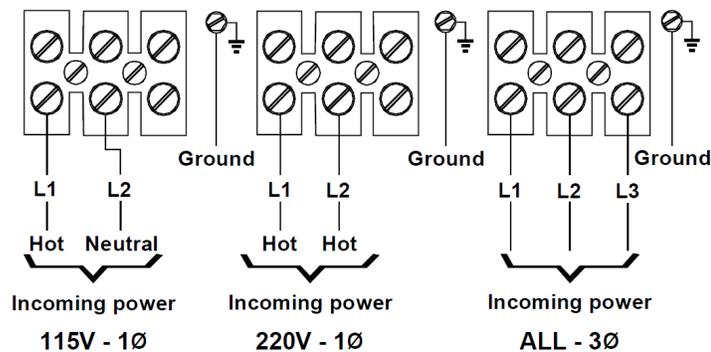


WARNING: These operators have been designed and constructed for use with voltages from 115 to 460 VAC. Check the operator nameplate label on the control box cover for the proper voltage and phase. The application of an improper input voltage or phase will result in catastrophic failure to the internal electrical components.

When hard wiring, observe state and local electrical codes. A wiring diagram is attached to the inside of the control box cover. Connect the appropriate voltage and phase power leads to the appropriate terminals and connect a ground wire to the grounding screw.

The wiring diagram attached inside the cover of the control box details all of the field wiring terminal connections for the operator. Always connect the wires to the push-button control and auxiliary devices exactly as shown.



WARNING:

Control voltage of the door operator is 5 volts DC, Class 2. Do not run the power leads and control circuit wiring in the same electrical conduit.



WARNING

TO PREVENT THE RISK OF PERSONAL INJURY AND / OR DAMAGE TO DOOR OR PROPERTY, ONLY OPERATE DOOR CONTROL WHEN DOOR IS IN CLEAR VIEW. IF CONTROL STATION CANNOT BE LOCATED WHERE THE DOOR IS VISIBLE OR IF ANY OTHER DEVICE IS USED TO CONTROL THE DOOR AN AUXILIARY ENTRAPMENT DEVICE SUCH AS A DOOR EDGE OR PHOTOELECTRIC MUST BE CONNECTED.

Note: These Operators are able to accept monitored safety devices for entrapment protection. To comply with code requirements, at least one monitored safety device **MUST** be installed and wired to the operator. Additional safety devices may be necessary, depending on installation requirements.

Number 22-gauge wire or heavier must be used for wiring the control stations and auxiliary control devices to the operator. Smaller gauge wire may cause operational problems.



WARNING

TO AVOID POSSIBLE DAMAGE TO THE DOOR AND OPERATOR ENSURE ALL DOOR LOCKS ARE DISABLED. SETUP THE LOCKBAR SENSING ON THE CONTROL BOARD, OR USE AN INTERLOCK SWITCH IF A LOCK IS REQUIRED TO RETAIN FUNCTIONALITY.

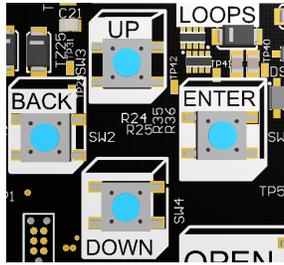
Contents

1	Board Interface	5
2	Headers	6
3	Terminals	7
4	Setup Wizard	8
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1 Board Interface

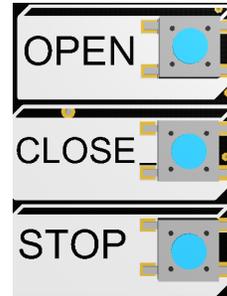
LCD Navigation

The board is equipped with **UP**, **DOWN**, **BACK**, and **ENTER** buttons located to the upper right corner of the board.



