



**DIGITAL
CONTROLLER**

LX100

V1.2

**Programming
& Operation**

**Supplementary
Manual**

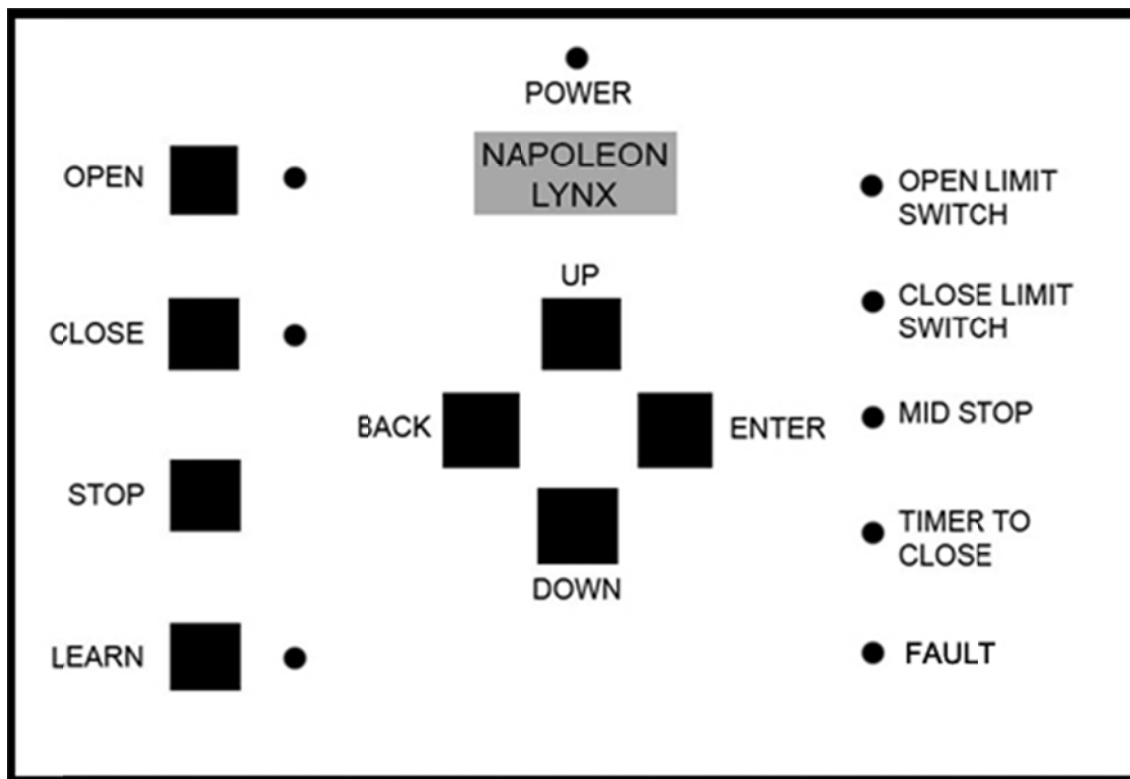


**For more information, please visit www.devancocanada.com
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Introduction

Congratulations on purchasing a Lynx Commercial Door Operator with the LX100 Digital Controller. This supplementary manual explains the programming and functionality of this new, state of the art, controller. Please refer to the operator manual for all other specifications, installation and maintenance instructions.

Controller front view



****WARNING: To reduce the risk of serious injury or death, follow these instructions carefully****

- Read and follow ALL instructions.
- Keep fingers and other body parts away from all moving parts of the door and gate operator system while it is being operated.
- Keep the radio controls away from children. Do not allow children to play with the controls.
- Keep away from the door when it is in motion. Watch the door while it is moving until completely opened or closed.
- Do not cross the path of a moving door.
- Disable any locks and remove any ropes connected to the garage door to avoid entanglement and prevent damage to the system.
- Do not make repairs to cables, springs, or other hardware; call a trained door systems technician. The system is under extreme tension and can cause serious injury or death.
- Ensure that the door is properly operating and balanced. If not call a trained door systems technician to make repairs.
- Save these instructions. The owner or user must understand the safety and operation of the system.

Basic Operation:

Security feature:

Within a certain time, the front panel will lock itself for security reasons. When you approach the operator and the LCD screen is dark, the device is locked. To unlock the operator, press ENTER and then follow the instructions on the LCD screen. The operator is in run mode when the LCD screen says “Napoleon Lynx”. After unlocking the system it is on the main menu, Press BACK to return to “Napoleon Lynx” and Run Mode. In this mode, the front panel controls will function for normal door operation.

Operation from the Front Panel:

OPEN

- If the door is stopped, pressing the button will open the door.
- If it is opening or at open limit, pressing the button will do nothing.
- If it is closing, pressing the button will stop the door and then open it.
- Open LED is lit when door is opening.
- Open Limit Switch LED blinks when the door is opening and is solid when the door is at open limit.

CLOSE

- If the door is stopped, pressing the button will close the door.
- If it is closing or at close limit, pressing the button will do nothing.
- If it is opening, pressing the button will do nothing.
- Close LED is lit when door is closing.
- Close Limit Switch LED blinks when door is closing and is solid when door is at close limit.

STOP

- Pressing the button will stop door motion.
- If the door is not moving, pressing the button will do nothing.

LEARN

- Press and hold the LEARN button for about 3 seconds until the Learn LED lights to program a remote. The LED is solid when looking for a signal from a remote. At this time, press the button on the radio control you wish to program and the Learn LED will blink four (4) times to indicate that the radio control has learned to interact with the operator.
- If no transmitter is learned within 15 seconds, the LED will turn OFF and the learn function is disabled.
- To erase all stored transmitters, hold the LEARN button for 10 seconds. The LED will blink several times to indicate that all transmitters were cleared.

Navigation Keys

- Up, Down, Enter, and Back
 - Enter Key: Press to enter programming mode from main screen or to select current menu option.
 - Back Key: Press to move back in the menu, or to cancel current option.
 - Up Key: Press to move up in the menu.
 - Down Key: Press to move down in the menu.

