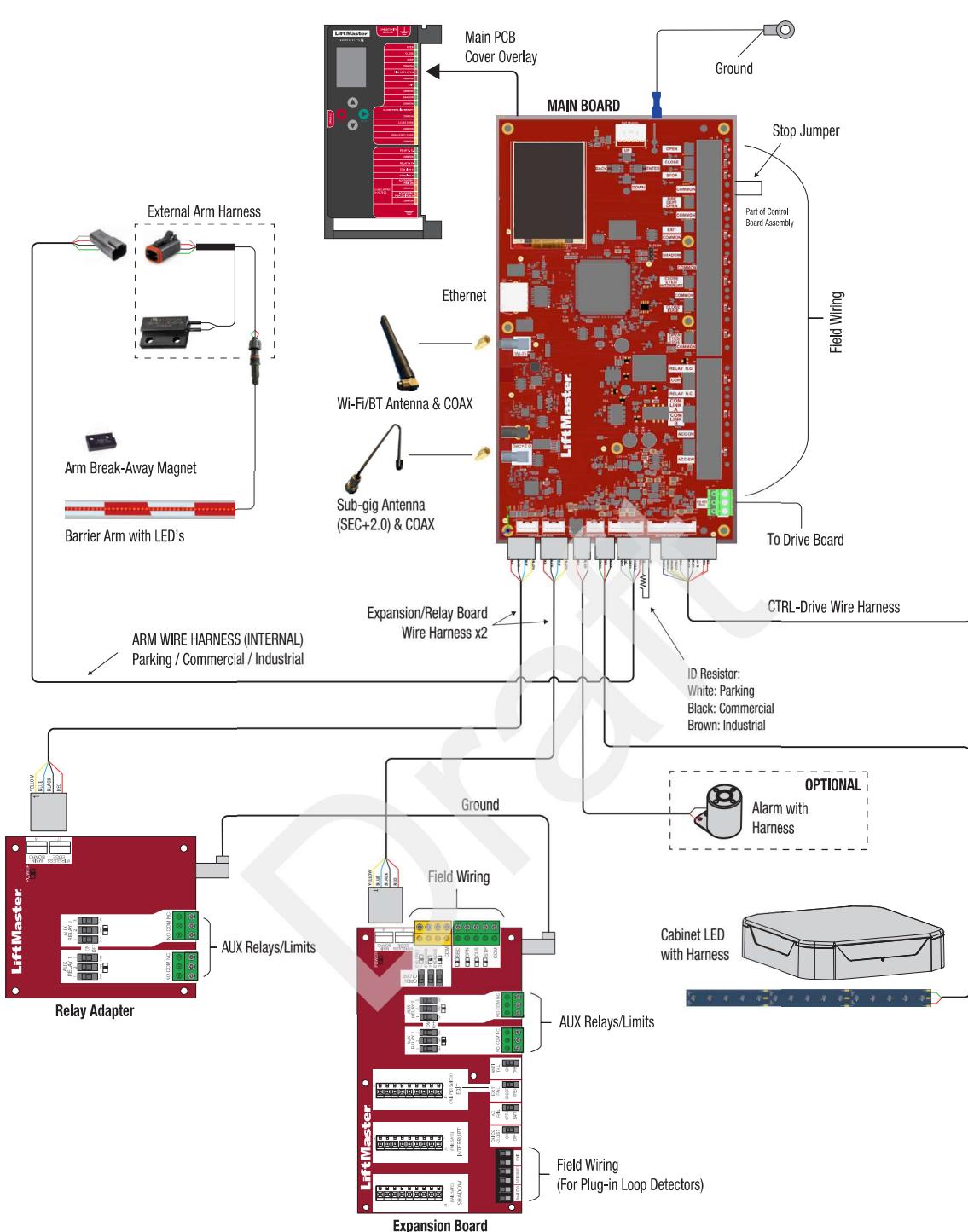
For continued protection against fire:

- Replace ONLY with fuse of same type and rating.

## Wiring Diagram



# Appendix (continued)



# Appendix (continued)

## Diagnostic Codes Table

Some codes are saved in the code history and some are not. If a code is not saved, it will briefly appear on the display as it occurs, then disappear.

