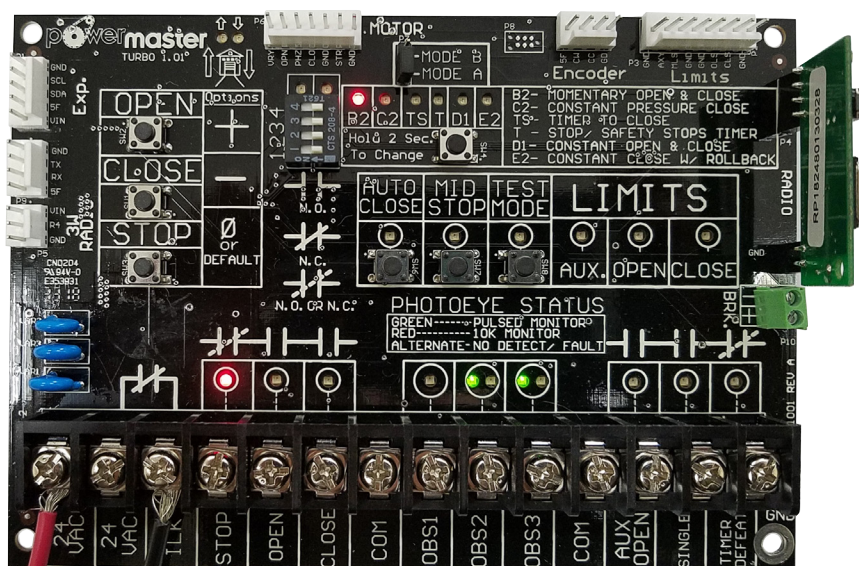


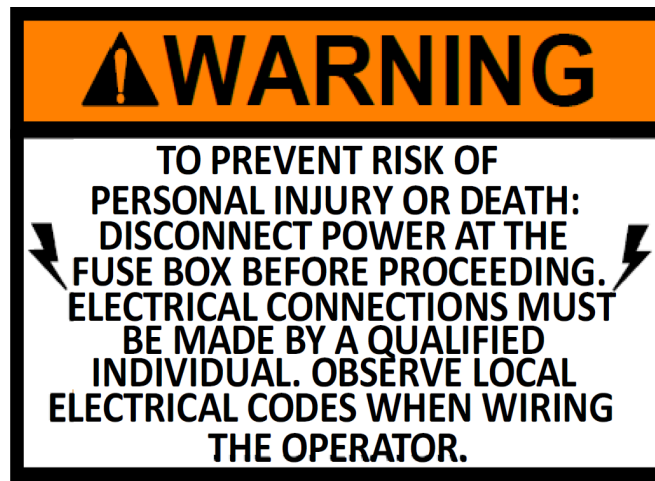


SUPPLEMENTARY INSTRUCTION MANUAL

for units equipped with
PowerMaster Turbo Board



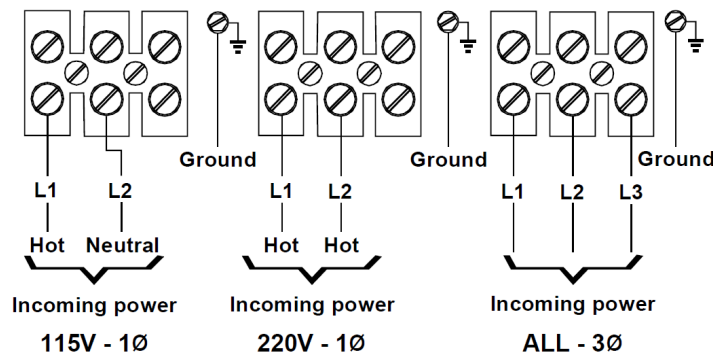
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WARNING: These operators have been designed and constructed for use with voltages from 115 to 460 VAC. Check the operator nameplate label on the control box cover for the proper voltage and phase. The application of an improper input voltage or phase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



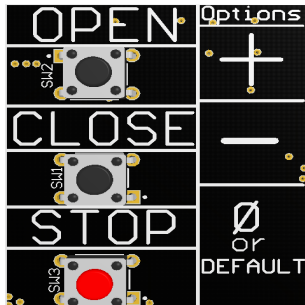
WARNING

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.