LED Indicators

- Mid-Stop LED is lit when the door is at the mid-stop position defined by the user.
- Timer to Close (TTC) LED blinks when the door is open and the timer to close is active.
- Fault LED is lit when the photo beam or the safety edge is blocked or when the pass door terminals are not shorted. The LED will blink if there is a momentary obstruction, but is solid when there is a permanent obstruction or a defective safety device.

MODES of Operation:

This controller has six (6) different modes of operation. All operators leave the factory in B2 mode setting. Choose the one that fit your needs by programing the controller as described on page 7 of this manual:

B2 Mode

- Momentary press of OPEN or CLOSE buttons.
- Delay on Close timer is active. After pressing CLOSE, the door will not move until Delay on Close timer counts out. See page 8 to set or disable the Delay on Close timer. (Factory default = 0 seconds, disabled).
- If a fault is generated, momentary presses of CLOSE will not close the door. You can override this by using constant pressure on the CLOSE button until the door is fully closed; if the pressure is released before the door is fully closed it will reverse to full open.

C2 Mode

- Momentary press of OPEN, constant pressure required on CLOSE for the door to close. Releasing pressure on the CLOSE button will stop the door.
- If you press STOP while holding CLOSE, door will stop.
- If you press OPEN while holding CLOSE, door will stop and then reverse to open.

D1 Mode

- Constant pressure required on OPEN and CLOSE. Releasing the pressure will cause the door to stop where it is.
- If you press STOP while holding OPEN or CLOSE, the door will stop.

E2 Mode

- Same as C2 mode with the exception that releasing pressure on CLOSE will cause the door to reverse to open.

T Mode (Timer Mode)

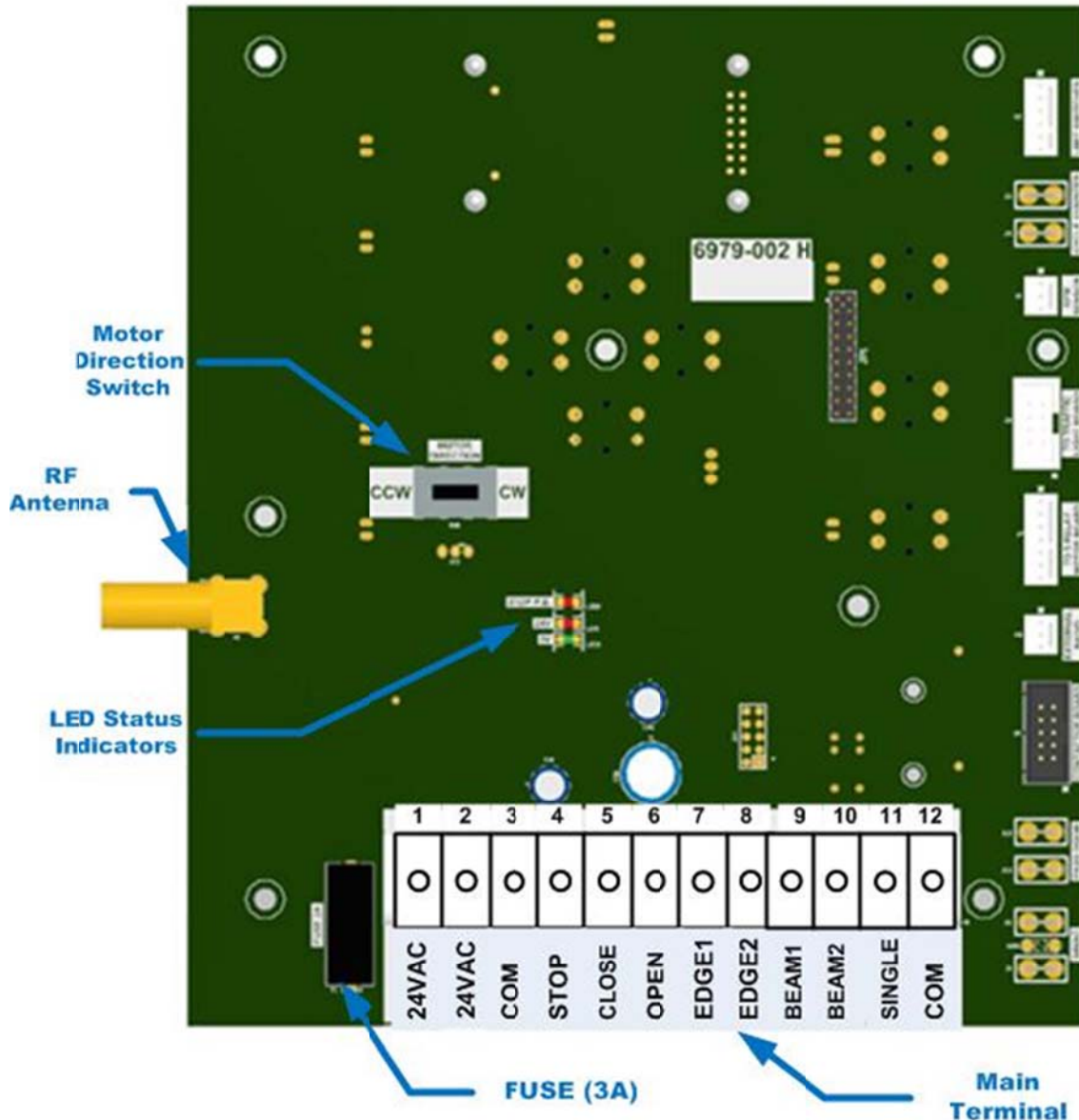
- Timer to Close (TTC) can be set for being active at mid-stop and fully open positions or at mid-stop only. When the door reaches this point the TTC starts to count and the TTC LED blinks. The door will close when the timer ends.
- When the TTC is counting, press STOP to cancel the timer and the auto close function. If you have cancelled the timer with the STOP, press OPEN to start the timer again.
- If TTC is counting at Mid-Stop, press OPEN to open the door to full open. The TTC will start again if enabled.
- If TTC is counting, you can still press CLOSE to close the door.
- A fault will restart the TTC if the door is stopped and the TTC had begun. However, a fault after the door has started moving will cause the door to reverse and the TTC will NOT start again when the door gets to mid-stop or full open.
- Buttons function like in the B2 mode.
- See page 8 to set TTC length and see page 9 to set TTC mode.

