



ECI

QKS-TDC LCD Door Board Installation Manual

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ELECTRONIC CONTROLS, INC. | 7073 NORTH ATLANTIC AVE CAPE CANAVERAL, FL 32920
WWW.ECIAMERICA.COM
800-633-9788



QKS-TDC Door Board Installation Manual

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1.0	5/5/2014	Initial release
2.0	3/9/2017	Manual rewrite and format change
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1 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, ASMEA17.1 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 failure to follow all applicable codes and standards. We do not guarantee the products described in the publication are suitable for you 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 of communication systems, air traffic control, direct life support machines or weapon 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.

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2 Trademarks

All trademarks or registered product names appearing in this document, as they pertain to Electronic Controls, Inc., are the exclusive property of Electronic Controls, Inc.

3 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 and more efficient. The word NOTE: in boldface will mark the beginning of the text.



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When you see the “exclamation point” icon in the left hand margin the paragraph to its right will be a warning. The information could prevent injury, loss of property, or even death in extreme cases. Any warning in this document 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.

4 Safety Information



Know the safety hazards related to any procedure you are about to perform. Know what equipment has been specified for each specific contact and know what tools and materials you should plan to have available. Before connecting electrical wiring, take precautions to prevent accidents from happening to yourself and others around you.

ALWAYS CONSIDER SAFTY FIRST!

- Wear a hard hat when working in the hoist way.
- Wear safety glasses or goggles when using power tools
- Always wear protective gloves when installing or removing access covers, conduits, wireway 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 hoist way between the car and other devices. Before connecting wiring, cover sharp edges to keep hands and arms from being cut.
- Always know where other people are and how the elevator wiring can affect their safety.
- Safety lock and tag out procedures are always required before performing and kind of service, repair, adjustment, lubrication or inspection of power equipment.
- To reduce the danger of electrical shock, always make sure electrical connections are secure. Also make sure no bare wires are exposed after pulling cable.
- Use a circuit tester to be certain the circuit is not active before touching it.



5 Introduction

This manual is intended to help facilitate the installation of ECI QKS-TDC LCD 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 QKS-TDC LCD control board complies with modern performance



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specifications and meets or exceeds code requirements. Installation and adjustments must meet local, state and national codes.

6 System Overview

The ECI QKS-TDC LCD door controlled is a microprocessor-based board that controls all aspects of the door motion including direction, velocity, deceleration and force.

The motor controller is a unique design for simple installation and reliable performance. It provides for total control and adjustment through the entire door cycle and includes nudging. There are no potentiometers to adjust speeds. All adjustments are performed by changing settings displayed on the LCD screen.

6.1 Electrical

120VAC input voltage

6.1.1 Fuses

2 AMP 250VAC AGC type

6.2 Connections

6.2.1 P1 Power and Motor Connection

- 1 – +24VDC common (return)
- 2 – Motor Black wire
- 3 – Motor Red wire
- 4 – no connection
- 5 – 120 VAC line
- 6 – 120 VAC Neutral

6.2.2 P2 – Controller Interface

- 1 – External +24VDC input
- 2 – Safety Switch input
- 3 – Nudge Command input
- 4 – Open Command Input
- 5 – Close Command Input
- 6 – Close Limit output to controller
- 7 – Open Limit output to controller
- 8 – Heavy Door command input
- 9 – External +24VDC common (return)

6.2.3 P3 – CAM switch Connections

- 1 – CAM common for OPEN and CLOSE limit CAMs
- 2 – Open Limit
- 3 – Close Limit
- 4 – OA switch
- 5 – OC switch
- 6 – CC switch
- 7 – CAM Common for OA, OC, CC CAMs

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7073 North Atlantic Ave. Cape Canaveral, FL 32920
800-633-9788

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6.2.4 P4 Remote Control Connection

- 1 – External +24VDC common (return)
- 2 – Open command input
- 3 – Close Command input
- 4 – Same as P2 - 4
- 5 – Same as P2 - 5

6.3 User Interface

6.3.1 Toggle Switches

NORMAL/MANUAL – In normal position the door board responds to controller input commands. In MANUAL position the door board responds to the OPEN/CLOSE switch on the board.

OPEN/CLOSE – Enabled when NORMAL/MANUAL switch is in MANUAL position.