1 Board Interface

On Board 3-Button Controls

The board is equipped with **OPEN**, **CLOSE**, and **STOP** buttons located on the upper left side of the board.



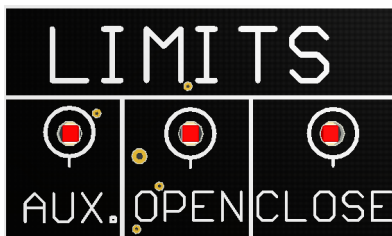
DIP Switches

The board is equipped with programming DIP switches located to the upper middle of the board. See settings chart on page 10 for further information.



Limit Indicators

The board is equipped with limit switch LEDs to notify users if a limit switch is activated.



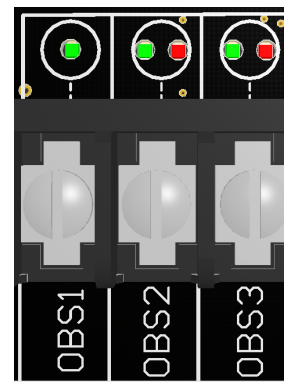
Obstruction Indicators

NOTE: OBS1 is pulse type and is required

Green- Pulse monitored device

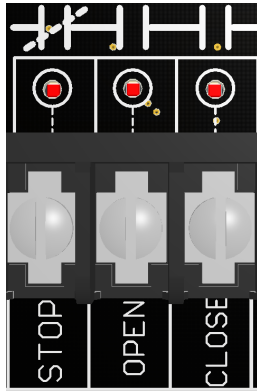
Red- 10K monitored device

Alternate- Device not detected/ fault



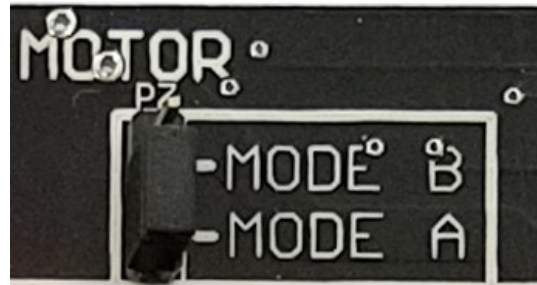
Open/Close/Stop Button Indicator

The board is equipped with Open, Close, and Stop terminal indicators which show whether one of these functions are activated.



Mode A / Mode B Jumper

The board is equipped with a Mode A / Mode B jumper. Mode A is standard operation direction; Mode B will reverse motor direction and limits.



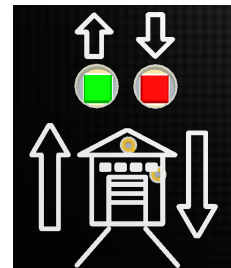
Break Terminal

The board is equipped with a terminal to attach external brake devices to.



Open/Close Motor Indicator

The board is equipped with Open and Close motor indicators near the upper left corner of the board. The green LED signifies the motor is opening. The red LED signifies the motor is closing.



Adjustable Operational Settings

NOTE: OBS1 is pulse type and is required for B2, TS and T operation modes

The board allows for 6 operational settings:

- B2- Momentary Open and Close
- C2- Constant Pressure Close
- T- Stop and Safety Stops Timer
- TS- Timer to Close
- D1- Constant Open and Close
- E2- Constant Close with Rollback

To change modes, hold the pushbutton for 2 seconds. The LEDs indicate which mode is currently in use.



Terminal Strip Features

The board includes a terminal strip with features such as 2 power terminals, 3 safety device terminals, single function and timer defeat.