TS Mode (Timer Secure Mode)

Same as T Mode except:

- Delay on Close is active. After the TTC has expired, the Delay on Close timer, if set, will start and when it expires, the door will close. (Delay on Close factory default = 0 seconds, disabled).
- After both the timers have expired and the door is closing, a fault will cause the door to reverse. When the door gets to mid-stop or full open position, the TTC DOES start again followed by the Delay on Close timer.

LX100 Digital controller Overview



Notes: Before programming the controller, set the operator's open and close limits.

When power is applied to the operator, the following can be observed on the front panel:

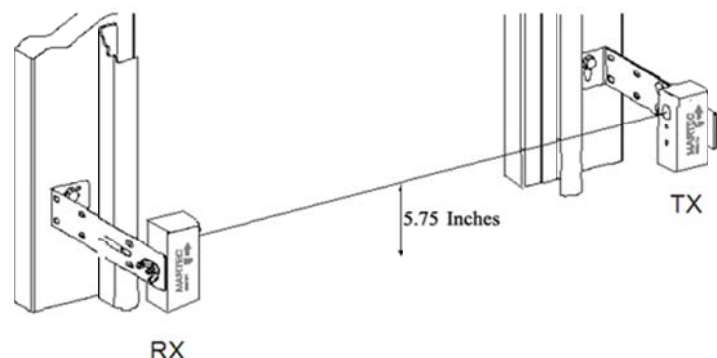
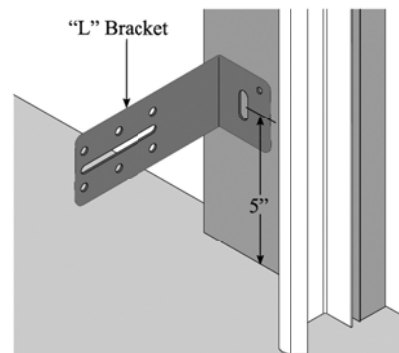
The LCD screen displays "NAPOLEON LYNX" with the backlight on. At the same time, all LEDs will flash once each, while scrolling three times. Then the software version of the Logic Board will be flashed using the LEARN, CLOSE, and OPEN LEDs. For example, if the software version is 1.3.3 the following will occur: LEARN LED will flash once, then the CLOSE LED will flash three times, then the OPEN LED will flash three times.

At this point, the OPEN and LEARN buttons are locked out and the LCD backlight goes off. The LCD control buttons are also locked out except for the ENTER button. To unlock the front panel, press ENTER and follow the directions on the LCD screen. After you have pressed the correct button sequence per the directions on the LCD, the display shall show "MENU UNLOCKED" for about 2 seconds, then it will display "OPERATOR MODE". To control the Operator from the front panel, you must depress the BACK button so the display will state "NAPOLEON LYNX". At this point all front panel buttons are functional and the LCD backlight is lit. The Operator will automatically lock out the Front Panel controls after 10 minutes of non-use.

OPEN, STOP and CLOSE buttons are mounted directly on the cover of the operator, making it easy to control the door.

Wiring the Main Terminal of the LX100 Digital Controller:

- T1 & T2 (24 VAC) – Auxiliary Power Terminal
Provide 24VAC for external applications. Maximum Current 1A
- T3, T4, T5 and T6 (COM, STOP, CLOSE, OPEN)
Connect any standard Open/Close/Stop Wall Station to these terminals. Follow Manufacturer instructions. The Wall station performs the same functions as the front panel controls and the three-button open, close, stop radio control transmitter.
- T7 and T8 (EDGE). Designed to monitor a dry contact edge device.
Follow manufacturer instructions for the installation of the edge.
Take the two wires coming from the edge and connect them to these terminals (one on each terminal). These wires have no polarity.
- T9 and T10 Photocell Terminal. Must connect monitored photocells provided by Lynx.
These sensors send an infrared beam from the transmitter to the receiver. The operator will not function until the photocells are connected and aligned correctly. If the photocells are not aligned or are obstructed, the door can only be closed with constant pressure on the CLOSE button of an Open/Close/Stop Wall Station.
- Follow these steps while connecting the Photocells:
 1. Make sure that the power is disconnected to the system prior to installing the photocells.
 2. Photocells should be mounted as close as possible to the door track, inside the door, to offer the maximum safety precaution.
 3. Photocells should be mounted no more than 6 inches from the floor. Both brackets must be installed at the same height to allow them to align.
 4. Select a mounting location 5 inches above the floor to the centerline of the wall mounting L shape bracket. The safety sensors should be mounted as close to the door track or inside edge of the door as possible to offer maximum entrapment protection. It is very important that both of the wall mounting brackets be mounted at the same height for proper alignment. Repeat this step and install the 2nd wall mounting L shape bracket to the opposite side of the door. Attach the 2 wall brackets using the hardware provided.
 5. Using the wing nuts provided, attach the photocells to the L shape brackets with the arrows pointing up. Do not over tighten.



NOTE: An extension bracket is available for installations with longer distance from the door jamb. Use two 1/4" Carriage Bolts, 1/4" Flat Washers and 1/4" Locking Nuts (all provided).

IMPORTANT: Identify which side of the garage door is exposed to the most sunlight. Mount the sending unit (TX) on the side that is exposed to the most sun. Sunlight may affect the safety sensors and this orientation will help reduce the effect.

