# Complete Installation Manual for the ECI 109-5 LCD Closed Loop Door Operator Board

**ECI** Electronic Controls, Inc.

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**ECI 109-5 LCD Closed Loop Door Operator Board Manual**

# Revision Sheet

| Revision Number | Date | Revision Description |
|---|---|---|
| 1.0 | 12/15/2010 | New Manual. |
| 2.0 | 12/31/10 | Added Troubleshooting Guide. |
| 3.0 | 2/19/2013 | Added open PL speed and open PL position. |
| 4.0 | 8/29/2013 | Logo change. |
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# Table of Contents

# Warning and Disclaimer

Thank you for purchasing equipment from ECI America, Inc. We want your new equipment to operate safely. Anyone who installs or uses this equipment should read this publication (and any other relevant publications) before installing or operating the equipment.

To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and usually change with time. It is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation is in compliance with the latest revision of these codes.

At a minimum, you should follow all applicable sections of the National Fire Code, National Electrical Code, ASME A17.1 Safety Code for Elevators and Escalators and the codes of the National Electrical Manufacturer's Association (NEMA). There may be local regulatory or government offices that can also help determine which codes and standards are necessary for safe installation and operation. Equipment damage or serious injury to personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

Our products are not fault-tolerant and are not designed, manufactured or intended for use or resale as online control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems, in which the failure of the product could lead directly to death, personal injury, or severe physical or environmental damage ("High Risk Activities"). ECI America, Inc. specifically disclaims any expressed or implied warranty of fitness for High Risk Activities.

This publication is based on information that was available at the time it was printed. We reserve the right to make changes to the products and/or publications at any time without notice and without any obligation.

# Trademarks

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# Conventions Used

When you see the "notepad" icon in the left-hand margin, the paragraph to its immediate right will be a **special note**. Notes represent information that may make your work quicker or more efficient. The word **NOTE**: in boldface will mark the beginning of the text.

When you see the "exclamation point" icon in the left-hand margin, the paragraph to its immediate right will be a **warning**. This information could prevent injury, loss of property, or even death in extreme cases. Any warning in this manual should be regarded as critical information that should be read in its entirety. The word **WARNING:** in boldface will mark the beginning of the text.

# Safety Information

Knowing the saftey hazards related to any procedure you are about to perform, know what equipment has been specifed for each specific contact, and know what tools and materials you should plan to have available beforehand. Before connecting electrial wiring, take precautions to prevent accidents from happening to yourself and other people around you.
**Always consider safety first!**

❖Wear a hard hat when working in the hoistway.

❖Wear safety glasses or goggles when using power tools.

❖Always wear protective gloves when installing or removing access covers, conduits, wire way or electrical devices.

❖When working on car canopy, always be aware of where the sides of the car are located.

❖Use properly grounded cords and power equipment (ground fault circuit interrupters).

❖Make sure there are proper clearances in hoistway between the car and other devices.

❖Before connecting wiring, cover sharp edges to keep hands and arms from being cut.

❖Always assume that a circuit is live, disconnect power from all related circuits before proceeding with wiring.

❖Clear wiring sites of any unnecessary materials or equipment.

❖Always know where other people are and how the elevator wiring can affect their satety.

❖Safety lock and tag out procedures are always required before performing any kind of service, repair, adjustment, lubrication or inspection of power driven equipment. These procedures help to prevent injury or death caused by power driven equipment.

❖To reduce the danger of electrical shock, always make sure electical connections are secure. Also, make sure no bare wires are exposed after pulling electrical cable.

❖Use a circuit tester to be certain the circuit is not active before touching it.

## Introduction

This manual is intended to help facilitate the installation of ECI 109-5 LCD closed loop door operator board made by Electronic Controls, Inc. The audience of the material included in this manual is for the certified installation personnel. The ECI 109-5 LCD control boards complies with modern performance specifications and meets or exceeds code requirements. Installation and adjustments must meet local, state and national codes.

## System Overview

The **ECI 109-5 LCD** door controller is a microprocessor-based elevator door control board that controls all aspects of the door motion including direction, velocity, acceleration, decceleration and force.

The **109-5 LCD** replaces the Montgomery 105 door board fit, form and functions and will replace the old MAC, 3 board system.

The motor controller (MC) is a unique design for simple installation and reliable performance. The motor controller (MC) provides for total control and adjustment through the entire door cycle and includes nudging. The doors are held under power while standing closed, during running and while standing open.