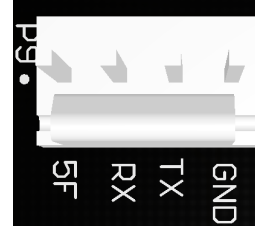


2 Headers

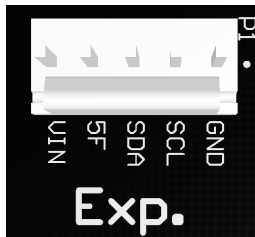
Single Button Header



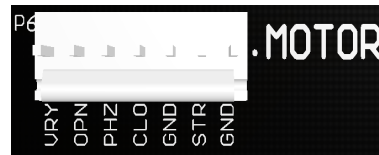
TX/RX Header



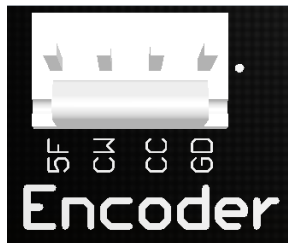
Expansion Header



Motor Header



Encoder Terminal



Limits Terminal



3 Board Programming

FULL BOARD RESET: To restore factory settings, turn all four dip switches to the **ON** position and hold **TEST MODE** and **STOP** buttons until all LEDs are off.

Quick Settings

The board is equipped with **AUTO CLOSE**, **MID STOP**, and **TEST MODE** buttons on the middle of the board.

Auto Close- Sets timer for door to automatically close once it has been fully open.

1. Run the door/gate to the fully closed position
2. Press the **AUTO CLOSE** push button to add 5 seconds to the timer.
3. Set the operation mode to T or TS depending on desired application

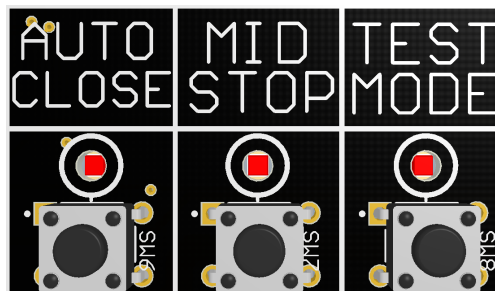
Reset: While the door is fully closed, hold the **AUTO CLOSE** push button for 3 seconds to reset timer to **OFF**.

Mid Stop- Allows door to run open until it reaches a set mid-point.

1. Run the door/gate to the fully closed position
2. Hold the **MID STOP** and **STOP** push buttons. This will make the door start to open. Once the door is at the desired location release the push buttons.

Reset: While the door is fully closed, hold the **Mid Stop** push button for 3 seconds to reset the Mid-Stop to **OFF**.

Test Mode- This push button is for factory use only



DIP Switch Settings

TURBO SETUP GUIDE										
Feature	Switch <u>1</u>	Switch <u>2</u>	Switch <u>3</u>	Switch <u>4</u>	<u>OPEN</u>	<u>CLOSE</u>	<u>STOP</u>	<u>DEFAULT</u>	<u>MIN</u>	<u>MAX</u>
NC Stop	X	X	X	OFF	X	X	X	X	X	X
NO Stop	X	X	X	ON	X	X	X	X	X	X
Delay on Reverse	ON	OFF	OFF	X	+200ms	-200ms	DEFAULT	1500ms	400ms	2000ms
Lockbar Sensor	OFF	ON	OFF	X	+500ms	-500ms	DEFAULT	OFF	500ms	2000ms
Timer Defeat NO/NC	ON	ON	OFF	X	NO	NC	DEFAULT	NO	X	X
Close Limit Delay	OFF	OFF	ON	X	+20ms	-20ms	DEFAULT	375ms	120ms	650ms
OBS3 OPEN/CLOSE	ON	OFF	ON	X	OPEN	CLOSE	DEFAULT	CLOSE	X	X

NC Stop

1. Set the DIP Switch 4 to the **OFF** position.

NOTE: This requires the **STOP** button to have a normally closed connection.

NO Stop

1. Set the DIP Switch 4 to the **ON** position.

NOTE: This requires the **STOP** button to have a normally open connection. When the stop signal is being triggered, this mode is also useful for troubleshooting.