 LiftMaster System	 Installed System	 Informational	 External Entrapment Protection	 Inherent Entrapment Protection
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Code	UI Display Text	Meaning	Solution
8	<b>8 - NO CONFIG</b>	Configuration invalid or missing	<p>The following settings were reset due to corruption of the previous configuration:</p> <ul style="list-style-type: none"> <li>• Reversal Force</li> <li>• Open and Close limit positions</li> <li>• Arm Length</li> <li>• Language</li> <li>• Arm and Cabinet LED</li> <li>• Buzzer</li> <li>• Operator Sync</li> <li>• Timer-To-Close</li> <li>• Power Fail</li> <li>• Arm Speed</li> </ul> <p>Perform Adjustment and Programming procedures to set the limits and adjust default settings.</p> <p>If issue continues, replace the main control board.</p>
14	<b>14- NO LIMITS</b>	Limit positions are not set or stored.	<p>Limit positions are not set due to being a new product or factory reset was performed.</p> <p>Enter Limit Setup mode and set the limits.</p>
31	<b>31- CTRL BOARD</b>	Main control board has experienced an internal error	<p>Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue continues, replace the main control board.</p>
32	<b>32 – VER MISMATCH</b>	Main control board and motor drive board firmware versions are incompatible	<p>Check FW Versions, replace main control board or motor drive board so that both boards have the same first (major) version number.</p> <p>If motor drive board version is not reported in display menu, verify motor drive board power and connection to control board.</p> <p>Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue persists, replace motor drive board.</p>
34	<b>34-APE ASM</b>	Absolute Position Encoder error, not getting position information from encoder	<p>Check APE assembly and wiring connections. Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue persists, replace the APE assembly.</p>
35	<b>35- OVER TRAVEL</b>	Travel range exceeded	<p>While learning limits, the arm position has exceeded the allowable travel range in the open direction.</p> <p>If still in Limit Learn menu, reverse direction of travel and check the following:</p> <ul style="list-style-type: none"> <li>• Verify that the counterbalance spring assembly is installed in the correct position for the intended arm handing.</li> <li>• Verify that the arm bracket was in the correct orientation when the hub bolts were torqued.</li> <li>• Inspect the spring protection switch connections and cable.</li> </ul>
36	<b>36- ID MISMATCH</b>	Current Product ID does not match stored Product ID	<p>Was the main control board just replaced? If so, erase limits, enter limit setup mode and set limits. If not, disconnect all power, wait 15 seconds, then reconnect power before changing product ID harness.</p>
37	<b>37- PRODUCT ID</b>	Product ID failure	<p>Unplug product ID harness then plug back in. Disconnect all power, wait 15 seconds, then reconnect power before replacing product ID harness.</p>
40	<b>40- BATT OVERVOLT</b>	Battery overvoltage	<p>Too much voltage on the battery. Check harness.</p>
41	<b>BATT OVERCURR</b>	Battery overcurrent	<p>Possible short of the battery charge harness. Check harness. Make sure you do NOT have a 12V battery on a 24V system.</p>

