

***Motor Owner's Manual,
EXTREME[®]
MODEL PRO-FDG***

Section 1 – Table of Contents

Section 2 – Safety Check List	2
Section 3 – Freight Receiving	3
Section 4 – Pre-installation	4
Section 5 - Installation	5
Wiring Diagram - Single Phase	9
Wiring Diagram - Three Phase	10
Wiring Diagram - Field Connections	11
Wiring Diagram - Limit Box	12
Warning Placard	13
Maintenance	14
Troubleshooting	16

Section 2 – Safety Check List

Rolling doors are large, movable objects. They move with the help of electric motors or manual operators (chain, crank, push up, etc.), and most have springs under high tension. These items and their components can cause injury. In order to avoid injury to yourself and others, please follow the instructions in this manual.

- **Review the potential hazards and preventative measures listed below:**

Table 2.1 - Potential Hazards and Preventative Measures

Potential Hazard	Preventative Measure	
	<p style="text-align: center;">⚠ DANGER</p> <p style="text-align: center;">Pinned or crushed by closing door.</p>	<ul style="list-style-type: none"> • Keep yourself and others clear of opening while door is in motion. • Do not allow children to play near or operate door. • Do not operate if door becomes jammed or broken.
	<p style="text-align: center;">⚠ WARNING</p> <p style="text-align: center;">Struck by adjusting wheel bar while applying spring turns.</p>	<ul style="list-style-type: none"> • Be sure bar is adequate in strength and long enough to allow installer to apply the necessary torque. • Make sure bar is fully seated into the adjusting wheel slot before applying pressure. • Use two bars while applying turns to the adjusting wheel.
	<p style="text-align: center;">⚠ WARNING</p> <p style="text-align: center;">Electrical shock.</p>	<ul style="list-style-type: none"> • Make sure electrical operator is properly grounded. • Turn off source power completely prior to servicing the motor. • Make sure wires are clear of any moving or potentially moving parts. • Avoid pinching wires when installing the motor cover.
	<p style="text-align: center;">⚠ WARNING</p> <p style="text-align: center;">Pinched by moving components.</p>	<ul style="list-style-type: none"> • Make sure the motor is turned off and unplugged before working with moving parts such as roller chain and sprockets, drop-out mechanisms, adjusting wheels, etc. • Locate the possible pinch-points of the unit (Drive chain, coil area, bottom bar, etc.) Do not operate the door while someone is near these areas.

- **Check the following during installation and before leaving the job site:**
 - a. Check that the keys and/or cotter pins have been set in place and fit properly at all sprockets or gears.
 - b. Check that the setscrews in each sprocket or gear (one over the key and one offset from the key) have been tightened properly.
 - c. Check all fasteners holding the unit to the building structures.
 - d. Check all fasteners used to assemble the components of the unit together.

Instruct owner or representative in the proper method of operating the door.

- **Upon delivery, check condition of components for damage.**
- **If damage occurred in transit, the installation should not proceed without authorization.**

NOTICE

If the installation proceeds, neither the carrier nor the manufacturer will assume responsibility for replacing the damaged material.

- **If the installation is stopped due to damage, do the following:**
 1. Take pictures of the damage.
 2. Do not move material from point of delivery to other premises once the damaged components are discovered.
 3. Do not unpack, if the damage is visible prior to removing packaging, until an inspection is made.
 4. If the damage is found while removing contents from packaging, the packaging material must be saved until inspection is made.
 5. Container and packaging should be retained by consignee until inspection is made.
 6. Have components inspected by carrier's representative within 15 days from date of delivery.
 7. Consignee must obtain a copy of the Inspection Report.
- **Returning damaged components:**
 1. Obtain permission from carrier to return.
 2. Route the return shipment via the identical carrier(s) involved in the original shipment.
 3. Notify the manufacturer when shipment is returned to manufacture plant.
- **Verify that all components have arrived. Look for the following:**
 1. Wall mounted control panel with the following:
 - a. Open, Close and Mushroom Stop button on the front panel
 - b. Low voltage control wiring with quick connect end.
 - c. High voltage wires with labeled ends
 - d. (2) Safety device wiring with quick connect ends
 2. Motor operator with limit box assembly
 3. Auxiliary hand chain
 4. Drive Chain with master and half link
 5. Taper lock driven sprocket
- **If the delivery is incomplete:**
 1. Make note on delivery receipt.
 2. Note should be verified by driver's signature.
 3. Notify carrier and manufacturer.
- **Read entire instruction manual thoroughly. The manufacturer will not be held responsible for any charges incurred due to improperly installed components.**
 - a. Only trained door systems technicians should perform installation, maintenance, etc.

⚠ WARNING

Do not interchange parts from one door to another.