6.3.2 Keypad

+ button – Used to move cursor up or increase speed settings

- button – Used to move cursor down or decrease speed settings

ENTER – Used to select menu options or enter parameter settings

ESC – Used to exit menu or go to previous menu

6.3.3 Jumpers

NORMAL – In NORMAL position inputs from the controller and the remote are enabled

REMOTE – In REMOTE position only inputs from the REMOTE are enabled. Controller inputs disabled

6.3.4 LED Indicators

BRAKE –

DOPEN – On when OPEN Command present.

DCLOSE – On when CLOSE command present

OPEN LIMIT – On when OPEN limit switch is ON CAM

CLOSE LIMIT – On when CLOSE limit switch in ON CAM

SAFETY SWITCH – On when safety switch closed (no obstruction). Must be on for operator to function.

NUDGE – On when NUDGE command present

HEAVY DOOR – On when HEAVY DOOR command present

OA – On when OA switch is ON CAM

OC – On when OC switch is ON CAM

CC – On when CC switch is ON CAM

POWER – On when 120VAC present



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6.3.5 LCD Main Menu

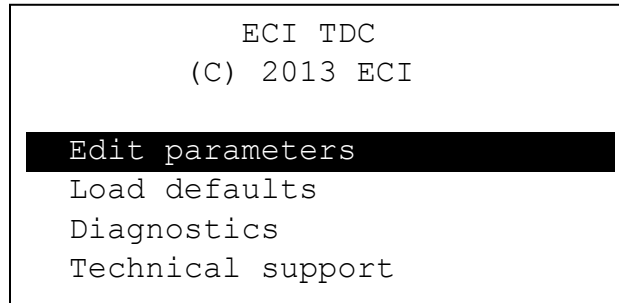


Figure 1 - Main Menu

Figure 1 - Main Menu shows the top 4 items of the main menu. Pressing the “-“ button moves the cursor/hi-light down to reveal other menu options

Edit parameters – Pressing ENTER with the Edit Parameters hi-lighted will enter the parameters menu.

Load Defaults – Pressing ENTER with Load defaults hi-lighted will load the default settings for all parameters. See section 6.3.6.2 for default settings

Diagnostics – Pressing ENTER with Diagnostics hi-lighted will display the diagnostics screen. See section 6.3.8 Diagnostics Screen for more details.

Technical Support – Pressing ENTER with Technical support hi-lighted will display the technical support screen.

Rotate screen – (Not shown above) Pressing ENTER with Rotate Screen hi-lighted will flip the screen 180°

6.3.6 Edit Parameters Menu

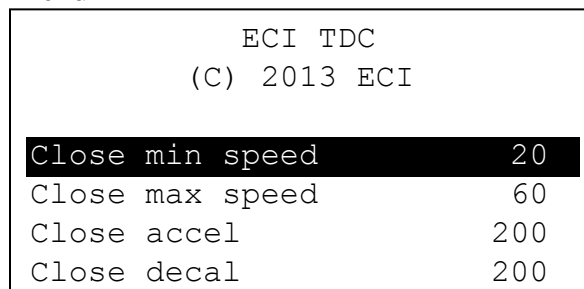


Figure 2 - Edit Parameters Menu

Error! Reference source not found. shows the top of the edit parameters menu. All parameters are listed in Section 6.3.6.2 – Parameter Settings and Defaults. Pressing the “-“ button moves the cursor down and pressing the “ENTER” button selects the highlighted parameter setting. Any changes occur in real time with no need to press “ENTER”. Pressing “ENTER” closes the parameter and sets the parameter at the setting in the display. Pressing “ESC” returns to the Main Menu.



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For speed and force settings, the higher the setting the faster the speed or higher the force. For DEC the higher the setting the slower the deceleration rate.



Press “ESC” to return to main menu after all settings are complete. This saves all changes into permanent memory. Failing to do so will result in parameters reverting to default setting should a power loss occur.

6.3.6.1 Adjustment Notes

This equipment must be installed, adjusted and maintained to conform to code requirements.

Parameters must be set to conform to kinetic energy code limitations for maximum and average kinetic energy for ALL door/all floors (specialty or otherwise heavy doors taken into account).

Parameters must be set to conform to closing force limitations. The closing force may not exceed 135N (30LBS). During closing, the kinetic energy may not exceed 10 joules (7.4lbs/ft)

6.3.6.2 Parameter settings and defaults

Close min speed – Minimum close speed will CAM Switch CC is on CAM. Default is 20.

Range is 1 – 100.

Close max speed – Close maximum speed will CAM switch CC is OFF CAM. Default is 60.