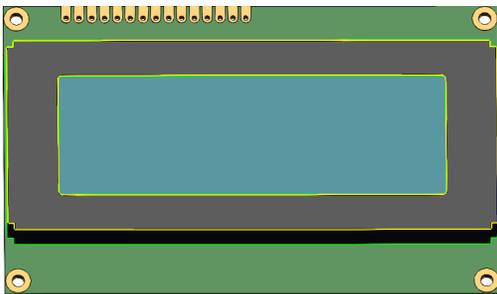
On Board 3-Button Controls

The board is equipped with **OPEN**, **CLOSE**, and **STOP** buttons located to the right side of the board.



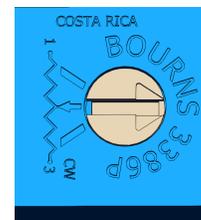
LCD Display

The board is equipped with a 20 x 4 LCD display to provide user feedback and change settings.



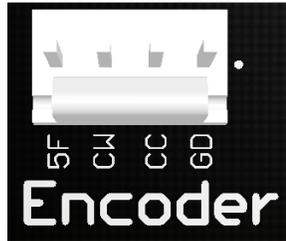
Contrast Adjustment

The board is equipped with a potentiometer in order to adjust the contrast of the LCD screen.



2 Headers

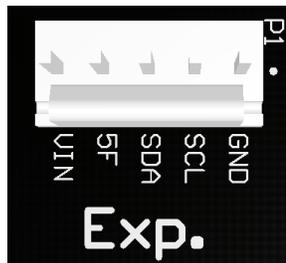
Encoder



Limits



Expansion Headers



3 Wire Header



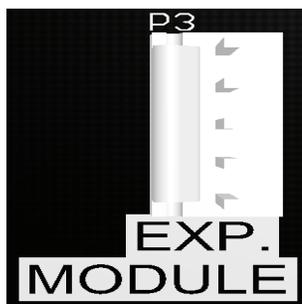
DC Motor Header



AC Motor Header



Expansion Module Header

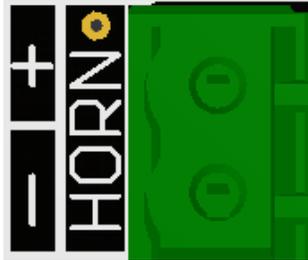


Radio Header

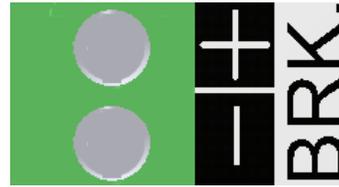


3 Terminals

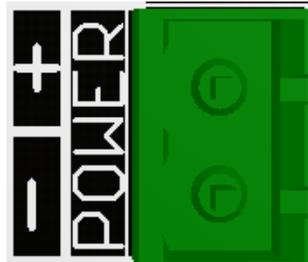
Horn Terminal



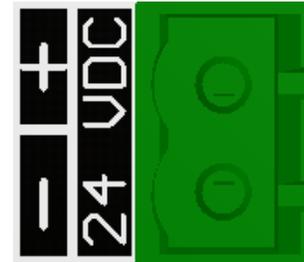
Brake Terminal



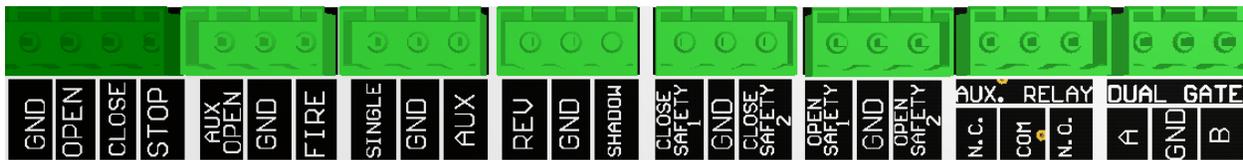
Power Terminal



24 VDC



Terminal Strip



4 Setup Wizard

Setup Introduction

1. To begin setting up the operator press the **ENTER** button.

```
****SETUP WIZARD****  
PRESS ENTER
```

Operator Type

1. To select the correct operator type press the **UP** and **DOWN** buttons.

2. Once the desired operator type is selected press the **ENTER** button.

```
**OPERATOR SELECT**  
> SLIDE GATE  
  SWING GATE  
  BARRIER GATE
```