6. The transmitter and the receiver both have two 22-gauge wires coming from them. Take one wire from the transmitter and one wire from the receiver (these wires have no polarity) and twist the stripped ends together and repeat on the second wire from each unit. Uncoil the wires from the photocells to the controller and connect the wires to the terminal (T9 & T10). Again, polarity is not important.
7. At this time, you can reconnect the power to the operator. The LEDs on both transmitter and receiver will be lit if installed and aligned properly; the transmitter has a red LED, and the receiver has a green LED.
8. If the photocells are not aligned, then the green LED on the receiver will be off. To align the photocells, you can adjust the position of the transmitter or the receiver on the slot of the bracket until both LEDs are lit. Tighten the brackets.
9. To test the photocell system: open the door to the full open position. Close the door and as the door is closing, obstruct the beam. The door should stop and reverse to open.
10. Test the operator periodically. An open door shall not close and a closing door must reverse when the photo beam is interrupted.

- **T11 and T12 Single Button Wall Station**

A single button wall station may be connected between the single button and common.

Function of the board in response to this terminal varies by mode: (Sequences keep repeating on next press, presses separated by commas).

- B2: Close, Open, Stop.
- C2: Constant pressure for close (release for stop), Open, Stop.
- D1: The single button does not work in this mode.
- E2: Constant pressure on close (reverse to open on release), stop
- T: Same as B2 mode.
- TS: Same as T mode.

Pass Door Interlock Fastons (J12 & J13)

- These terminals must be shorted for the board to function at all.
- If there is a pass door, the door must be closed for the system to function.
- If no pass door interlock is connected, then a jumper must be placed across the terminals.
- If no jumper is placed across the interlock terminal, and there is no pass door, the Fault LED will blink continuously.

PROGRAMMING THE OPERATOR:

From the “NAPOLEON LYNX” screen press ENTER to get to the main menu. Included in the main menu are the Operator Mode, Timer Menu, and Parameters Menu. Use UP or DOWN to select the feature you want and then press ENTER.

- Operator Mode is where you can select one of the 6 pre-set operation modes.
- The Timer Menu is where you can set up the four timers, Run Timer, Mid-Stop Timer, Timer to Close, and Delay on Close.
- The Parameters Menu is where you can select different options, view the cycle counter or reset the operator to factory defaults.

Operator Mode

- Once you have selected the Operator Mode and press ENTER, you will be able to press UP or DOWN to scroll to the desired mode of operation: B2, C2, D1, E2, T, or TS.
- Press ENTER to implement the selected mode.
- Press BACK to cancel and go back to the main menu; the current mode will be the same as before you went into the Operator Mode menu.

Timer Menu

In this menu you can select from Set Run Timer, Mid-Stop Timer, Timer to Close, or Delay on Close. Some of these features are only used in certain modes and can be set, but they may not be used in the selected mode.

Set Run Timer

- Make sure that the door is fully closed. If you select “Set Run Timer” and the door is not closed, you will be prompted to close the door; you must then re-enter the Run Mode and press CLOSE.
- From the Timer Menu select “Set Run Timer” and press ENTER.
- The display will prompt you to press OPEN to start the process or BACK to cancel and maintain the original duration of the timer. You can also press STOP to reset the factory default value.
- After you press OPEN, you can let the door open to the limit switch or press STOP at any time. This amount of time, with the addition of 5 seconds, will be saved as the motor run timer.

Set Mid-Stop Timer

- Make sure that the door is fully closed. If you select “Mid-Stop Timer” and the door is not closed, you will be prompted to close the door. You must then re-enter the Run Mode and press CLOSE.
- From the Timer Menu select “Set Mid-Stop Timer” and press ENTER.
- The display will prompt you to press OPEN to start the process or BACK to cancel and maintain the original duration of the timer. You can also press STOP to reset the factory default value.
- After you press OPEN you must press STOP at the time when the door is at the desired mid-stop height. This amount of time will be saved as the mid-stop timer.

How Mid-Stop Timer works in different modes:

MODE	FUNCTION
B2	Start at fully closed. Stop at Mid-Stop Press OPEN; go to Full Open Press CLOSE Press STOP below Mid-Stop Press OPEN Door stops at Mid-Stop
C2	Same as in B2 mode; use CP on close.
D1	Once at Mid-Stop, if you go above Mid-Stop, Mid-Stop is cancelled until next Fully Closed. If at Mid-Stop, and you close (not all the way to Fully Closed), OPEN again will stop at Mid-Stop. D1 is constant pressure on OPEN and CLOSE.
E2	Same as in C2 mode.
T	Once at Mid-Stop, if you go above Mid-Stop, Mid-Stop is cancelled until next Fully Closed. If at Mid-Stop, and you close (not all the way to Fully Closed), OPEN again will stop at Mid-Stop.
TS	Same as in T mode.

Timer to Close

- From the Timer Menu select “Timer to Close” and press ENTER.
- Use the UP and DOWN to adjust the time in 1second intervals for the first 10 seconds and then in 5 second intervals. You can hold these keys to scroll and the display will stop scrolling at the minimum and maximum values.
- Press ENTER to select the new value or BACK to keep the original value.

Delay on Close

- From the Timer Menu select “Delay on Close” and press ENTER.
- Use UP and DOWN to adjust the time in 5-second intervals. You can hold these keys to scroll and the display will stop scrolling at the minimum and maximum values.
- Press ENTER to select the new value or press BACK to keep the original value.
- Delay on Close factory default = 0 seconds.

Parameter Menu

In this menu you can select from Timer to Close Mode, Delay on Reverse, Single Button Mode, Cycle Counter, and Reset All Parameters.

Timer to Close Mode

- From the Parameter Menu, select “Timer to Close Mode” and press ENTER.
- Use UP and DOWN keys to select “Mid-Stop & Full Open” or “Mid-Stop Only.”
- Press ENTER to select the new option or press BACK to cancel the operation and keep the original choice.

Delay on Reverse Time

- This is the time it takes for the motor to slow down and engage in the opposite direction once a safety reverse is detected or OPEN is pressed, when the door is closing.
- From the Parameter Menu, select “Delay on Reverse” and hit ENTER.
- Use UP and DOWN keys to adjust the time in 0.1second intervals. You may use these keys to scroll and the display will stop scrolling at the minimum and maximum limits, 1 and 1.9 seconds respectively.
- Press ENTER to select the new option or press BACK to cancel.