## Point of Contact

**Information**
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7073 N. Atlantic Avenue
Cape Canaveral, FL 32920
Tel: 1-321-783-5858
Fax: 1-321-783-5959
www.eciamerica.com

**Installing the ECI 109-5 LCD board**

For Old Mac and 104 Conversions

1.      Turn OFF all power to the door operator.
2.      Remove the cover(s) from the operator.
3.      Remove and tag all wires at terminal strips TB1, TB2 and TB3. (See figure 1.)

> ⚠ **WARNING: TB3 must have the wires connected**
> **A1 - Motor red wire**
> **A2 - Motor black wire**
> **COM - Power supply common black wire**
> **+45V - Power supply red wire.  (See figure 1.)**

4.      Unplug the cam switch cable from CN1. (See figure 1.)
5.      Unbolt and remove old board(s).
6.      Mount the Encoder on the shaft with the 1.7 inch double Sheave. (See photo 1.)
7.      The encoder can be mounted in either direction.

**After all hardware is back in place and adjusted**

8. Bolt the ECI 109-5 board in place.
9. Install all the tagged wires into the correct locations on TB1, TB2 and TB3. (See figure 1.)
10. Connect the cam switch cable to CN1. (See figure 1.)

**NOTE:  The CN1 connector is a 13 pin male connector and some operators only h  ave an 11 pin female connector. In this case connect the 11 pin female starting with the pin 1 which is the pin closest to the TEST/RUN switch S4. (See figure 1.)**

11. Connect the encoder cable to connector X2. (See figure 1.)

**NOTE:  Do not apply power at this time.**

12. Now go to completing a learn cycle.

## Electric Wiring of the Control Board

**NOTE: Refer any and all  code installation questions to Elevator and Escalator Electrical Equipment Standard CAN/CSA-B44.1/ ASME 17.5**

**NOTE:  Before applying power verify that the RUN/TEST switch is in the TEST position, the OPEN/OFF/CLOSE is in the OFF, center position and the doors are half way open.**

### LCD Display Menu Structure

**Edit Parameters**
Displays the parameters that can be adjusted.
> Close  Min  Speed
> Close  Max  Speed
> Close  Slow  Down
> Close Fault SP
> CL Torque Limit
> Open Min Speed
> Open Max Speed
> Open Slow Down
> Open Fault SP
> Acceleration
> Deceleration
> Nudging
> Open PL Speed
> Open PL Position

**Load Defaults**
> Loads default parameters.

**Diagnostics**
> Displays information about the output section of the board.

**Learning Cycle**
> Allows the operator to learn the limit swiches.

**Technical Support**
> Displays company information.

**Rotate Display**
> Flips the display to be viewed from the other side of the operator.

## Board Provides the Following Features

**Enter Button:** This button has three (3) uses.

    1: Pressing the Enter button moves the user into the highlighted menu field.

    2: When in the parameter adjustment field pressing the Enter button while on the highlighted parmenter to be adjusted will cause the highlight to be removed. Now adjustments (+ or -) can be made.

    3: When finished adjusting a parameter pressing the Enter button will highlight that parameter again allowing the user to move to a different parameter using + or- or escape (ESC) back to the previous menu.

**Plus (+) Button:** This button has two (2) uses.

    1: Pressing the + button when on a hightlighted menu item causes the hightlight to move in the up direction in the menu.

    2: Pressing the + button when adjusting parameters will cause an increase in thaat parameter. For increasing the parameter values and moving the curser in the up direction in the display menu.

**Minus (-) Button: T**his button has two (2) uses.

    1: Pressing the - button when on a hightlighted menu item causes the hightlight to move in the down direction in the menu.

    2: Pressing the - button when adjusting parameters will cause an decrease in that parameter.

**ESC Button:** Pressing the ESC button returns the dispaly to the previous menu.

**TEST/RUN** Toggle Switch: This allows normal operation or manual mode for programming and adjusting.

**OPEN/CLOSE** Toggle Switch: This allows for open or close operation when in the manual position.

**Com Port:** For initial programming of the board.

Microprocessor with a flash program and data ram allows field reprogramming if it is required.

Nudging.

Programmable CPU for adjustments.