Operator Select

1. To select the correct operator press the **UP** and **DOWN** buttons.

2. Once the desired operator is selected press the **ENTER** button.

```
*****SLIDE GATE*****  
> AC MOTOR  
  DC MOTOR  
  VARIABLE SPEED
```

```
*****SWING GATE*****  
> AC MOTOR  
  DC MOTOR  
  VARIABLE SPEED
```

NOTE: The model of the operator can be found on the cover or side of the machine.

Handedness

1. To select the correct hand press the **UP** and **DOWN** buttons.
2. Once the desired hand is selected press the **ENTER** button.



```
*****HANDING*****  
> RIGHT HAND  
LEFT HAND
```

NOTE: The hand of the operator is the side of the driveway the operator is on from the inside looking out.

Open Force Setup

1. Hold the **OPEN** button and run the operator from the **FULLY CLOSED** position all the way to the **OPEN LIMIT**.
2. Once the operator is at the **FULLY OPEN** position press the **ENTER** button.



```
****OPEN CURRENT****  
HOLD OPEN  
UNTIL FULLY OPEN
```

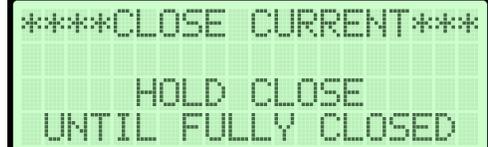
NOTE: The open current setting adjusts the maximum current allowed to operate the door/gate in the open direction.

If the open current load exceeds this threshold, the operator will trigger a safety.

Close Force Setup

1. By holding the **CLOSE** button run the operator from the **FULLY OPEN** position all the way to the **CLOSE LIMIT**.

2. Once the operator is at the **FULLY CLOSED** position press the **ENTER** button.



```
****CLOSE CURRENT****  
HOLD CLOSE  
UNTIL FULLY CLOSED
```

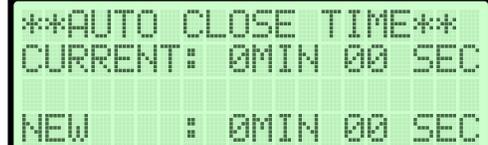
NOTE: The close current setting adjusts the maximum current allowed to operate the door/gate in the close direction.

If the close current load exceeds this threshold, the operator will trigger a safety.

Auto Close Time Adjustment

1. By pressing the **UP** and **DOWN** buttons set the adjusted time for the auto close timer.

2. Once the desired time is set press the **ENTER** button.



```
**AUTO CLOSE TIME**  
CURRENT: 0MIN 00 SEC  
NEW : 0MIN 00 SEC
```

NOTE: 0 MIN 00 SEC is OFF. The Auto Close Time specifies the time it will take until a gate or door automatically closes after it has been opened.

5 Status

```
STATUS: STOPPED
```

```
STATUS: OPENING
```

```
STATUS: CLOSING
```

```
STATUS: REVERSING
```

```
STATUS: FULLY OPENED
```

```
STATUS: FULLY CLOSED
```

```
STATUS: LOCKOUT
```

6 Menu Overview

```
*****MAIN MENU*****  
> BASIC  
  ADVANCED  
  ABOUT
```

```
*****BASIC 1/3*****  
> HANDING  
  DUAL GATE  
  AUTO CLOSE TIME
```

```
*****BASIC 2/3*****  
> PRE MOVE ALARM  
  OPEN CURRENT  
  CLOSE CURRENT
```

```
*****BASIC 3/3*****  
> STOP CONTACT
```

```
*****ADVANCED 1/2*****  
> SAFETY ENABLE  
  AUX RELAY  
  SOFT START
```

```
*****ADVANCED 2/2*****  
> SOFT STOP  
  POWER LOSS
```

```
*****ABOUT 1/2*****  
> CYCLE COUNT  
  REVISION  
  LANGUAGE
```

```
*****ABOUT 2/2*****  
> SETUP WIZARD  
  EVENT LOG  
  INCOMING VOLTAGE
```