Single Button Mode

- From the Parameter Menu select “Single Button Mode” and press ENTER.
- Use UP and DOWN to select “Normal Sequence” or “Refresh Timer.” Normal Sequence is used for the open-close-stop-reverse operation. Refresh can be used in T or TS modes to reset TTC while in the open position.
- Press ENTER to select the new option or press BACK to cancel.

MODE	P0 (Start)	P1 (Push 1)	P2	P3	P4
B2 – Norm	FC ¹	OPEN	STOP	CLOSE	REV(OPEN) ²
B2 – Refresh	Same as B2 – Norm				
C2 – Norm	FC	OPEN	STOP	CP CLOSE	RELEASE STOP
C2 – Refresh	Same as C2 – Norm				
D1	There is no single button in D1 mode.				
E2 – Norm	FC	OPEN	STOP	CP CLOSE	RELEASE REV
E2 – Refresh	Same as E2 – Norm				
T – Norm	FC	OPEN	STOP	CLOSE(or TTC) ³	REV(OPEN)
T – Refresh	FC	OPEN	TTC Refresh ⁴	TTC Refresh	After TTC finish, REV(OPEN) ⁵
TS – Norm	FC	OPEN	STOP	CLOSE(or TTC)	REV(OPEN)
TS – Refresh	FC	OPEN	TTC Refresh	TTC Refresh	After TTC finish, REV(OPEN)

1. FC – Fully Closed
2. Reverse to Open position
3. Door will close if you press the single button or wait for the timer to end
4. Restart the Timer to Close
5. After the TTC has ended and the door is closing, if button is pressed the door will Reverse to Open position

Internal Cycle Counter

- From the Parameter Menu select “ Cycle Counter” and press ENTER.
- Press ENTER again when display says “Counter Show Val.”
- The cycle counter will be displayed and cannot be erased because it is used for maintenance.
- Press BACK when done.

Reset All Parameters

- From the Parameter Menu select “Reset All Parameters” and press ENTER.
- Press ENTER again.
- You will be prompted to hold the ENTER key for 10 seconds. The display will count down to zero. This will restore the operator to factory defaults except for the internal cycle counter. If you let go before the 10 seconds are up, the parameters are not reset.
- Press BACK when done.

RADIO CONTROLS

Three Button Open, Close, Stop

- These buttons are mapped to the same functions as the wired control.
- CLOSE will not work in modes that require constant pressure: C2, D1, E2.

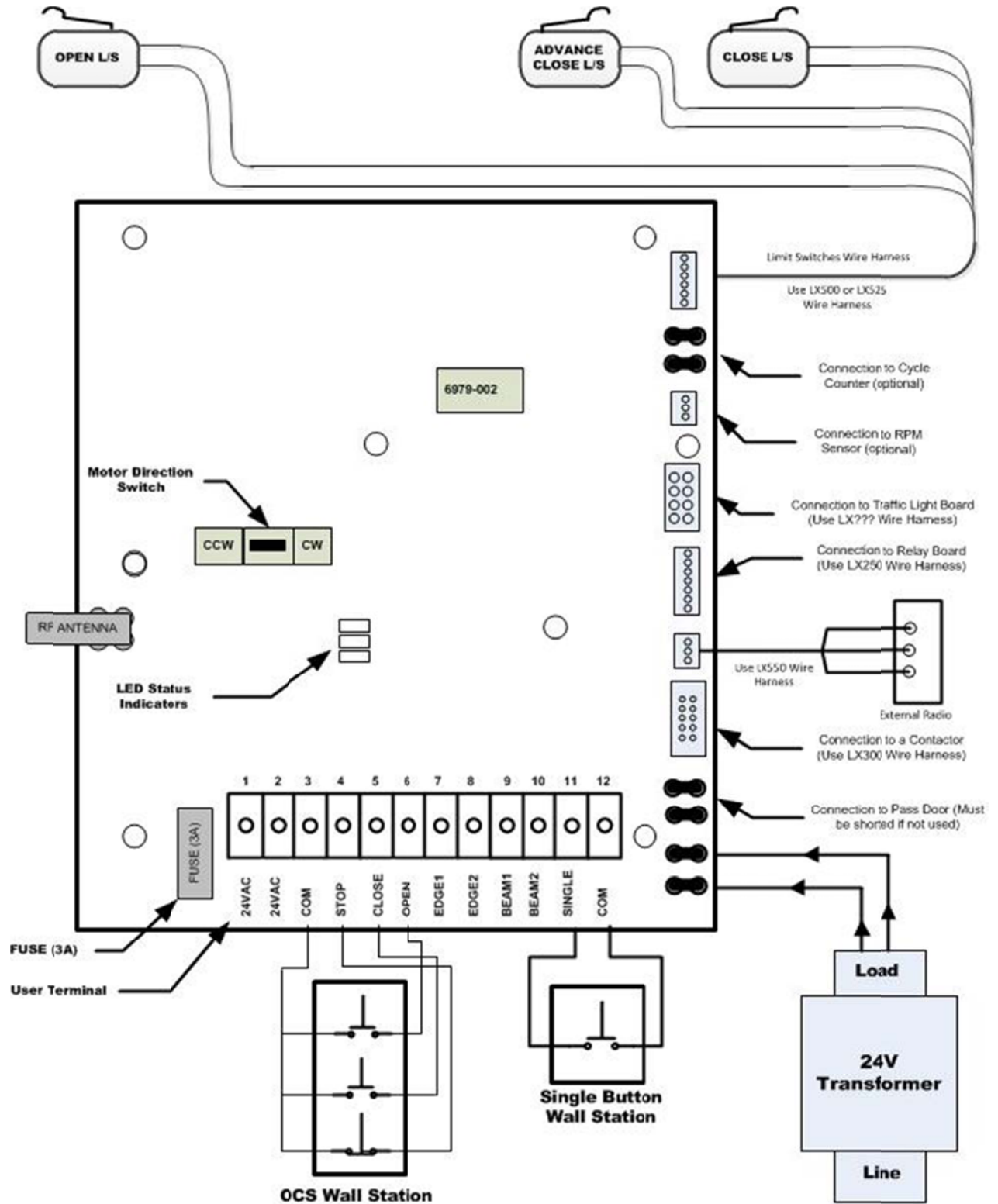
Single Button

- This function is mapped to the same functions as the Single Push Button.
- The CLOSE function does not work in C2 or E2. None of the functions work in D1.