Built in fuse on the voltage side for board protection. (5 amp)

**LCD screen** for field adjustments and display operating status.


## Parameters and there Functions

| | |
|---|---|
| Close Min Speed: | Minimum allowable speed in the closing direction. |
| Close Max Speed: | Maxiumum allowable speed in the closing direction. |
| Close Slow Down: | It is the position where the door starts to slow down. |
| Close Fault SP : | Closing speed if there is an encorder failure. |
| CL Torque Limit: | Torque setting for the closing direction. |
| Open Min Speed: | Minimum allowable speed in the opening direction. |
| Open Max Speed: | Maxiumum allowable speed in the opening directions. |
| Open Slow Down: | It is the position where the door starts to slow down. |
| Open Fault SP: | Opening speed if there is an encorder failure. |
| Acceleration: | How fast the operator moves once it is off either the open or close switch. |
| Deceleration: | How fast it operator slows down once it hit the slow down position. |
| Nudging: | The nudging speed. |
| Open PL Speed | Speed in the PL zone. |
| Open PL Position | Initial opening position though the lone area. |

**NOTE: Before applying power verify that the RUN/TEST switch is in the TEST position, the OPEN/OFF/CLOSE is in the OFF, center position and the doors are half way open.**

## Learning Cycle

1.    Move **TEST/RUN** switch to the middle position.
2.    Place the doors in the middle of the door opening.

**NOTE: During the learn cycle if the operator hits open switch and it is the close the operator board will self correct for the proper direction.**

3.    Hit the **ENTER** button.  (Operator should move open, close, open and then close)
4.    If the learn cycle was completed correctly hit the **ESC** button.
5.    Scoll to the **LOAD** defaults section of the menu.
6.    Hit the **ENTER** button.
7     Go to **TEST** and do an open and a close to verify the direction is correct and look at the movement.

## 103109-5  LCD Control Board Adjusting Procedures

**Manually Move the Doors**

**NOTE:  Use the (+) button to raise the number and (-) button to lower the number.  (+) Button scrolls up and (-) Button scrolls down.**

**NOTE:  At any time during these adjustments and the TEST/RUN switch in the TEST position you can manually open and close the door with the OPEN/OFF/CLOSE switch to observe your changes.**

1.    Place the **OPEN/OFF/CLOSE** toggle switch in the **OFF** position.
2.    Scroll down to edit parameters and hit **ENTER**.
3.    Scroll down to the setting that you want to change, and hit the **ENTER** button.
4.    Adjust the number to the desired setting, hit **ENTER** to save the new setting.
5.    Once you have adjusted the parameters that you want to hit the **ESC** button.
6.    Then check that your changes were proper by using the manual move the door section and verify your adjustments.  If they are not ok then go back to section B (manually move the doors).
7.    Once the parameters are set to give proper door operation place the **OPEN/OFF/CLOSE** switch to the **OFF** position.
8.    Place the **TEST/RUN** toggle switch to run.
9.    Observe door operation for serveral complete cycles.

## Parameter Ranges

**NOTE:  Increasing the value of a parameter will cause an increase in that parameter.  Example; Increasing Close Max Speed from 30 to 40 will cause the Close Max Speed to be faster.**

**NOTE:  Decreasing the value of a parameter will cause an decrease in that parameter.  Example; Increasing Deceleration  from 35 to 25 will cause the Decel eration rate to be slower.**

| | | | |
|---|---|---|---|
| Close Min Speed | 1-100 | Open Min Speed | 1-100 |
| Close Max Speed | 1-100 | Open Max Speed | 1-125 |
| Close Slow Down | 1-1500 | Open Slow Down | 1-1500 |
| Close Fault SP | 1-100 | Open Fault SP | 1-100 |
| CL Torque Limit | 1-100 | | |
| Acceleration | 1-100 | | |
| Deceleration | 1-100 | | |
| Nudging | 1-100 | | |
| Open PL Speed | 1-100 | | |
| Open PL Position | 1-500 | | |

## Adjusting Operating Parameters (Editing Parameters)

**NOTE:  Use the (+) button to raise the number and (-) button to lower the number.  (+) Button scrolls up and (-) Button scrolls down.**

**NOTE: At any time during these adjustments and the TEST/RUN switch in the TEST position you can manually open and close the door with the OPEN/OFF/CLOSE switch to observe your changes.  You must ESC out of the Edit Parameters before thay are saved if a power shut down happens**

1.    Place the **OPEN/OFF/CLOSE** toggle switch in the **OFF** position.
2.    Scroll down to edit parameters and hit **ENTER**.
3.    Scroll down to the setting that you want to change, and hit the **ENTER** button.
4.    Adjust the number to the desired setting, hit **ENTER** to save the new setting.
5.    Once you have adjusted the parameters that you want to hit the **ESC** button.
6.    Then check that your changes were proper by using the manual move the door section and verify your adjustments.  If they are not ok then go back to section **B** (manually move the doors).
7.    Once the parameters are set to give proper door operation place the **OPEN/OFF/CLOSE** switch to the **OFF** position.
8.    Place the **TEST/RUN** toggle switch to run.
9.    Observe door operation for serveral complete cycles.