Delay on Reverse

1. Run door to close limit.
2. Set the DIP Switches as follows: 1- **On** , 2- **Off** , 3- **Off** , 4- **ON** or **OFF**.
3. To increase the delay by 200ms, press the **OPEN** button. To decrease the delay by 200 ms, press the **CLOSE** button. To return to the default setting press the **STOP** button

NOTE: The delay on reverse feature will cause the operator to wait the length of the delay before reversing its direction.

The default delay is for 1500 ms. The minimum delay is 400 ms. The max delay is 2000 ms.

Lockbar Sensor

1. Run door to close limit.
2. Set the DIP Switches as follows: 1- **Off** , 2- **On** , 3- **Off** , 4- **ON** or **OFF**.
3. To increase the timer by 500ms, press the **OPEN** button. To decrease the timer by 500 ms, press the **CLOSE** button. To return to the default setting press the **STOP** button.

NOTE: The lockbar sensor feature is a safety measure when operators use lockbars. The lockbar sensor will try to run Open. If the door/gate doesn't open within the specified time, then it will reverse and close. This feature prevents damages that can occur from the operator forcing the door/gate open while the lockbar is still in place.

The default setting is 1000 ms. The minimum timer is 500 ms. The maximum timer is 2000 ms.

Timer Defeat NO/NC

1. Run door to close limit.
2. Set the DIP Switches as follows: 1- **On** , 2- **On** , 3- **Off** , 4- **ON** or **OFF**.
3. To set the Timer Defeat as normally open, press the **OPEN** button. To set the Timer Defeat as normally closed, press the **CLOSE** button. To return to the default setting press the **STOP** button

NOTE: The timer defeat may be used to disable a timer when it is not used.

The default is normally open, however this feature allows the user to set the switch as either normally open or normally closed.

Close Limit Delay

1. Run door to close limit.
2. Set the DIP Switches as follows: 1- **Off** , 2- **Off** , 3- **On** , 4- **ON** or **OFF**.
3. To increase the delay by 20ms, press the **OPEN** button. To decrease the delay by 20 ms, press the **CLOSE** button. To return to the default setting press the **STOP** button.

NOTE: The close limit delay feature allows users to set the amount of delay for a door/gate to finish closing after hitting the close limit. For example, a close limit delay of 300ms means that the door will continue to close for 300ms after hitting the close limit switch. This is beneficial to allow for proper sealing for edges.

The default setting is 375 ms. The minimum delay is 120 ms. The max delay is 650 ms.

OBS3 Open/Close

1. Run door to close limit.
2. Set the DIP Switches as follows: 1- **On** , 2- **Off** , 3- **On** , 4- **ON** or **OFF**.
3. To set the OBS3 as open, press the **OPEN** button. To set the OBS3 as closed, press the **CLOSE** button. To return to the default setting press the **STOP** button

NOTE: The OBS3 feature allows users to specify if a safety device is active while the door is opening or closing.

The default is **CLOSE**.