# Appendix (continued)

Code	UI Display Text	Meaning	Solution
42	<b>42- NO BATTERY</b>	No battery at boot up	Check battery connections and installation. Replace batteries if depleted to less than 20V on a 24V system. Make sure there is NOT a single 12V battery on a 24V system.
43	<b>43- EXIT LOOP</b>	Exit loop error	
44	<b>44- SHADOW LOOP</b>	Shadow loop error	Failure or missing loop (SHORT or OPEN - LiftMaster Plug-in Loop Detector only). Check loop wiring throughout connection. May be a short in the loop, or an open connection in the loop. If loop detector has been removed, disconnect all power, wait 15 seconds, then reconnect power (reboot). Refer to LiftMaster Loop Detector Installation Manual to determine loop state.
45	<b>45- INTRPT LOOP</b>	Interrupt loop error	
46	<b>46- EDGE BATT LOW</b>	Wireless edge battery low	Replace batteries in wireless edge.
47	<b>47- MOTOR DRIVE</b>	Motor Drive Fault	Check motor drive connections. Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue persists, replace motor drive board.
48	<b>48- HALL SENSOR</b>	Hall Sensor Fault	Check motor and motor drive connections. Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue persists, replace motor.
49	<b>49- MOTOR COMM</b>	Motor Drive Communications Fault	Verify drive board power and connection to the main control board. Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue continues, replace motor drive
51	<b>51- NO ARM</b>	No Arm detected in Arm Bracket	Arm is not installed/detected. Review: <ul style="list-style-type: none"> <li>Verify the arm detection cable is connected to the arm bracket.</li> <li>Verify the arm is securely installed within the arm bracket.</li> <li>Verify the arm detection magnet is properly installed on the arm and aligned with the sensor on the arm bracket.</li> <li>Inspect arm detection sensor, arm detection magnet, and cable for damage.</li> </ul> If issue persists, replace sensor, magnet, and arm cable.
53	<b>53- BROWNOUT</b>	Brownout occurred	AC/DC board supply dipped below allowable level. Review power supply and wiring. If rebooting, ensure enough time for discharge of power to force a fresh boot.
54	<b>54- OPERATOR COMM</b>	Wireless second operator communication error	Check the second operator for power. If OFF, restore power and try to run the system. If powered, deactivate the wireless feature and then re-learn the second operator.
61	<b>61- CLOSE EYE HELD</b>	CLOSE EYE/INTERRUPT held	Check wired input on the main control board; check for alignment or obstruction; squeeze and release the edge and verify main board edge LED changes; check for eye alignment or obstruction.
62	<b>62- CLOSE EDGE</b>	CLOSE EDGE held	
63	<b>63- OPEN EYE EDGE</b>	OPEN EYE/EDGE held	
64	<b>64- CLOSE EYE INTRPT</b>	CLOSE EYE/INTERRUPT held (expansion board)	Check wired input on expansion board; check for alignment or obstruction; squeeze and release the edge and verify main board edge LED changes; check for eye alignment or obstruction.
65	<b>65- CLOSE EYE EDGE</b>	CLOSE EYE/EDGE held (expansion board)	
66	<b>66- OPEN EYE EDGE</b>	OPEN EYE/EDGE held (expansion board)	