### Door Closing Force Adjustment

1. Now that the doors are running at the desired speed and the **RUN-TEST** switch is still in the **TEST** position, stop the doors at the mid-point in the closing direction by toggling the **OPEN-STOP-CLOSE** to the **STOP** position (center).
2. Adjust the **CCL** parameter to **0**.
3. Toggle the **OPEN-STOP-CLOSE** to the **CLOSE** position and increase the **CCL** paramerter until you have achieved desired door close operation. This should put your door closing force below the **thirty pound maximum allowed by code**.
4. To insure you are below thirty pounds, use an approved pressure gauge per manufacturer's specifica tions and directions to verify door closing force is to code. (If closing force is over the thirty pound maximum allowed by code adjust the **CCL** paramerter until the closing force is within code.)
5. Open and close the doors with the **OPEN-STOP-CLOSE** switch several times.
6. Recheck the door closing force again, to insure it is still to code, by physically stalling the doors in the dosing direction with your approved pressure gauge.

### Nudging Adjustment

1. With the doors open, the **OPEN-STOP-CLOSE** switch in the **STOP** position and the **RUN-TEST** switch in the **TEST** position simulate a nudge signal by placing a jumper between **L1A** and **D04**. The **D04 LED** should light up.
2. Toggle the **RUN-TEST** switch to the **RUN position.**
3. Adjust the **N** parameter to the desired speed.
4. Toggle the **RUN-TEST** switch to the **TEST** position.
5. Remove the jumper between **LA1** and **D04**.
6. Verify the jumper between **LA1** and **D04** is removed.
7. Toggle the **RUN-TEST** switch to the **RUN** position.
8. Replace door operator cover.

### Adjustments Notes

1. This equipment must be installed, adjusted and maintained to confirm to code requirements.
2. Parameters must be set to conform to kinetic energy code limitations for both maximum and average kinetic energy for ALL doors/all floors (specialty or otherwise heavy doors taken into account).
3. Parameters must be set to conform to closing force limitations. The closing force may not exceed 135 N (30 lbs). During the closing, the kinetic energy may not exceed 10 joules (7.4 lbs. Ft.).

**NOTE: Refer any and all  code installation questions to Elevator and Escalator Electrical Equipment Standard CAN/CSA-B44.1/ ASME 17.5.**

**Board Fuses**

Board Location                                            Fuse Type
F1                                                     AGC5

**Diagnostics Screen**

The Diagnostics screen displays the following information:

> VBUS = 45V input voltage.
> DRIVE = % of total power being used and the Stall Timer.
> TEMP = Temperature of the output FETs.
> MOTOR = Current the motor is using.
> SPEED; POSITION=Overall speed in that direction and the encoder position.
> CYCLE = Total of full cycles of the door operation since being programed.
> DOOR STALL TIMER= 17 seconds in either direction once the door is stalled.

**NOTE: A complete cycle starts at the Full Close, Full Open then back to Full Close.**

**Door Stall Timer**

If movement of the door is stopped in either direction, for 17 seconds, the operator will quit running. The door stall timer can be reset in one of the following ways:

1.        A change of direction command from the direction it stalled in from the main controller.
2.        Removal of the 45V.
3.        Placing the **TEST/RUN** switch into the **TEST** position and give the board a direction change with the **OPEN/OFF/CLOSE** switch then return the **OPEN/OFF/CLOSE**      to the **OFF** position and the **TEST/RUN** to the **RUN** position.

### Input & Output Terminals

The PM/SSC door operator control requires an input of single phase 115 VAC. When this power is supplied by a transformer, the transformer must have a rating of at least 500 VA. Input and output terminal signals are shown below.

L1A to L2A     120VAC @ 500 VA. If one of the input lines is grounded, it should be connected to L1A.

D03 to L1A     Open limit signal. A relay across these terminals will be de-energized when the open limiit micro switch is actuated. Relay will be energized at all other times.

D07 to L1A     Signal to close. When a relay contact across these terminals is made up, the doors will close.

D010 to L1A     Signal to open. When a relay contact across these terminals is made up, the doors will open.

D017 to L1A     Close limit signal. A relay across these terminals will be de-energized when the close limit micro switch is actuated. Relay will be energized at all other times.

D03 to D010     Auxiliary to "O" relay. A relay across these terminals will be energized only when the doors are opening.

D07 to D017     Auxiliary to "C" relay. A relay across these terminals will be energized only when the doors are closing.

D04 to D07     Reduced speed closing signal. When the doors have a signal to close, and a relay contact across these terminals are made up, the door speed is controlled by **N** parameter.

<u>F NC NO</u>
  C     Auxiliary C relay switching contact. Designates a form "C" contact on 1-C relay.