7 Basic Programming

```
*****MAIN MENU*****  
> BASIC  
  ADVANCED  
  ABOUT
```

Handing

1. When the pointer is at **HANDING** press the **ENTER** button.
2. To select the correct hand press the **UP** and **DOWN** buttons.
3. Once the desired hand is selected press the **ENTER** button.

```
*****BASIC 1/3*****  
> HANDING  
  DUAL GATE  
  AUTO CLOSE TIME
```

```
*****HANDING*****  
> RIGHT HAND *  
  LEFT HAND
```

NOTE: The hand of the operator is the side of the driveway the operator is on from the inside looking out.

Dual Gate

1. When the pointer is at **DUAL GATE** press the **ENTER** button.
2. Once the desired gate is selected press the **ENTER** button.

```
*****BASIC 1/3*****  
  HANDING  
> DUAL GATE  
  AUTO CLOSE TIME
```

```
*****DUAL GATE*****  
> SINGLE GATE *  
  DUAL GATE
```

NOTE: The single gate setting is for standalone gates. The dual gate setting is for gates that run simultaneously.

Auto Close Time

1. When the pointer is at **AUTO CLOSE TIME** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons set the adjusted time for the auto close timer.
3. Once the desired time is set press the **ENTER** button.

```
*****BASIC 1/3*****  
HANDING  
DUAL GATE  
> AUTO CLOSE TIME
```

```
**AUTO CLOSE TIME**  
CURRENT: 0MIN 00 SEC  
NEW      : 0MIN 00 SEC
```

NOTE: 0 MIN 00 SEC is OFF. The auto close time specifies the time it will take until a gate or door automatically closes after it has triggered the open limit.

Pre Move Alarm

1. When the pointer is at **PRE MOVE ALARM** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons set the adjusted time for the pre move alarm.
3. Once the desired time is set press the **ENTER** button.

```
*****BASIC 2/3*****  
> PRE MOVE ALARM  
OPEN CURRENT  
CLOSE CURRENT
```

```
**PRE MOVE ALARM**  
CURRENT: 0 SEC  
NEW      : 0 SEC
```

NOTE: 0 SECONDS is OFF. The pre move alarm allows users to specify the amount of time a door or gate should wait until opening/closing.

Open Current

1. When the pointer is at **OPEN CURRENT** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons set the maximum current for the open current setting.
3. Once the desired current is set press the **ENTER** button.

```
*****BASIC 2/3*****  
PRE MOVE ALARM  
> OPEN CURRENT  
CLOSE CURRENT
```

```
*****OPEN CURRENT*****  
CURRENT: 5  
NEW : 5
```

NOTE: The open current setting adjusts the maximum current allowed to operate the door/gate in the open direction. If the open current load exceeds this threshold, the operator will trigger a safety.

Close Current

1. When the pointer is at **CLOSE CURRENT** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons set the maximum current for the close current setting.
3. Once the desired current is set press the **ENTER** button.

```
*****BASIC 2/3*****  
PRE MOVE ALARM  
OPEN CURRENT  
> CLOSE CURRENT
```

```
*****CLOSE CURRENT***  
CURRENT: 5  
NEW : 5
```

NOTE: The close current setting adjusts the maximum current allowed to operate the door/gate in the close direction. If the close current load exceeds this threshold, the operator will trigger a safety.