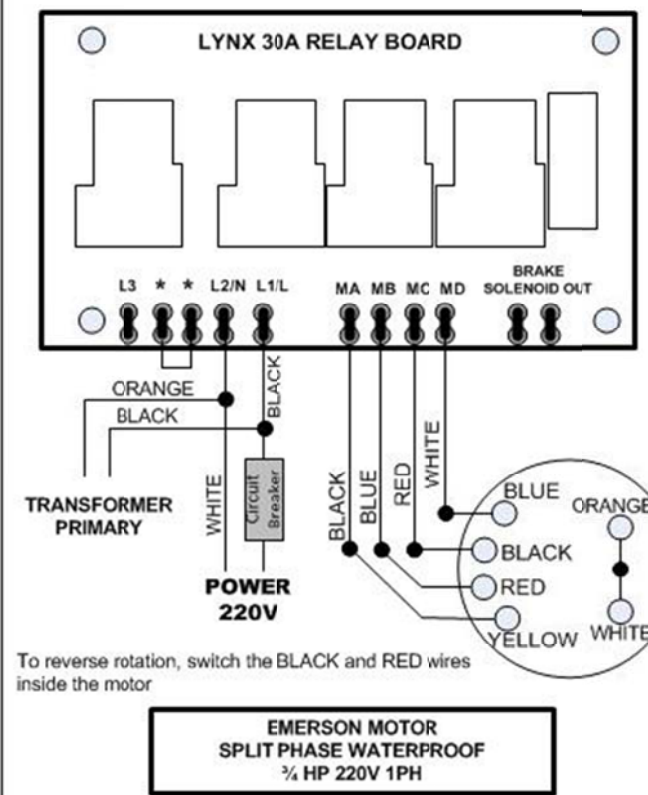
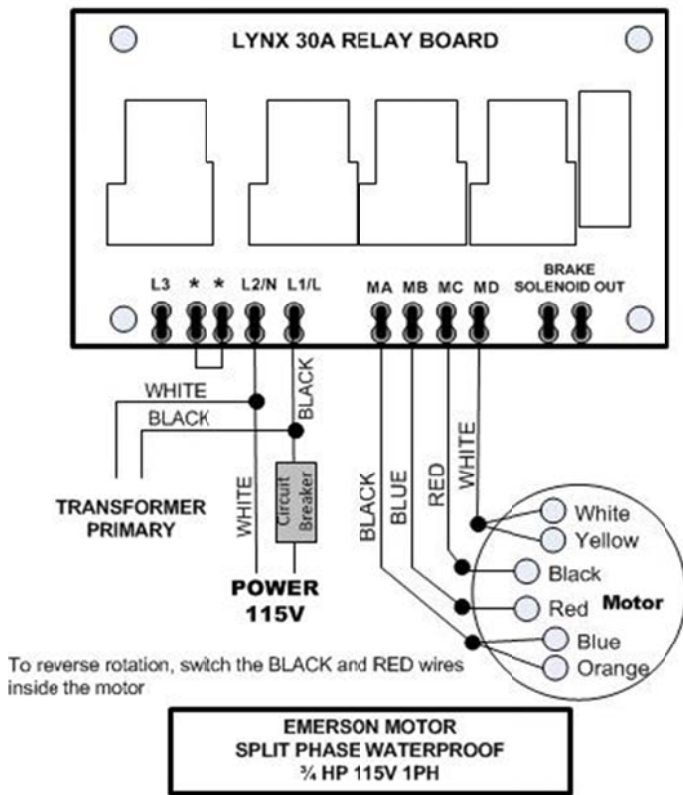
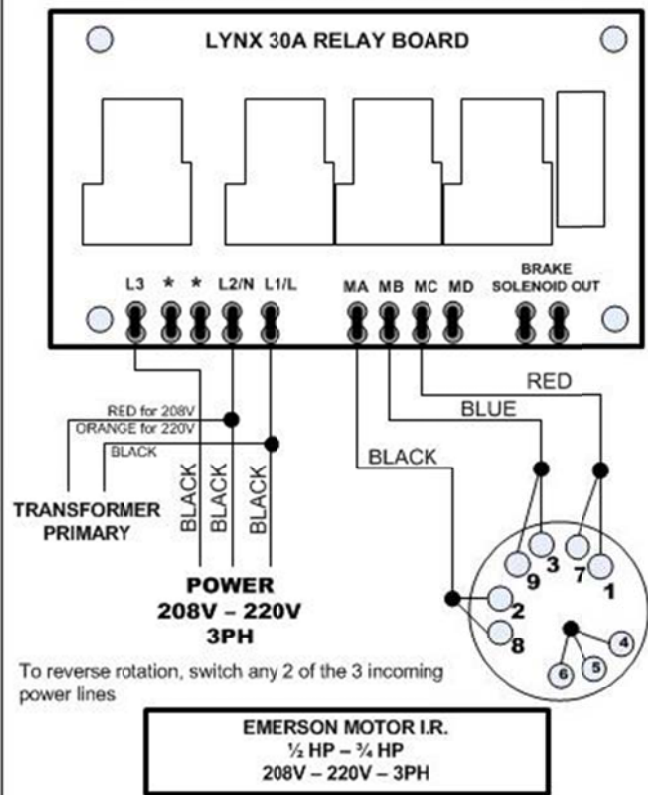
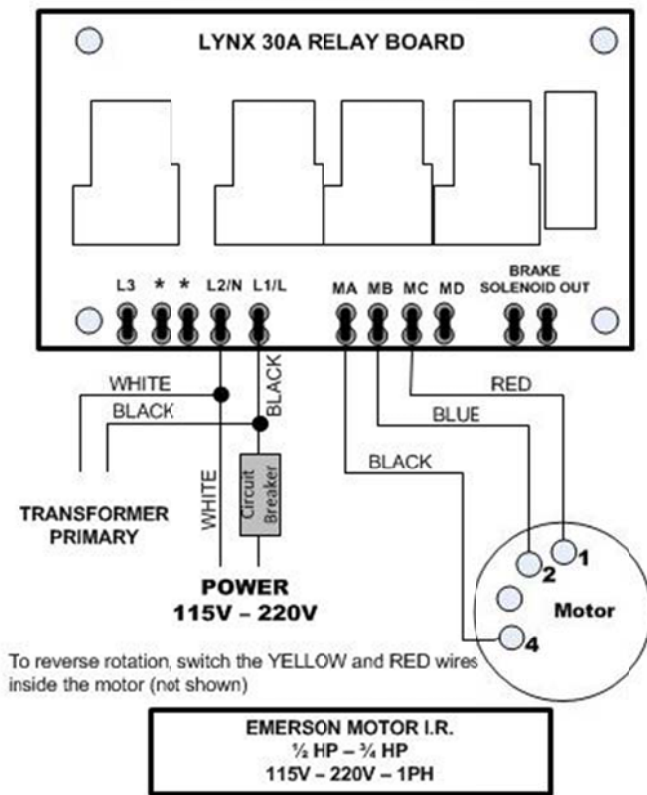
Three Button, Three Door