<u>F NC NO</u>
  O     Auxiliary O relay switching contact. Designates a form C contact on 1-0 relay.

OPTION

DSD to SS     Used on some projects for load balancing or other customer requirement.

### For Old MAC and 104 Conversions

1. Turn OFF all power to the door operator.
2. Remove the cover(s) from the operator.
3. Remove and tag all wires at terminal strips TB1, TB2 and TB3. (See Figure 1)

> ⚠️ **WARNING: TB3 must have the wires connected**
> **A1 - Motor red wire**
> **A2 - Motor black wire**
> **COM - Power supply common black wire**
> **+45V - Power supply red wire.  (See figure 1.)**

4. Unplug the cam switch cable from CN1. (See figure 1.)
5. Unbolt and remove old board(s).

### After all hardware is back in place and adjusted:

6. Bolt the ECI 109-5 LCD board in place.
7. Install all the tagged wires into the correct locations on TB1, TB2 and TB3.  (See figure 1.)
8. Connect the cam switch cable to CN1. (See figure 1.)

> 📝 **NOTE:  The CN1 connector is a 13 pin male connector and some operators only  have an 11 pin female connector. In this case connect the 11 pin female starting  with the pin 1 which is the pin closest to the TEST/RUN switch S4. (See Figure 1)**
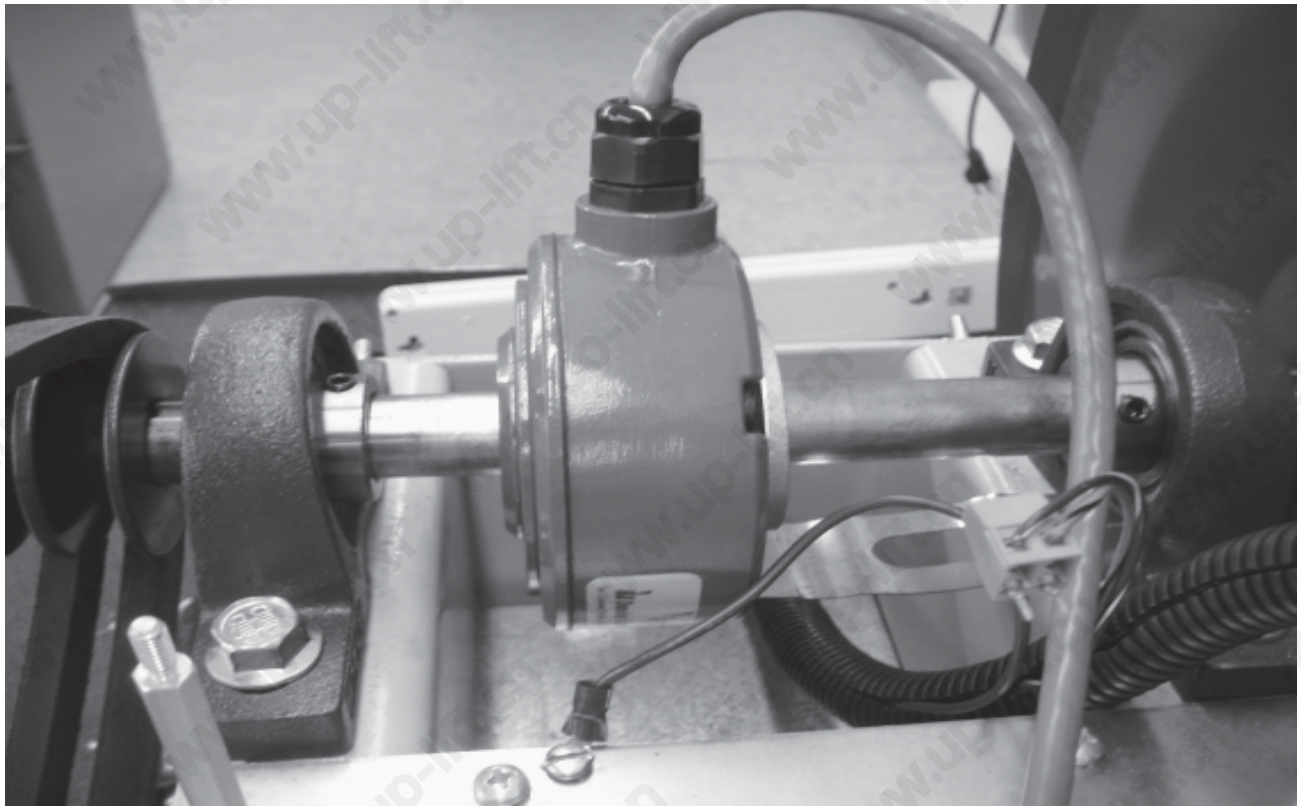
Modernize (Convert) any Mac Operator into Close Loop Operation (for less) w/ Board 109-5Kit. A Modernization's team dream product; adding additional profit to the bottom- line!
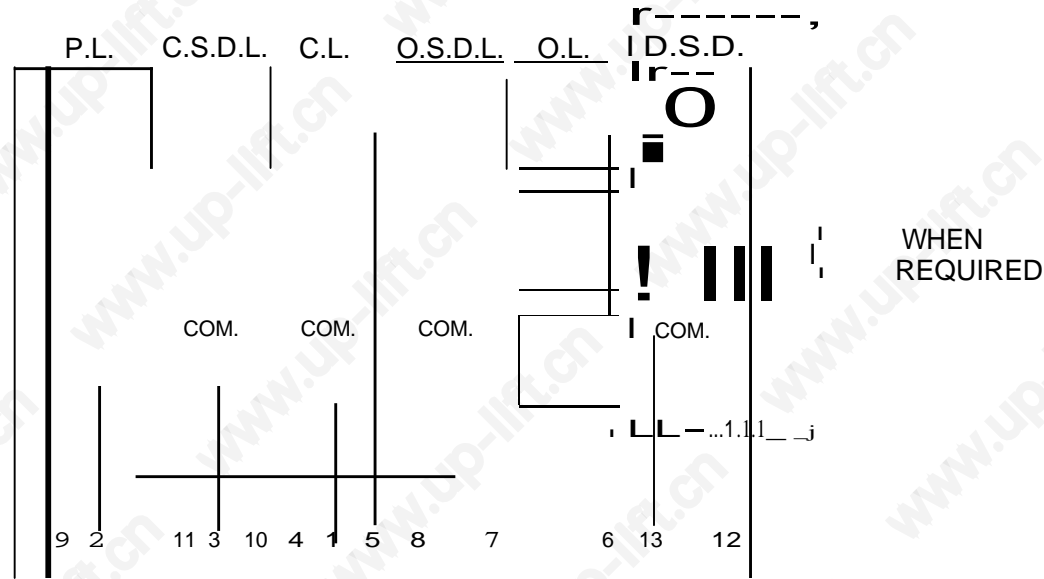
In addition to being a smarter board Big Savings are realized in reduced installation cost: One Man can easily install the conversion kit as neither motor nor operator needs to be replaced. Additionally, in group situations once the first operator has been set-up the parameters can be up loaded to the tool and then down loaded into the additional operators. (The up loaded data can be stored in the job's profile information back at the office for additional back up capabilities.)