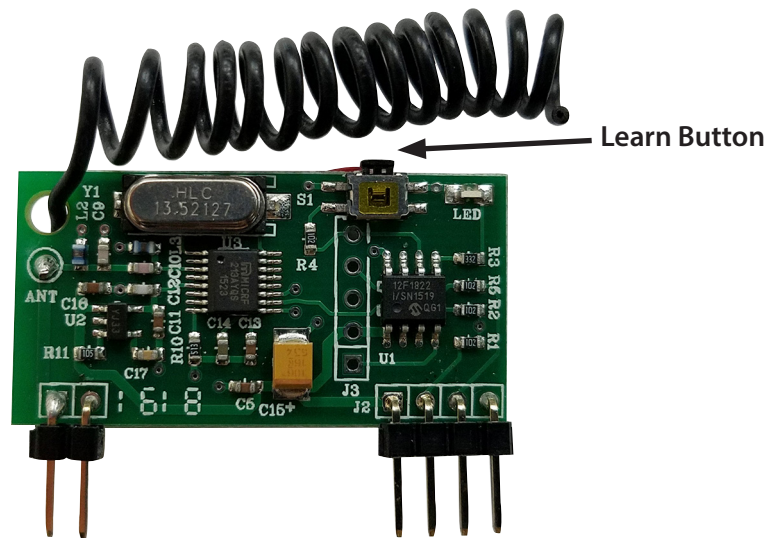
Terminal Characteristics

#	Terminal	Voltage	Description
1	24VAC	24-30 VAC	Transformer Connection 1
2	24VAC	24-30 VAC	Transformer Connection 2 + Interlock Connection 1
3	ILK	24-30 VAC	Interlock Connection 2, Supplies power to board
4	STOP	5 VDC	Stop command. Can be configured NO or NC
5	OPEN	5 VDC	Open command. This is a NO connection.
6	CLOSE	5 VDC	Close command. This is a NO connection.
7	COM	5 VDC	Ground connection
8	OBS1	30 VDC	Required pulse monitored safety device.
9	OBS2	5-30 VDC	Optional pulse or 10k monitored safety device.
10	OBS3	5-30 VDC	Optional pulse or 10k monitored safety device.
11	COM	5 VDC	Ground Connection
12	AUX OPEN	5 VDC	Auxillary open command. Serves as open command for devices other than push button
13	SINGLE/ RADIO	5 VDC	Radio/Single button. Sequence is as follows: Stop → Close → Stop → Open...
14	TIMER DEFEAT	5 VDC	Disables timer. Can be configured NO or NC

BUILT-IN RADIO

PROGRAMMING:

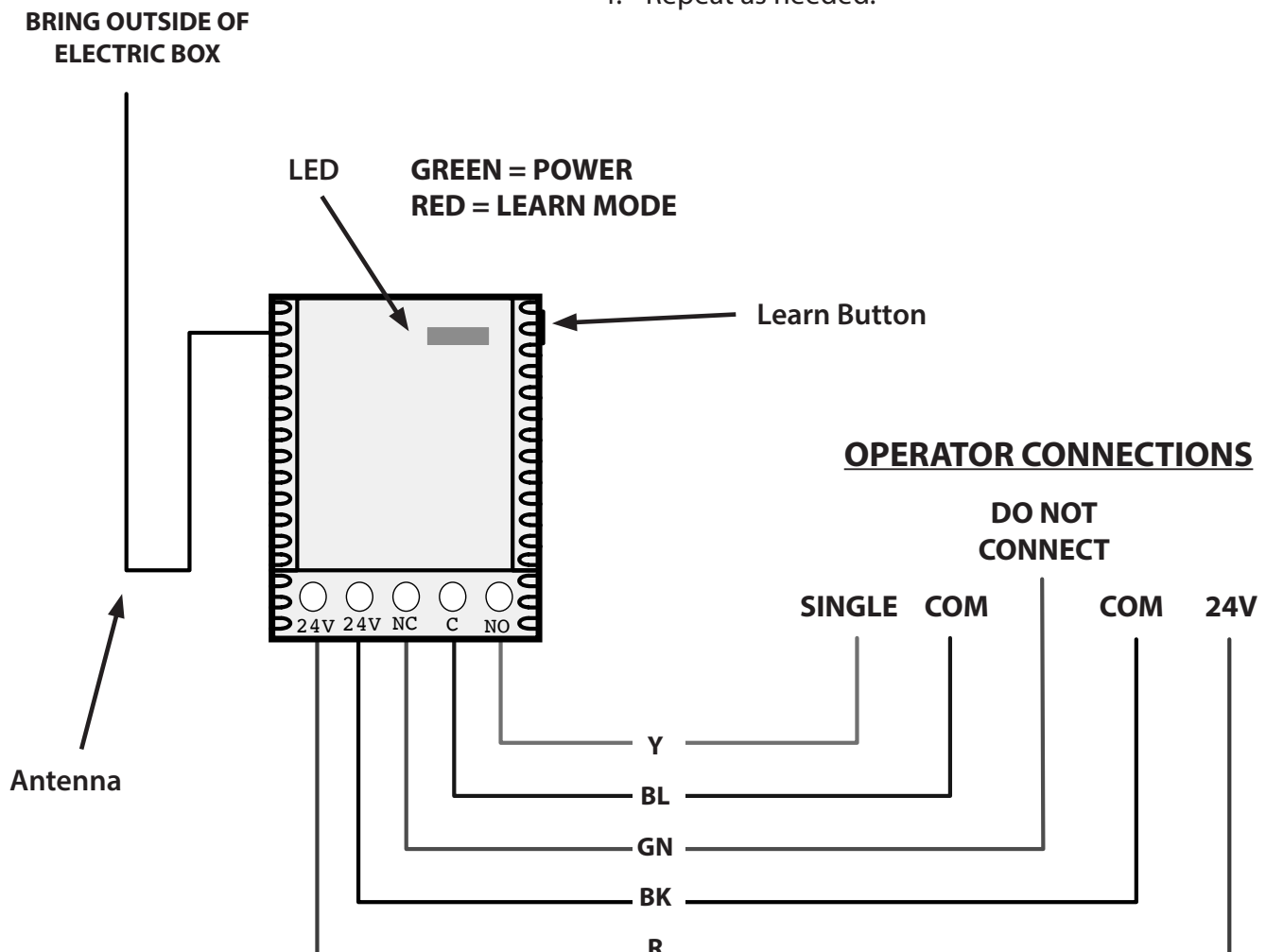
1. Press receiver button until LED turns red.
2. Press the transmitter twice. The red LED on the receiver will blink.
3. Repeat as needed.