Stop Contact

1. When the pointer is at **STOP CONTACT** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons set Normally Open or Normally Close.
3. Once the desired contact is set press the **ENTER** button.

```
*****BASIC 3/3*****  
> STOP CONTACT
```

```
*****STOP CONTACT*****  
> NORMALLY CLOSED *  
NORMALLY OPEN
```

NOTE: Stop Contact set's whether the STOP contact is Normally Open or Normally Close.

8 Advanced Programming

```
*****MAIN MENU*****  
BASIC  
> ADVANCED  
ABOUT
```

Safety Enable

1. When the pointer is at **SAFETY ENABLE** press the **ENTER** button.
2. Users will be allowed to select between **CLOSE SAFETY** and **OPEN SAFETY**.

```
*****ADVANCED 1/2*****  
> SAFETY ENABLE  
AUX RELAY  
SOFT START
```

```
***SAFETY ENABLE***  
> CLOSE SAFETY 2  
OPEN SAFETY 2
```

Close Safety

1. When the pointer is at **CLOSE SAFETY** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
***SAFETY ENABLE***  
> CLOSE SAFETY 2  
OPEN SAFETY 2
```

```
***CLOSE SAFETY 2*  
> ON  
OFF*
```

NOTE: Close safety will detect an obstruction during closing while the gate is moving. Any close obstruction signal will cause the gate to stop then reverse to the full open position.

Open Safety

1. When the pointer is at **OPEN SAFETY** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
***SAFETY ENABLE***  
CLOSE SAFETY 2  
> OPEN SAFETY 2
```

```
***OPEN SAFETY 2**  
> ON  
OFF*
```

NOTE: Open safety will detect an obstruction during opening while the gate is moving. Any open obstruction signal will cause the gate to stop then reverse to the full closed position.

Aux Relay

1. When the pointer is at **AUX RELAY** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
****ADVANCED 1/2****  
SAFETY ENABLE  
> AUX RELAY  
SOFT START
```

```
*****AUX RELAY*****  
> AUX RELAY OFF *  
MAGLOCK  
STROBE
```

- Aux Relay Off: the auxiliary relay will be disabled
 - Maglock: the magnetic gate lock will be enabled during pending or actual motion (open/close)
 - Strobe: the warning strobe light will be enabled during pending or actual motion (open/close)
-

Soft Start

1. When the pointer is at **SOFT START** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
****ADVANCED 1/2****  
SAFETY ENABLE  
AUX RELAY  
> SOFT START
```

```
*****SOFT START*****  
CURRENT: 0  
NEW : 0
```

NOTE: The soft start feature will cause the operator to start the DC motor slowly. This reduces gate malfunctions from wear and tear as well as an overload of current. It is recommended for gates with heavy loads.

Soft Stop

1. When the pointer is at **SOFT STOP** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
*****ADVANCED 2/2*****  
> SOFT STOP  
POWER LOSS
```

```
*****SOFT STOP*****  
CURRENT: 0  
NEW      : 0
```

NOTE: The soft stop feature will cause the operator to stop the DC motor slowly. This reduces gate malfunctions from wear and tear as well as an overload of current. It is recommended for gates with heavy loads.

Stop Contact

1. When the pointer is at **POWER LOSS** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
*****ADVANCED 2/2*****  
SOFT STOP  
> POWER LOSS
```

```
*****POWER LOSS*****  
> FAIL SAFE *  
FAIL SECURE
```

NOTE: Select Fail Safe if the intended operation when the batteries are low that the operator will go to the full OPEN position. Select Fail Secure if the intended operation when the batteries are low that the operator will go to the full CLOSE position.

9 About

```
*****MAIN MENU*****  
  BASIC  
  ADVANCED  
> ABOUT
```

Cycle Count

1. When the pointer is at **CYCLE COUNT** press the **ENTER** button.
2. The cycle count will then be displayed.

```
*****ABOUT 1/2*****  
> CYCLE COUNT  
  REVISION  
  LANGUAGE
```

```
*****CYCLE COUNT*****  
CYCLE COUNT: 123456
```

NOTE: The cycle count shows the number of cycles the operator has run for. 1 cycle is considered a full open and close motion.