67	<b>67- WIRELESS EDGE</b>	Wireless edge triggered extended time	Check wired input for wiring issue or obstruction; squeeze and release the edge and verify main board edge LED changes

# Appendix (continued)

Code	UI Display Text	Meaning	Solution
68	<b>68- WIRELESS EDGE</b>	Wireless edge loss of monitoring	Check wireless edge inputs.
69	<b>69- WIRELESS EDGE</b>	Wireless edge triggered	IF an obstruction occurred, no action required. If an obstruction did NOT occur, check inputs and wiring.
70	<b>70- CLOSE EYE BLOCK</b>	CLOSE EYE/INTERRUPT triggered, causing reversal, preventing close, or resetting TTC	IF an obstruction occurred, no action required. If an obstruction did NOT occur, check alignment, inputs, and wiring on the main control board.
71	<b>71- CLOSE EDGE</b>	CLOSE EDGE triggered, causing reversal, preventing close, or canceling TTC	If using through-beam photoelectric sensors, ensure that both emitter and receiver are connected to inputs.
72	<b>72- OPEN EYE EDGE</b>	OPEN EYE/EDGE triggered, causing reversal or preventing opening	Refer to the accessory manual to ensure sensors are installed correctly.
73	<b>73- CLOSE EYE INTRPT</b>	CLOSE EYE/INTERRUPT triggered, causing reversal, preventing close, or resetting TTC	IF an obstruction occurred, no action required. If an obstruction did NOT occur, check alignment, inputs, and wiring on expansion board.
74	<b>74- CLOSE EYE EDGE</b>	CLOSE EYE/EDGE triggered, causing reversal and preventing close or canceling TTC	If using through-beam photoelectric sensors, ensure that both emitter and receiver are connected to inputs.
75	<b>75- OPEN EYE EDGE</b>	OPEN EYE/EDGE triggered, causing reversal or preventing opening	Refer to the accessory manual to ensure sensors are installed correctly.
80	<b>80- CLOSE EYE EDGE</b>	Close input (EYE/EDGE) communication fault from other operator	Check inputs and communication method between operators, either wired bus or radio. Ensure operator is powered. May have to erase the wireless communication and reprogram the two operators.
81	<b>81- OPEN EYE EDGE</b>	Open input (EYE/EDGE) communication fault from other operator	
82	<b>82- CLOSE EYE EDGE</b>	Close input (EYE/EDGE) communication fault (expansion board)	Check the connections between the main control board and the expansion board.
83	<b>83- OPEN EYE EDGE</b>	Open input (EYE/EDGE) communication fault (expansion board)	
84	<b>84- NON MONITORED</b>	Non-monitored device detected on the wireless safety system	Non-monitored contact closure devices are not supported. Make sure connected devices are monitored. Check edges for proper orientation and resistive end cap connection.
85	<b>85- CLOSE EYE EDGE EVENT</b>	CLOSE EYE/EDGE triggered on paired operator, causing reversal and preventing close or canceling TTC	IF an obstruction occurred, no action required. If an obstruction did NOT occur, check alignment, inputs, and wiring on paired operator.
86	<b>86- OPEN EYE EDGE EVENT</b>	OPEN EYE/EDGE triggered on paired operator, preventing opening	If using through-beam photoelectric sensors, ensure that both emitter and receiver are connected to inputs.
			Refer to the accessory manual to ensure sensors are installed correctly.