Range is 1 – 100.

Close accel – Close acceleration. Default is 200. Range is 1 – 255.

Close decel – Close deceleration. Default is 200. Range is 1 – 255.

Close cur. Lmt – Close current limit or Close Torque setting. Default is 20. Range is 1 – 100.

Open min sp – Open minimum speed while CAM switch OC is ON CAM. Default is 20. Range is 1 – 100.

Open max speed – Open maximum speed while CAM switch OA and OC are OFF their CAMs. Default is 80. Range is 1 – 100.

Initial open sp – Open speed while CAM switch OA is ON CAM. Default is 60. Range is 1 – 100.

Open accel – Open acceleration rate. Default is 200. Range is 1 – 255.

Open decel – Open deceleration rate. Default is 200. Range is 1 – 255.

Open cur. Lmt – Open current limit or Open torque setting. Default is 50. Range is 1 – 100.

Safety sw stop – Default is 99. Range is 1 – 100.

6.3.7 Load Defaults

Selecting Load Defaults sets all parameters to their default settings. Refer to section 6.3.6.2 for default settings.



6.3.8 Diagnostics Screen

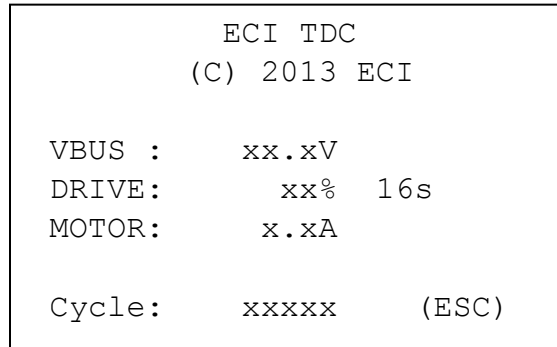


Figure 3 - Diagnostic Menu

VBUS – Displays the current voltage of the VBUS. Should be approx. 160V

DRIVE – The drive to the motor is pulse width modulate. This number reflects the percentage of drive to the motor. 0% will be no power to the motor and 100% will be max drive.

16s – This is the present count of the 16 second stall timer. Should an open or close cycle time out the door board will stall the motor until the open/close command is cycled off/on.

MOTOR – Displays the current amperage to the motor.

CYCLE – Displays the number of cycles the door board has performed since manufacture. One cycle is an open and close.

6.3.9 Technical Support Screen

Displays phone number for technical support.

6.3.10 Rotate Display

Rotates the display for viewing from other side of operator.

7 Installation



Be sure all power is turned off to the operator before starting installation.

1. Set the door position to half open
2. Install TDC Door board onto operator and connect cables to P1, P2 and P3
3. Set NORMAL/MANUAL switch to MANUAL position
4. Set OPEN/CLOSE switch to CENTER position.
5. Ensure the JUMPERS on the board are set to NORMAL
6. Apply power to operator.
 - a. LCD display should show MAIN MENU (Section 6.3.5 LCD Main Menu).
 - b. POWER and SAFETY SWITCH LEDs should be lit. All others should be off if CAMs set to profile in section 9.1 CAM Switch Profile. **The SAFETY SWITCH LED must be lit for doors to move.**
7. Set OPEN/CLOSE toggle switch to OPEN.

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- a. The DOORS should fully open and OPEN LIMIT and OC LEDs should light.
- 8. Set OPEN/CLOSE toggle switch to CLOSE position.
 - a. The doors should fully close and the CLOSE LIMIT, OA and CC LEDs should light.
- 9. At this time door speed adjustments can be made through the EDIT PARAMTERS menu.



When all adjustments are completed press the ESC button to return to MAIN MENU to save all changes into permanent memory.