Revision

1. When the pointer is at **REVISION** press the **ENTER** button.
2. The revision number will then be displayed.

```
*****ABOUT 1/2*****  
  CYCLE COUNT  
> REVISION  
  LANGUAGE
```

```
*****REVISION*****  
> U1.01
```

Language

1. When the pointer is at **LANGUAGE** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons select the desired setting.
3. Once the desired setting is selected press the **ENTER** button.

```
*****ABOUT 1/2*****  
CYCLE COUNT  
REVISION  
> LANGUAGE
```

```
*****LANGUAGE*****  
> ENGLISH *  
SPANISH
```

NOTE: This setting allows the user to change the language for the LCD. Currently English and Spanish are supported.

Event Log

1. When the pointer is at **EVENT LOG** press the **ENTER** button.
2. By pressing the **UP** and **DOWN** buttons, you can view the logs.

```
*****ABOUT 2/2*****  
SETUP WIZARD  
> EVENT LOG  
INCOMING VOLTAGE
```

```
***EVENT LOG 1/5***  
1. STOP  
2. OPENING  
3. OPEN BUTTON
```

NOTE: A log of the 15 most recent activities will be shown. The most recent activity will be number "1".

Setup Wizard

1. When the pointer is at **SETUP WIZARD** press the **ENTER** button.

```
*****ABOUT 2/2*****  
> SETUP WIZARD  
EVENT LOG  
INCOMING VOLTAGE
```

2. By pressing the **ENTER** button, the setup wizard will run.

```
****SETUP WIZARD****  
PRESS ENTER
```

Incoming Voltage

1. When the pointer is at **Incoming Voltage** press the **ENTER** button.

```
*****ABOUT 2/2*****  
SETUP WIZARD  
EVENT LOG  
> INCOMING VOLTAGE
```

2. This will display what voltage is being supplied to the circuit board in real time.

```
**INCOMING VOLTAGE**  
VOLTAGE : 31.7 UDC
```

10 Lockout

Low Voltage:

Reason: This lockout occurs when the total voltage of the system is below 23.5 volts.

Fix: Restore voltage to above 23.5 volts.

- Make sure that no fuses are blown and that there is adequate AC power.
- This will occur when batteries are fully discharged after AC power loss. Batteries will recharge when AC power is restored.



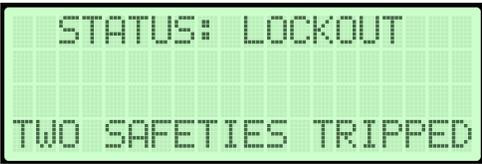
```
STATUS: LOCKOUT
**VOLTAGE TOO LOW**
```

Two Safeties Tripped:

Reason: This lockout occurs when a total of two safety reversals happen before a limit is triggered. This can be any combination of external safeties or the inherent force limiter.

Fix: Press the **STOP** button on the circuit board.

- Check external safety devices.
- Check that the gate moves freely.
- Re-adjust the force settings on the board.
- Check log for greater details.



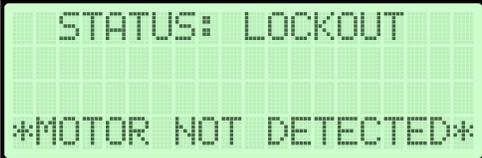
```
STATUS: LOCKOUT
TWO SAFETIES TRIPPED
```

Motor Not Detected:

Reason: This lockout occurs when the circuit board does not detect a that a motor is present.

Fix: Press the **STOP** button on the circuit board.