# Appendix (continued)

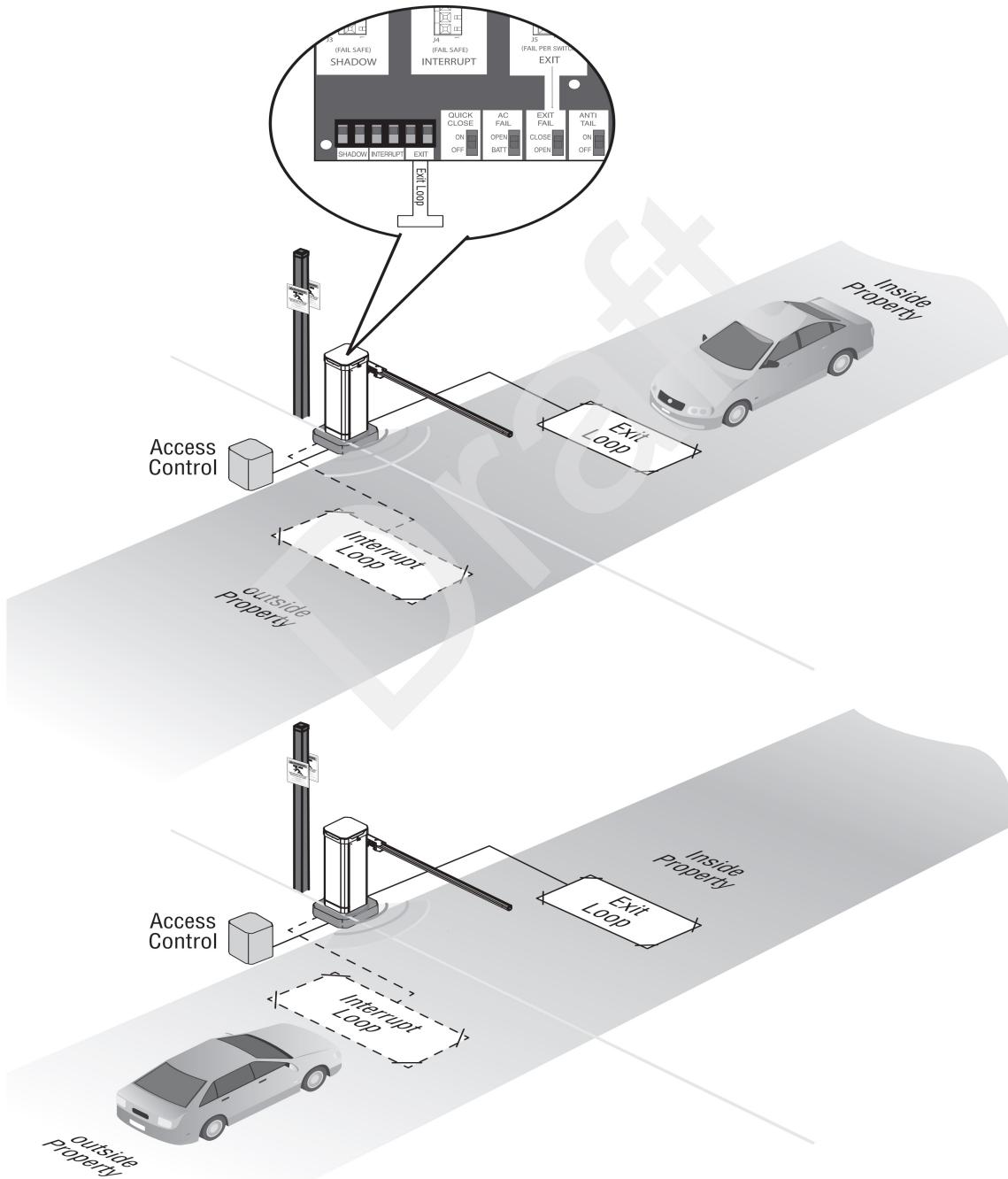
Code	UI Display Text	Meaning	Solution
90	<b>90- LOW VOLT</b>	Low Voltage Input to Motor Drive Fault	Verify incoming power meets voltage requirement of operator. Verify battery voltage is above 20V. Disconnect all power, wait 15 seconds, then reconnect power (reboot). If issue persists, replace power supply.
91	<b>91- FORCE LIMIT</b>	Force limit exceeded	If motor stopped while opening, check for excess weight on arm. Check for obstruction. If no obstruction, check that the mechanical assembly is engaged and free to move. See "Limit, Speed, and Force Adjustment" on page 34. Check spring chart and ensure correct number of springs are installed.
93	<b>93- RPM STALL</b>	RPM / STALL detected	If motor stopped while opening, check for excess weight on arm. Check for obstruction. If no obstruction, check the operator wiring and that the mechanical assembly is engaged and free to move. Replace APE assembly. Check spring chart and ensure correct number of springs are installed.
95	<b>95- DRIVE TEMP</b>	Motor Drive Board temperature too high	Check ambient temperature and ensure it is within the operational ratings of the operator. Check that dust or other debris is not built up inside cabinet. Replace motor drive board if issue persists.
96	<b>96- DRIVE CURR</b>	Motor Drive Board current too high	Check connections to motor drive board. Power cycle and retry. Replace motor drive board if issue persists.
97	<b>97- BATT DPLTD</b>	Battery depleted (below 23 V)	Battery voltage has been drained to critical level. Restore AC or solar power and ensure battery recharges properly. Test batteries with suitable battery tester. Replace batteries if damaged, depleted, or older than 2 years. Always replace both batteries as a set. Do not mix old and new batteries or use mismatched types.
98	<b>98- AC PWR LOSS</b>	AC power loss, system operating on battery	Incoming power loss. Review: <ul style="list-style-type: none"> <li>• Input voltage.</li> <li>• Circuit breaker is not tripped.</li> <li>• AC Switch inside cabinet is in the ON position.</li> <li>• Transformer connections to EMI board connectors.</li> </ul> If voltage is out of specification, consult an electrician.
99	<b>99- MAINT DUE</b>	Maintenance Cycle count reached, service operator	Complete maintenance and reset maintenance cycle counter.