Important Pre-Installation Instructions

WARNING – TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. Install only on a properly operating door. A door that is operating improperly could cause severe injury. Have qualified service personnel make repairs to cable, spring assemblies, and other hardware before installing this operator.
3. Remove all pull ropes and remove, or make inoperative, all locks (Unless mechanically and/or electrically interlocked to the power unit) that are connected to the door before installing the operator.
4. Install the door operator at least 8 feet or more above the ground if the operator has exposed moving parts.
5. Do not connect the door operator to the source of power until instructed to do so.
6. Locate the control station:
 - a. Within sight of the door
 - b. At a minimum height of 5 feet so small children cannot reach it
 - c. Away from all moving parts of the door
7. Install the Entrapment Warning Placard next to the control station in a prominent location

Important Safety Instructions

WARNING – TO REDUCE THE RISK OF SEVERE INJURY OR DEATH:

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. Never let children operate or play with door controls. Keep the remote control (where provided) away from children.
3. Personnel should keep away from a door in motion and keep the moving door in sight until it is completely closed or opened. **NO ONE SHOULD CROSS THE PATH OF A MOVING DOOR.**
4. **KEEP DOORS OPERATING PROPERLY, ONLY TRAINED DOOR SYSTEMS TECHNICIANS SHOULD MAKE REPAIRS TO DOOR AND HARDWARE.**
5. **SAVE THESE INSTRUCTIONS.**

Electrical

1. Disconnect power at the fuse/breaker box/disconnect before proceeding with any wiring of this unit.
2. The unit must be properly bonded and grounded. A ground screw is supplied in the electrical box for connection of the power supply ground wire. Failure to properly bond/ground this unit could result in electrical shock, serious injury and/or damage to the control equipment.
3. Field wiring of operator must be performed by qualified personnel.
4. Operator must only be wired per wiring diagrams provided with the operator. The diagrams provided in this Owner's Manual may not include factory installed modification specific to your installation.
5. Operator must be wired in accordance with local electrical codes. NOTE: The operator should be on a separate fused line of adequate capacity.
6. Use 18 GA stranded copper wire minimum for all control circuit connections.
7. Do not install any wiring or attempt to run the operator without consulting the wiring diagram.
8. Set operator limit switches before connecting ANY entrapment protection devices to the operator.

Section 5 - Installation

Operator Mounting

Before your operator is energized, be sure the door has been properly aligned and is working smoothly. Refer to the Door Installation Instructions for proper operator installation. This motor operator is an integral part of the door system. Refer to the Door Installation Instructions for proper anchoring and sprocket alignment.

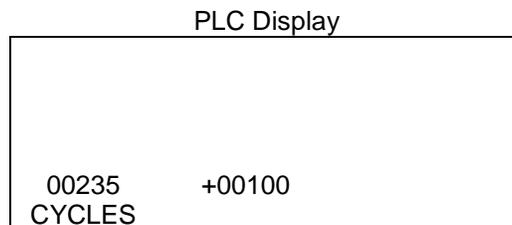
Entrapment Protection Accessories

In accordance with UL-325 requirements, this operator requires specific primary entrapment detection devices connected and working properly before momentary contact on the CLOSE control station is enabled. Without the proper primary entrapment detection accessories connected and working properly, the unit will require constant pressure on the CLOSE control station during normal operation. **DO NOT ATTEMPT TO BYPASS OR DEFEAT THIS FEATURE.** Damage to the unit is possible. This damage is not covered under the manufacturer's warranty. When a second entrapment protection device is desired, any device with a normally OPEN (N/O) dry contact type output is compatible with this door. (See control connection diagram for connection). Entrapment protection will not function when the CLOSE limit switch is activated.

Inertia Brake

Your door is equipped with an Inertia brake. It is imperative that the inertia brake interlock is connected between Terminals "2A" and "32" in the limit box or the door will not close. **DO NOT ATTEMPT TO BYPASS.**

Reading the Cycle Counter



When the door is closed the cycle count on the display is shown on the PLC display. (See Above). Please note there are two sets of five digits. The right set indicates the multiplier or increments per count. The left set of numbers is the count. Simply multiply the number displayed in the left set of numbers by the multiplier on the right set.

The sample above indicates the cycle count as:

$$235 \times 100 = 23,500 \text{ Cycles}$$

Operator Start-Up Instructions

1. **Power Wiring Instructions:** Verify the incoming power supply with the power supply shown on the control panel identification label
 - a. Single Phase: Connect single phase power supply to terminals L/L1, N/L2 on the control panel terminal strip
 - b. Three Phase: Connect three phase power supply to terminals L1, L2, L3 on control panel terminal strip

2. **Connect the Inertia Brake:** Locate the bulkhead fitting with cord grip located in the plastic bag inside the motor limit box and install it in the pre-drilled hole in the limit box panel. Route the cable for the inertia brake through this cord grip and connect the wires to terminal 2A and 32 on the limit box terminal strip.

3. **Verify Motor Direction:** After the electrical power connections are made and roller chain and sprockets have been installed, aligned and verified, manually move the door to mid-position using the chain hoist.