- Check that the motor overload isn't tripped.
 - Check the motor wiring is correct and not damaged.
 - Check that the motor brushes aren't damaged or worn out.
-



STATUS: LOCKOUT
MOTOR NOT DETECTED

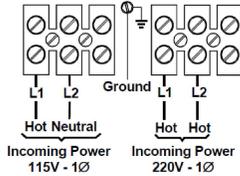
Terminal Characteristics

#	Terminal	Voltage	Description
1	GND	0 VDC	Ground connection
2	OPEN	24-30 VAC	Open command. This is a NO connection.
3	CLOSE	24-30 VAC	Close command. This is a NO connection.
4	STOP	5 VDC	Stop command. Can be configured NO or NC
5	AUX OPEN	5 VDC	Auxiliary open command. Serves as open command for devices other than push button. This is a NO connection.
7	FIRE	5 VDC	NO connection in fire box for fire department access
8	SINGLE	30 VDC	NO connection to alternate between open and close with single button operation.
10	AUX	5-30 VDC	Connects to auxiliary devices
11	REV	5 VDC	NO connection to device. Causes reversal in direction
13	SHADOW	5 VDC	Keeps the gate open as long as the signal is present. This is a NO connection.
14	CLOSE SAFETY 1	5 VDC	Required pulse or 10k monitored safety device. This terminal monitors when the gate is CLOSING
16	CLOSE SAFETY 2	5-30 VDC	Optional pulse or 10k monitored safety device. This terminal monitors when the gate is CLOSING
17	OPEN SAFETY 1	5-30 VDC	Required pulse or 10k monitored safety device. This terminal monitors when the gate is OPENING
19	OPEN SAFETY 2	5-30 VDC	Optional pulse or 10k monitored safety device. This terminal monitors when the gate is OPENING
20	AUX RELAY N.C	0-120 VAC	NC connection for auxiliary relay.
21	AUX RELAY COM	0-120 VAC	COM connection for auxiliary relay.
22	AUX RELAY N.O	0-120 VAC	NO connection for auxiliary relay.
23	DUAL GATE A	5-30 VDC	Optional connection A for dual gate operation
24	DUAL GATE GND	5-30 VDC	Optional connection GND for dual gate operation.
25	DUAL GATE B	5-30 VDC	Optional connection B for dual gate operation.
26	BRK	24 VDC	Connection for an external brake
27	POWER	24-30 VAC/DC	Incoming power connection. Could be supplied off of transformer or DC power supply.
28	24 VDC	24 VDC	24 volts for accessory power connections.
29	HORN	24 VDC	Connection for the exterior horn.

NITRO QUICK SETUP

- 1 ENSURE GATE MOVES SMOOTHLY IN BOTH DIRECTIONS.**
- 2 MECHANICALLY INSTALL GATE OPERATOR**
NOTE: SEE MANUAL.
- 3 BEFORE MAKING ELECTRICAL CONNECTIONS MAKE SURE POWER IS TURNED OFF AT SOURCE**

4 CONNECT INCOMING POWER



5 SET LIMIT NUTS TO CENTER OF TRAVEL



⚠ WARNING
TO PREVENT RISK OF PERSONAL INJURY OR DEATH: DISCONNECT POWER AT THE FUSE BOX BEFORE PROCEEDING. ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED INDIVIDUAL. OBSERVE LOCAL ELECTRICAL CODES WHEN WIRING THE OPERATOR.

6 MANUALLY SET GATE TO CENTER OF TRAVEL

8 PRESS THE ENTER BUTTON

```
****SETUP WIZARD****
PRESS ENTER
```

9 SELECT OPERATOR USING THE UP, DOWN, ENTER BUTTONS

```
**OPERATOR SELECT**
> SLIDE GATE
  SWING GATE
  BARRIER GATE
```