- Each button works independently to control three different doors.
- The function of each button is mapped to the same functions as the Single Push Button. The CLOSE function does not work in C2 or E2. None of the functions work in D1.

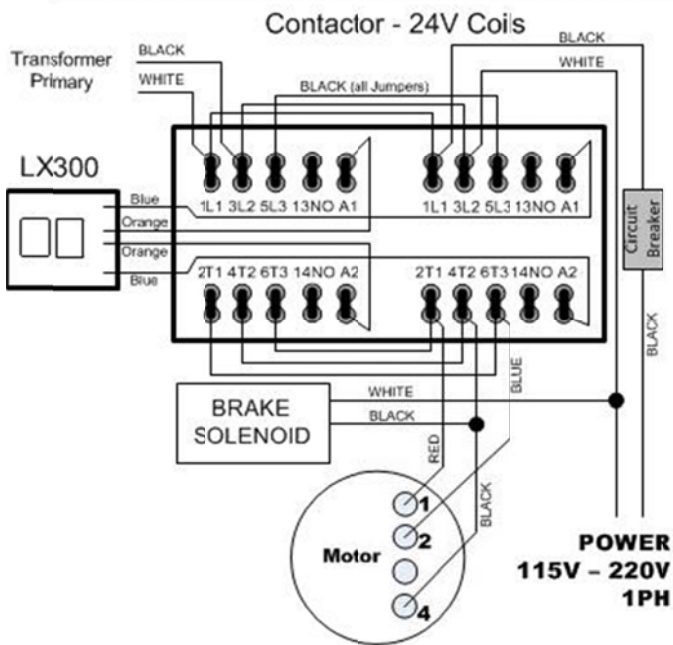
Wiring diagram – LX100 Digital controller



Wiring Diagram – Connection to the relay board

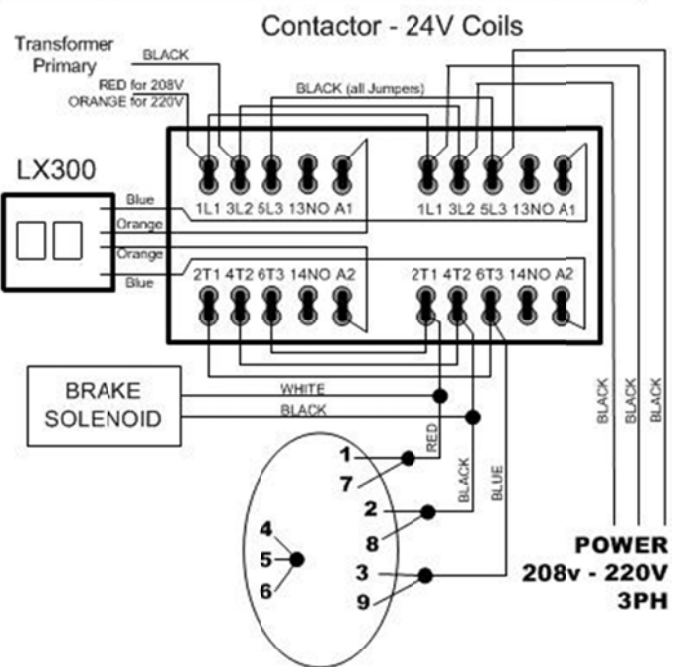


Wiring Diagram – Connection to the Contactor



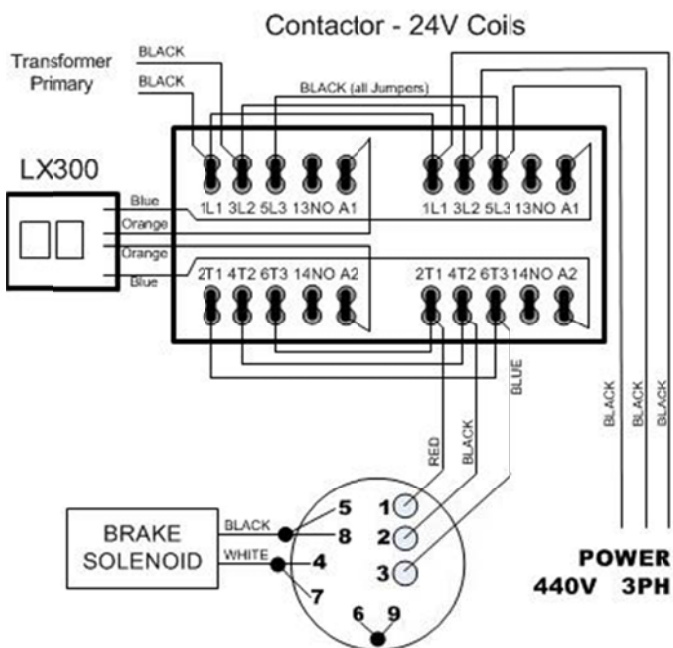
Note: To reverse rotation, switch the YELLOW and RED wires inside the motor