Not only do you save hundreds of dollars in labor cost, it's competitively priced. The Savings continue with reduced shipping cost; the entire kit weights only 4lbs. Our Specialized encoder installs on the idler shaft eliminating any belt slippage that can occur in our competitors unit. Additionally, our board was designed to utilize the existing motor encoder if the operator was already set-up for closed loop operation such as with the Kone/MAC-105. The boards, tools or kits come with comprehensive installation manuals and free technical help.

Order by part number:

- P/N 109-4  is drop in replacement for the 104 board as well as all  earlier MAC 3 board group revisions for open loop performance.. An additional wiring harness may be necessary in certain appli cations when replacing earlier vintage 3 board  group door operator board assembly's ; please order by p/n 109-4/3H
- P/N 109-5 is drop in replacement for Kone/ MAC105 closed loop operators
- P/N 109-5KIT converts any MAC Operator into closed loop operation kit includes 109-5Board & Encoder.
- P/N SDT-1109  is the Hand Held Service Tool for Board 109-5
- P/n ECI-109-5ENC Shaft Encoder
- ECI stocks all motors, encoders and accessories for MAC operators

# Microswitch Wiring

P.L.   C.S.D.L.   C.L.   O.S.D.L.   O.L.   D.S.D.

O

WHEN
REQUIRED

COM.      COM.      COM.      COM.