8 TDC Door Board

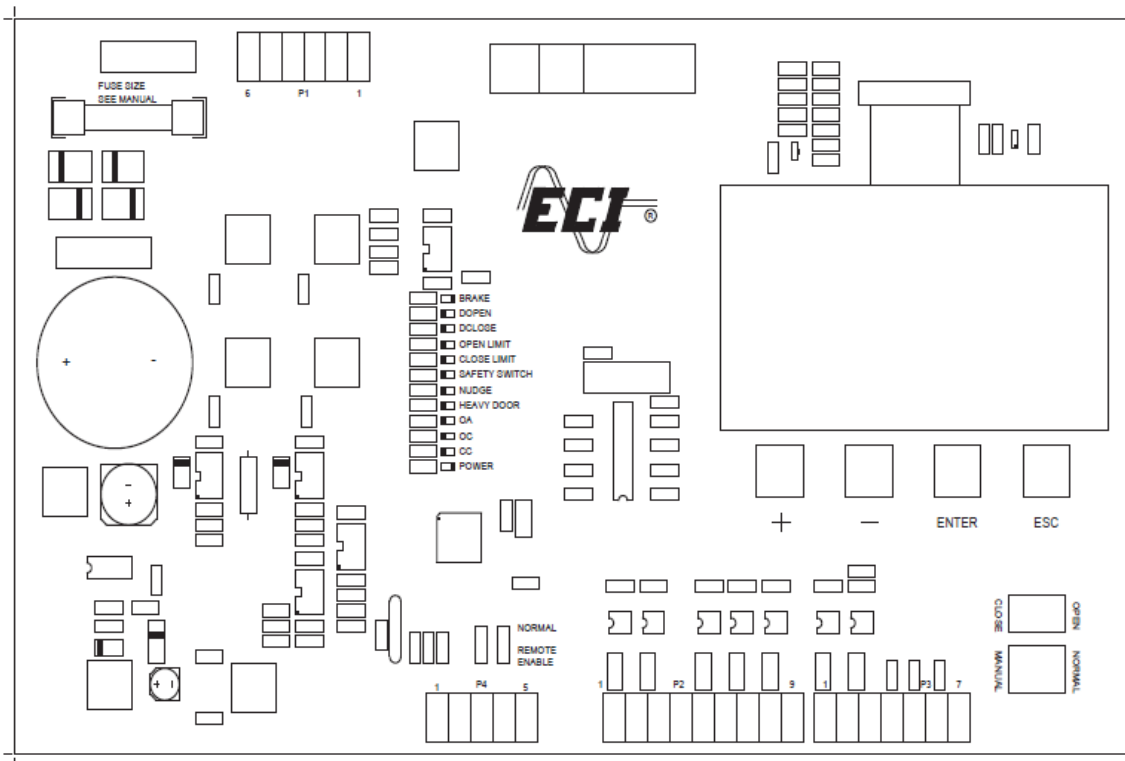


Figure 4- QKS TDC Door Board



9 CAM Switch Wiring

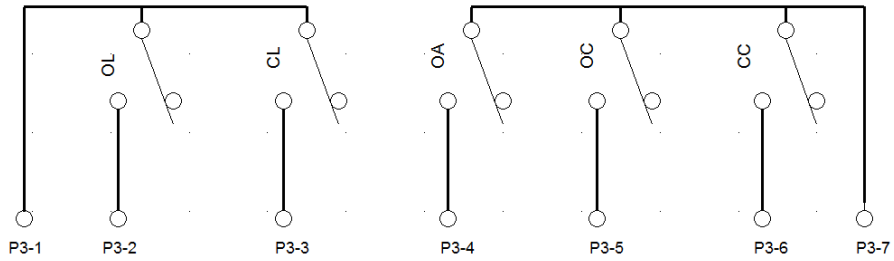


Figure 5 - CAM Switch Wiring

9.1 CAM Switch Profile

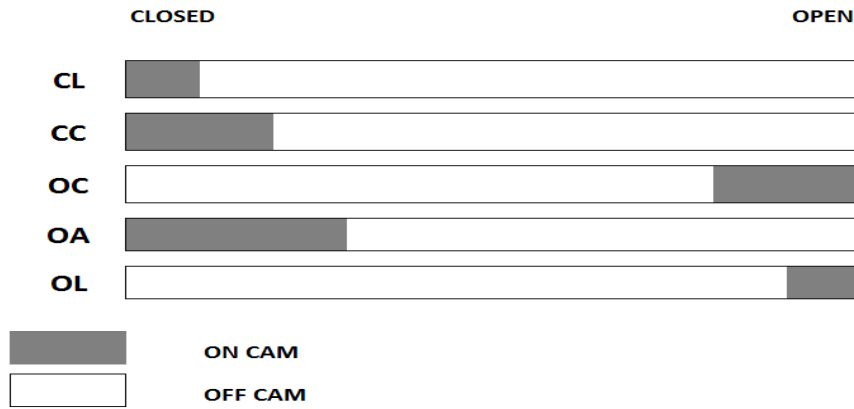


Figure 6 - CAM Switch Profile