EMERSON MOTOR
½ HP - ¾ HP
115V - 220V 1PH



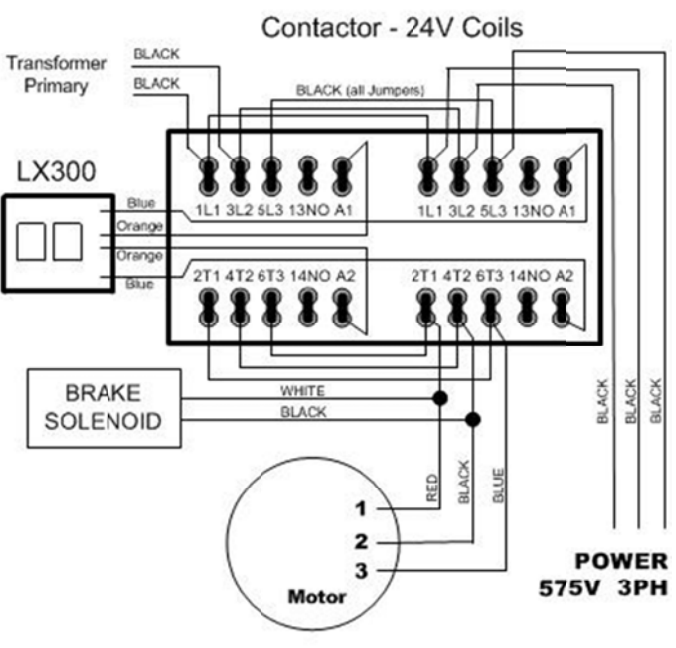
Note: To reverse rotation, switch any 2 of the 3 incoming power lines

EMERSON MOTOR
½ HP - ¾ HP
208V - 220V 3PH



Note: To reverse rotation, switch any 2 of the 3 incoming power lines

EMERSON MOTOR I.R.
½ HP - ¾ HP
440V 3PH



Note: To reverse rotation, switch any 2 of the 3 incoming power lines

EMERSON MOTOR I.R.
½ HP - ¾ HP - 1 HP
575V 3PH

Troubleshooting Guide

Fault	Possible Cause	Fix
The Garage Door Opener will not respond to any command	<ol style="list-style-type: none"> 1.No power supply 2.Circuit breaker is tripped 3.Wall Station is wired wrong 4.Pass door (Interlock switch is activated) 5.Operator in Set-Up mode 6.Defective Motor or Thermal Overload 7.Defective Accessory 8.Defective Control Board 	<ul style="list-style-type: none"> • Verify primary line voltage from power source – the RED POWER LED on the front cover must be on. • Reset circuit breaker. • Use the OPEN, STOP, CLOSE on the front cover to verify that the problem is with the Wall Station. • Verify wall station connections by activating each button and confirming its connection by monitoring the related OPEN, CLOSE & STOP P.B. LED on the controller (should turn on). • Replace Wall Station • Check the PASS DOOR switch. Check that there is a jumper, across PASS DOOR board terminal, if no PASS DOOR is used. • Switch to run mode. Press BACK button until LCD display shows NAPOLEON LYNX. • Consult motor nameplate to verify that proper voltage is getting to motor. • If the motor is too hot. Let it cool down. • Disconnect ALL accessories and connect them one at a time. • Replace control board.
Power LED is OFF	<ol style="list-style-type: none"> 1.Defective Transformer 2.Loose or defective connection 3.On board fuse is blown 	<ul style="list-style-type: none"> • Verify primary line voltage to transformer and Load line voltage from transformer. Replace transformer if defective • Verify Load line voltage to be about 24V. Tighten connection or replace transformer. • Replace 3A fuse.
Can't use OPEN or LEARN keys on Front Panel	<ol style="list-style-type: none"> 1.Menu is locked 	<ul style="list-style-type: none"> • Unlock menu and return to run mode (LCD display should show NAPOLEON LYNX).
The Garage Door Opener will not operate from radio transmitter	<ol style="list-style-type: none"> 1.Defective battery. 2.Defective transmitter. 3.Radio transmitter not programmed 4.Defective Receiver 5.Antenna is missing 	<ul style="list-style-type: none"> • Replace Battery • Replace Transmitter. • Program transmitter into receiver.. • Use an External Receiver or replace LX100 controller. • Screw antenna to onboard coaxial RF type connector

Fault	Possible Cause	Fix
The Garage Door Opener works one direction only	<ol style="list-style-type: none"> 1. Defective limit switch. 2. Defective Limit Switch Harness 3. Defective Contactor 4. Defective Relay board (LX225) 	<ul style="list-style-type: none"> • Replace limit switch. • Replace Limit Switch Harness • Replace defective component. • Replace defective component
Door will only close with Constant Pressure. Fault LED on Front Cover is ON	<ol style="list-style-type: none"> 1. Monitored Photocell is not connected 2. No alignment between RX and TX photocell modules. 3. Photocell beam obstructed. 4. Bad wiring or loose connection (RX and/or TX LED is OFF) 5. Defective photocell. 	<ul style="list-style-type: none"> • Attach monitored photocell to terminals BEAM1 and BEAM2 on controller. • Check alignment. • Remove obstruction. • Check wiring and tighten connections. • Replace photocell.
Rotation of 3 Phase motor is wrong	<ol style="list-style-type: none"> 1. Power supply is out of phase 	<ul style="list-style-type: none"> • Interchange any 2 leads of incoming power lines.

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