ADDITIONAL RADIO

PROGRAMMING:

1. Press receiver button until LED turns red.
2. Press transmitter until red LED blinks 1 time.
3. Press transmitter again until red LED turns green.
4. Repeat as needed.



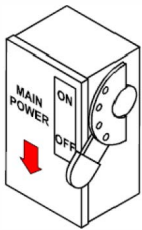
powermaster

TURBO QUICK SETUP

⚠ 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.

1 BEFORE INSTALLATION OF UNIT TURN OFF MAIN POWER

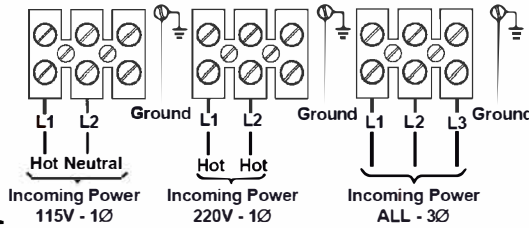


⚠ WARNING

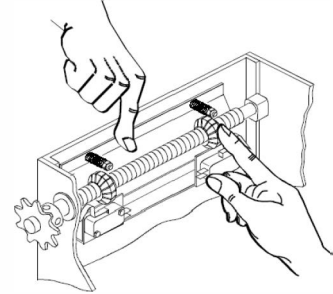
TO AVOID RISK OF INJURY MAKE SURE POWER IS TURNED OFF BEFORE MAKING ANY CONNECTIONS.

5 SELECT CORRECT PHASE ON POWER BOARD

2 CONNECT INCOMING POWER



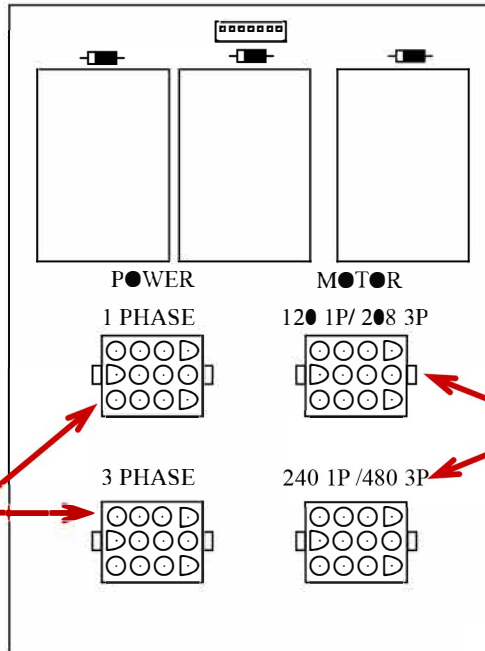
3 SET OPEN AND CLOSE LIMITS



⚠ WARNING

TO AVOID RISK OF INJURY MAKE SURE POWER IS TURNED OFF BEFORE MAKING ANY ADJUSTMENTS.