9  2      11  3   10   4   1   5   8      7      6  13   12

DIAGRAM 1

DIP  SWITCH
1:      BLACK
2:      RED
3:      YELLOW
4:      BLUE
5:      BROWN
6:      ORANGE
7:      GRAY
8:      VIOLET
9:      WHITE/BLACK
10:     WHITE/RED
11:     WHITE/GREEN
12:     WHITE/YELLOW
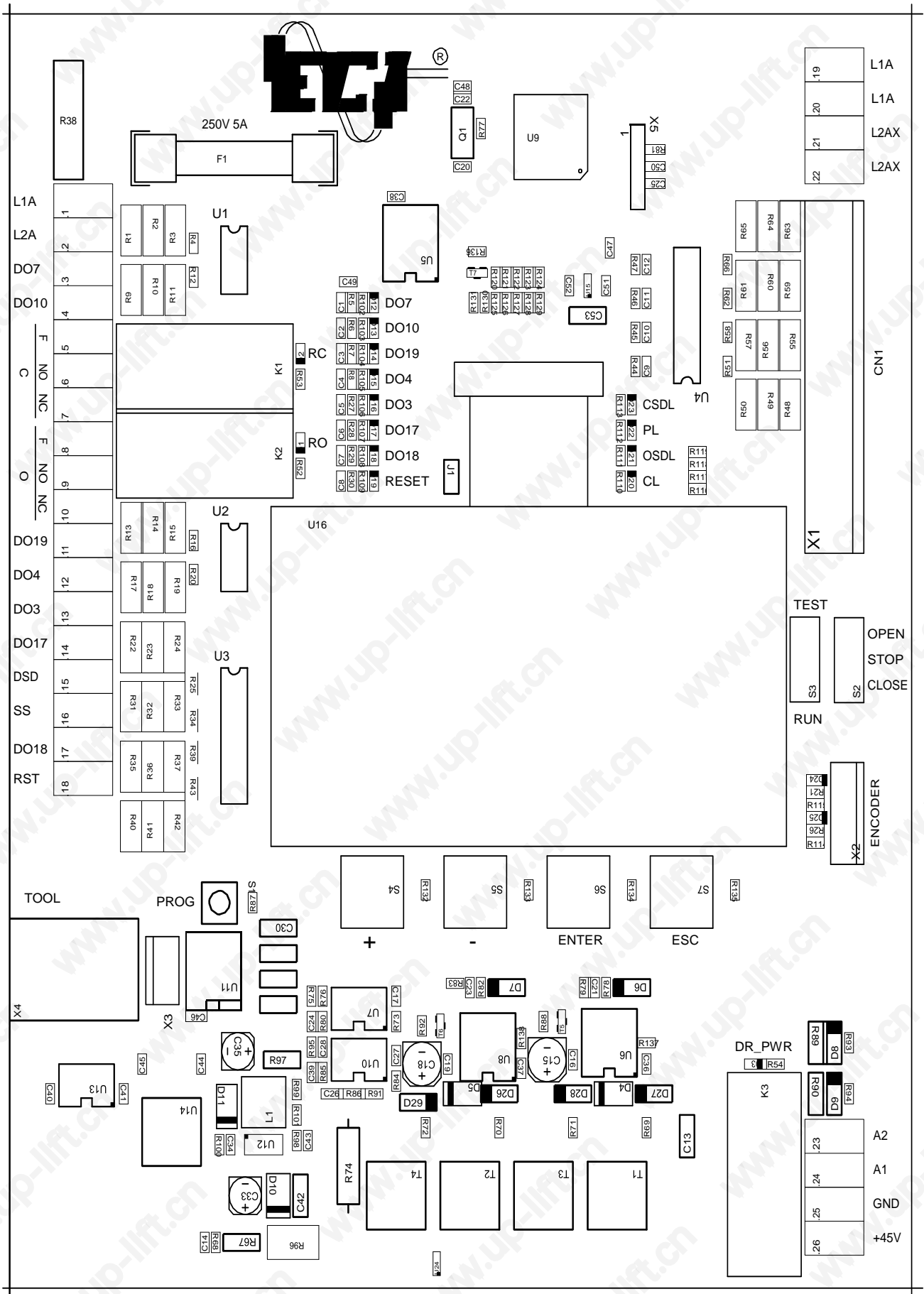13:     WHITE/BLUE

| REV: | A   !RELEASE FOR PRODUC'nON   18/31/10 |
|------|----------------------------------------|
|      | DESCRIPTION                       DATE |