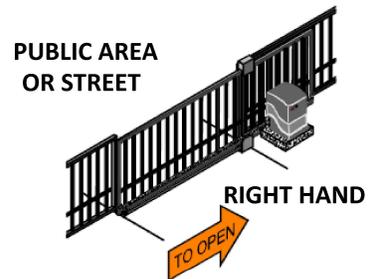
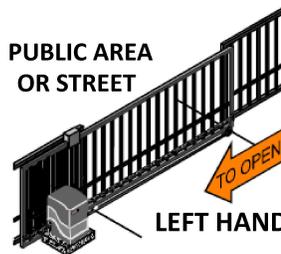
7 THE UNIT CAN NOW BE POWERED

10 DETERMINE THE HAND OF OPERATOR AND SELECT AS SHOWN BELOW

```
*****HANDING*****
> RIGHT HAND *
  LEFT HAND
```

SELECTION

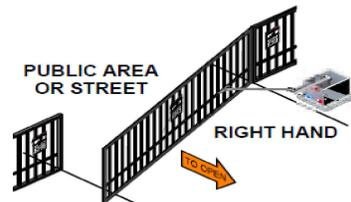
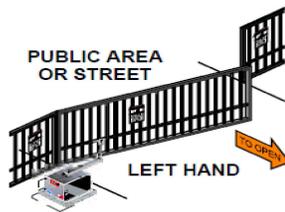
STORED SETTING



11 SET AUTOCLOSE TIME THEN PRESS ENTER

```
**AUTO CLOSE TIME**
CURRENT: 0MIN 00 SEC
NEW : 0MIN 00 SEC
```

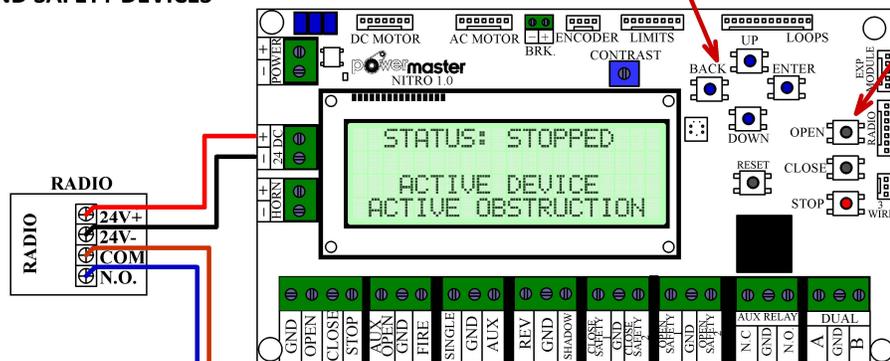
24VAC/VDC



12 CONNECT CONTROLS AND SAFETY DEVICES

UP, DOWN, ENTER, BACK LCD CONTROL BUTTONS

ON BOARD 3-BUTTON CONTROL STATION



REFER TO MANUAL FOR MORE DETAILS

TOLL FREE TECHNICAL SUPPORT
1-800-243-4476
EMAIL: pmtech@powermasterny.com
WWW.POWERMASTERNY.COM

CONNECT OBSTRUCTION DETECTION DEVICE(S)

- REQUIRED: OPEN SAFETY 1- PULSE OR 10K
- REQUIRED: CLOSE SAFETY 1- PULSE OR 10K
- OPTIONAL: OPEN SAFETY 2- PULSE OR 10K
- OPTIONAL: CLOSE SAFETY 2- PULSE OR 10K

⚠ WARNING
TO AVOID RISK OF INJURY MAKE SURE POWER IS TURNED OFF BEFORE MAKING ANY CONNECTIONS.

Need Technical Support?

Visit: PowerMasterNY.com/faqs

Call us toll free @ 1-800-243-4476

Email us: PMtech@PowerMasterNY.com

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MANUFACTURED BY V.E. POWER DOOR CO, INC.

The logo for PowerMaster features the word "power" in a lowercase, outlined font, with a gear and chain mechanism integrated into the letter "o". The word "master" is in a bold, lowercase, sans-serif font. Below the logo, the text "MANUFACTURED BY V.E. POWER DOOR CO, INC." is written in a smaller, uppercase, sans-serif font.