# Appendix (continued)

## TWO-WAY TRAFFIC MODE

- Two-way traffic mode provides the ability for traffic to enter and exit in the same lane.
- On vehicle entry, Exit Loop will not affect Timer-To-Close or initiate an Exit command until vehicle has passed.
- If vehicle does not pass Exit Loop within 30 seconds of the Open command, the entry will time out and Exit Loop will return to normal functionality.
- To turn on Two-Way Traffic Mode, on the LCD menu, navigate to "Timer to Close > Two Way Traffic > Enter".
- Open (Main Control Board), Open (Expansion Board), or Exit (Main Board) input must be used for Two-Way Traffic Mode entry commands.

**NOTE:** Transmitters are not recommended to be used with Two-Way Traffic Mode.

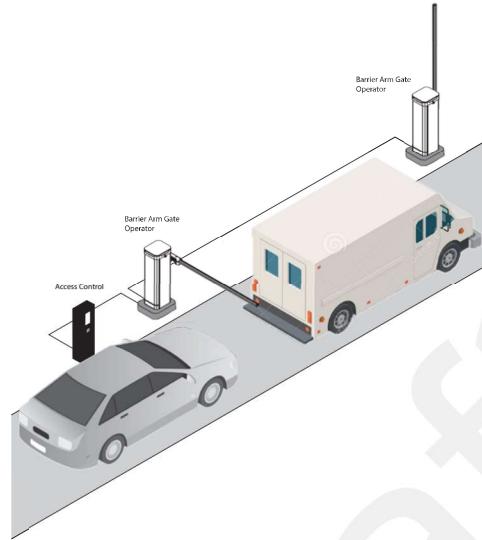


# Appendix (continued)

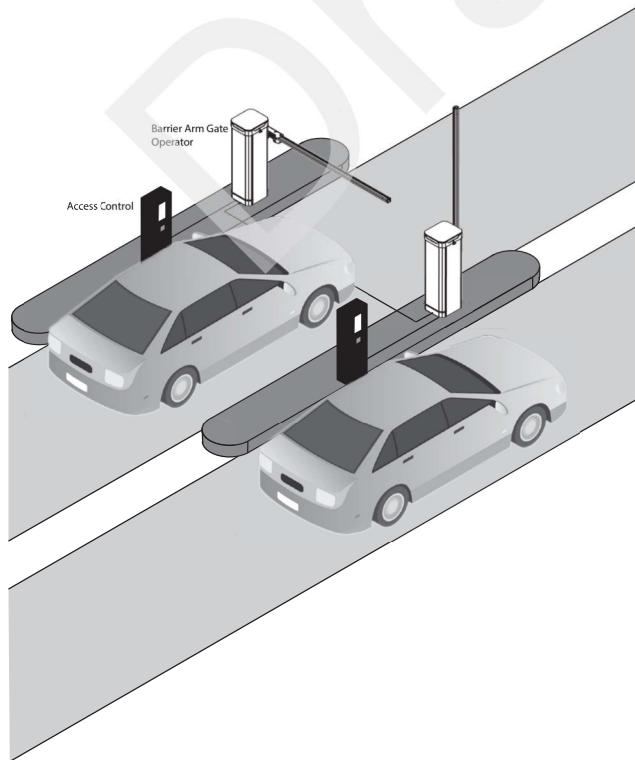
## Trap/Sequential Merge Operator Sync Mode

- Trap/Sequential Merge Operator Sync Mode will delay opening of a gate until the other paired gate operator is closed.
- To turn on Trap/Sequential Merge Operator Sync Mode after Operator Pairing is complete, on the LCD menu, navigate to "Operator Pairing > Sync Options > TRAP Configuration > Enter".

### TRAP CONFIGURATION



### SEQUENTIAL MERGE CONFIGURATION

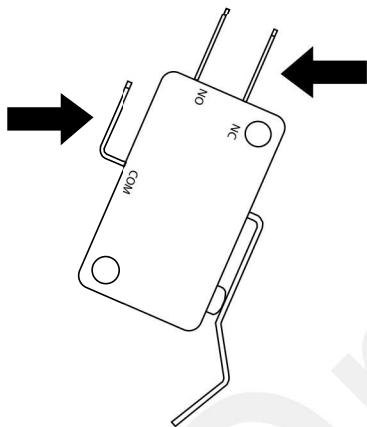


# Appendix (continued)

## Arm Orientation Reset

If prompted by the operator display, perform the following steps to reset the operator.

1. Open switch by performing one of the following steps:
  - Remove spring protection switch mounting screw.
  - Remove terminals on spring protection switch and jumper the two wires together.
2. Reset drivetrain position by performing one of the following steps:
  - If counterbalance springs are pointing right, press up button to move arm counterclockwise until spring assembly shaft key is pointing up (12 o'clock position).
  - If counterbalance springs are pointing left, press down button to move arm clockwise until spring assembly shaft key is pointing up (12 o'clock position).
3. Re-install switch:
  - Re-install mounting screw
  - Remove jumper and reconnect terminals to switch COM and NC terminals.



4. Verify arm position is in the vertical position.
5. Verify spring assembly orientation matches intended handing.
6. Enter Limit Learn mode and set the limits.

# Contact Information

## LiftMaster.com

Visit LiftMaster.com to locate a professional installing dealer in your area.

LiftMaster Partner Portal:

**[Partner.Liftemaster.com/login](https://partner.liftemaster.com/login)**

LiftMaster Training Academy:

**[LiftMasterTraining.com](https://LiftMasterTraining.com)**

For any additional questions, or support please contact LiftMaster Customer Service/Support at:

800-528-2806

Mon-Fri 5:00 am to 6:00 pm MST

For troubleshooting and support content/videos:



**<https://support.partner.liftemaster.com/s/gate-operators/barrier-gates/techna>**

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