*Electronic Controls, Inc.*

DRAWING DESCRIPTION
microswitch   wiring

DRAWN BY
*B.FTSHER 8/31/2010*

SCALE   NONE

SHEET NO.   1  OF  1

DRAWIN i-rcoswitch   IREVA

ECI

250V 5A
F1

R38

C48
C22
Q1
R77
C20

U9

X5
1
R81
C50
C26

L1A
L1A
L2AX
L2AX
19
20
21
22

L1A
L2A
DO7
DO10

1
2
3
4

R1 R2 R3 R4
R9 R10 R11 R12

U1

C38
U5
R136
T1
R119 R121 R123 R125
R120 R122 R124 R128
R131 R130

C49
C47
C52
C51
C53

R47 C12
R46 C11
R45 C10
R44 C9

R65 R64 R63
R66 R61 R60 R59
R62 R58 R57 R56 R55
R51 R50 R49 R48

CN1

F
C
NO
NC
5
6
7

K1
K2

R5 C1
R6 C2
R7 C3
R8 C4
R27 C5
R28 C6
R29 C7
R30 C8

R102 T2
R104 T3
R106 T4
R108 T5
R107 T6
R109 T7

RC
R53
RO
R52

DO7
DO10
DO19
DO4
DO3
DO17
DO18
RESET

J1

R113 C23
R112 C22
R112 C21
R110 C20

CSDL
PL
OSDL
CL

R117
R116
R115
R114

U4

X1

F
O
NO
NC
8
9
10

R13 R14 R15 R16
R17 R18 R19 R20

U2
U3

U16

DO19
DO4
DO3
DO17
DSD
SS
DO18
RST

11
12
13
14
15
16
17
18

R22 R23 R24
R31 R32 R33 R34
R35 R36 R37 R39
R40 R41 R42 R43

R25
R26

TEST
S3
RUN

S2
OPEN
STOP
CLOSE

R24
R21
R118
R125
R116

ENCODER
X2

TOOL
X4

PROG
R87

S3

S4
R132

S5
R133

S6
R134

S7
R135

+
-
ENTER
ESC

X3
U11
C30
C46

R75 R76
R74 R80
R95 R28
R39 R85

C24
U7
R73 R92
U10

C17
R84
C27

R83 C23
D7

R79 R78
D6

R137

DR_PWR
R89
R93
D8

R54
R60
R94
D9

C45
C44
C35
R97

C40
U13
C41

D11
L1
R99
R101
U12
R98
C43
R104
C34

C26 R86 R91

D29
C18
C19
D5
D26
U8
C15
C16
U6
C36

D4
D28
D27

R72
R70
R71
R69
C13

A2
A1
GND
+45V

23
24
25
26

K3

R74

C33
D10
C42

C14 R68 R67 R96

# Troubleshooting Guide

**Closing Speed too Slow:**
> Check for binds in the door system.
> Increase the Closing Max Speed.
> Increase the Closing Torque Limit.
> Increase the Acceleration Speed.

**Opening Speed too Slow:**
> Check for binds in the door system.
> Increase the Opening Max Speed.
> Increase the Opening Torque Limit.
> Increase the Acceleration Speed.

**Door not fully Closed:**
> Check for binds in the door system.
> Decrease the Close Slow Down.
> Move the limit switch.

**Door not fully Open:**
> Check for binds in the door system.
> Decrease the Open Slow Down.
> Move the limit switch.

**Doors are Slamming Open:**
> Decrease the Opening Max Speed.
> Increase the Open Slow Down.
> Move the Limit Switch.

**Doors are Slamming Close:**
> Decrease the Closing Max Speed.
> Increase the Close Slow Down.
> Move the Limit Switch.

**Door Operator not working in Automatic Mode:**
> Toggle switch is either in the test or middle position.

**Door Operator not working in Test Mode:**
> Toggle switch is either in the run or middle position.

**No power on the board:**
> Check the incoming voltage.
> Check the fuse on the board.

**Nudging Speed to Slow:**
> Increase the Nudging Speed.

**Nudging Seep to Fast:**
> Decrease the Nudging Speed.

**Door Closing Force is to High:**
> Decrease the CL Torque Limit.

**ECI 109-5 LCD Closed Loop Door Operator Board Manual**

**Warranty Policy**

Electronic Controls, Inc warrants this product to be free from manufacturing and workmanship defects under normal use for a period of twelve months (12) from the date on which the product was shipped. In the event this product or any other component part is found to be defective within the warranty period, the purchaser must notify Electronic Controls, Inc within the warranty period and the product or component must be returned to Electronic Controls, Inc within thirty (30) days after notice of the warranty claim.

Electronic Controls, Inc entire liability under this warranty and the purchaser's exclusive remedy shall in sole discretion of Electronic Controls, Inc be either of the following:

Replacement of the defective product or defective component part. (Or) Repair the defective product or the component part.

This limited warranty does not extend to any labor or other expense incurred by the purchaser and only covers the repair or replacement of the product or component part supplied by Electronic Controls. Any misuse or unauthorized service of the product or any of the component parts shall render this warranty null and void.

In no event will Electronic Controls, Inc be liable for any damages, including but not limited to, any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use the product. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to all purchasers.

Foregoing limited warranty is the sole warranty given by Electronic Controls, Inc and all other warranties, expressed or implied, included but not limited to, the implied warranties of merchantability and fitness for a particular purpose are excluded. Some states do not allow the exclusion of implied warranties so the above may not apply.