4 SELECT CORRECT VOLTAGE ON POWER BOARD



6 THE UNIT CAN NOW BE POWERED

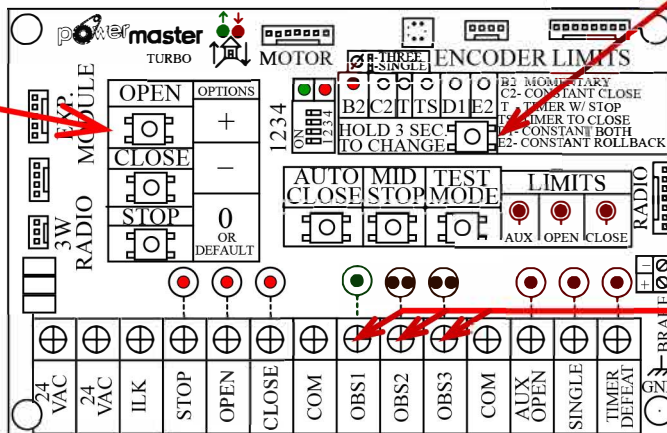
HOLD FOR 3 SECONDS TO SELECT OPERATION MODE

B2- OPEN/ CLOSE MOMENTARY ACTIVATION
C2- OPEN/ CLOSE MOMENTARY ACTIVATION
T- OPEN/ CLOSE MOMENTARY ACTIVATION
TS- OPEN/ CLOSE MOMENTARY ACTIVATION
D1- OPEN/ CLOSE MOMENTARY ACTIVATION
E2- OPEN/ CLOSE MOMENTARY ACTIVATION

ON BOARD 3-BUTTON CONTROL STATION

⚠ WARNING

TO PREVENT THE RISK OF PERSONAL INJURY AND/OR DAMAGE TO THE DOOR OR PROPERTY AN ANTI-ENTRAPMENT SAFETY DEVICE MUST BE INSTALLED. (SAFETY EDGE OR PHOTOCELL) FAILURE TO INSTALL AND TEST THIS SAFETY REVERSING SYSTEM COULD RESULT IN SERIOUS INJURY TEST THIS SYSTEM ONCE A MONTH!



CONNECT OBSTRUCTION DETECTION DEVICE(S)

REQUIRED: OBS 1- PULSE
OPTIONAL: OBS 2- PULSE OR 10K
OPTIONAL: OBS 3 - PULSE OR 10K

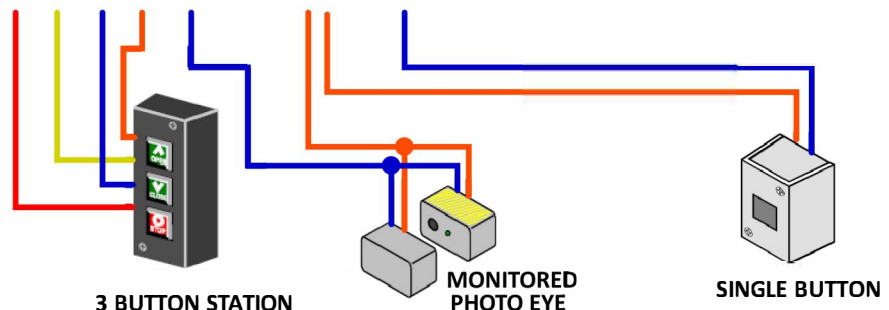
REFER TO MANUAL
FOR MORE DETAILS

TOLL FREE TECHNICAL SUPPORT

1-800-243-4476

technical@powermasterny.com

WWW.POWERMASTERNY.COM



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