⚠ WARNING DOOR IS UNBALANCED. ENSURE YOU HAVE A FIRM GRIP ON THE HAND CHAIN TO PREVENT THE CHAIN FROM FREE-WHEELING AS BRAKE IS RELEASE

NOTICE Be advised that the cam nuts are positioned in the center of the limit shaft assembly. Press the close button switch located on the front panel for a few seconds. If the door does not move in the close direction, turn off incoming power and reverse wires on M1 and M2. Turn incoming power back on and press the close button again. The direction of the operator should be reversed.

If the door direction is still not correct, please consult Customer Service at 1-855-594-4969.

4. **Setting Limits:** With the curtain raised/lowered to the approximate mid-point of the opening, open the limit box and identify all parts (See Figure 1).

⚠ WARNING FAILURE TO PROPERLY ADJUST THE LIMIT SWITCHES MAY CAUSE AN UNSAFE CONDITION AND COULD DAMAGE THE DOOR

NOTICE Do not bend limit switch actuator arms when adjusting limits. Top and Bottom stop limits are fixed. Deceleration limits are adjustable (when necessary)

- a. Move curtain to the full Open or Close position with the Panel mounted control buttons.
- b. After curtain is in the desired position, press the spring-loaded detent plate, adjust the limit switch cam nut until the micro switch clicks.(See Figure 1)

NOTICE Be sure the cam nuts re-engage the detent plate.

- c. Repeat steps A and B for the opposite position.
- d. Cycle the door and fine adjust all limits as necessary to get the door to stop at the desired positions.

5. **Install Photo Eyes:** – (Primary monitored anti-entrapment device Telco Photo Eyes) Compatible Telco photo eyes and Telco Light curtain will be connected to the pre-wired safety cables with quick connects. If primary monitored photo eyes are not connected, the door will be in constant pressure to close mode. If constant pressure is removed before door reaches full close position, the door reverses to full open.

NOTICE Only one monitored failsafe anti-entrapment device can be connected.

Section 5 - Installation

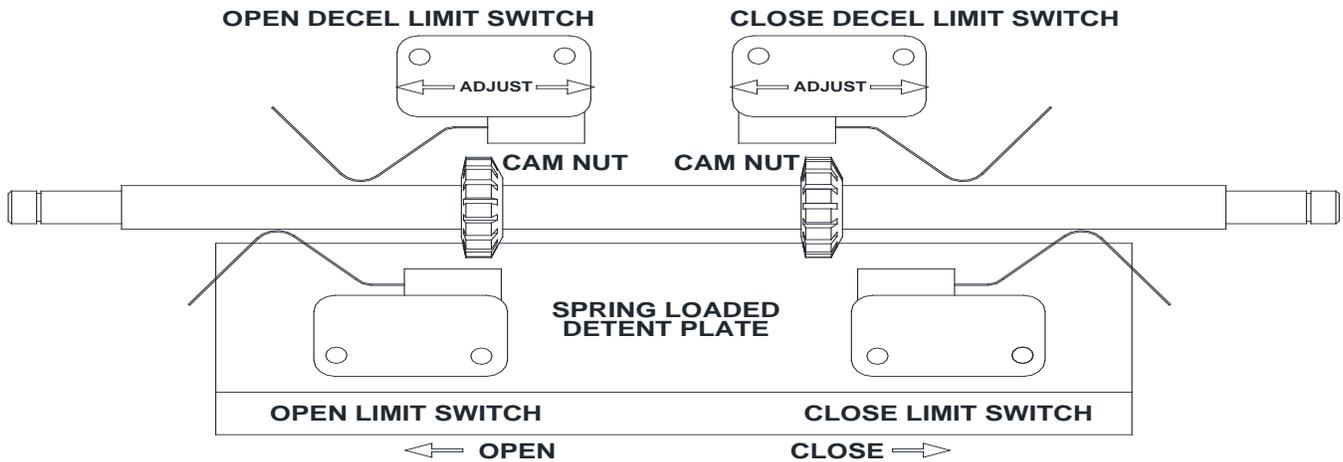


Figure 1 – Limit Switches

FAILSAFE FEATURE: A monitored failsafe anti-entrapment feature is built into the operator. It has provisions for **ONE** primary anti-entrapment device (**PHOTO EYES**) as well as one or more non-monitored presence sensing device(s).

6. **Secondary non-monitored presence sensing device(s):** Please refer to the Field Connection schematic to connect all non-monitored reversing devices across terminals 2 & 23 in the limit box assembly. Normally Open devices must be used, connected in parallel.

7. **Momentary Open:** Remove factory installed jumper between terminals 2 and 19 in the wall mounted control panel to enable momentary contact operation on OPEN, after limits have been set.

NOTICE Once jumper has been removed, safety devices are active and any safety activation will cause the unit to open to the open limit.

8. **Adjusting Deceleration Limit Switches:** There should be 3 distinct stages of motor operation. See Figure 2

- Stage [1]: Ramp Up
- Stage [2]: Normal (Normal speed – OPEN)/(1/2 speed – CLOSE)
- Stage [3]: Slow (1/2 Normal speed – OPEN)/(1/2 speed – CLOSE)
 - a. As the door begins to approach the OPEN or CLOSE limits, it should transition from Mode [2] to Mode [3] before the door stops at the limits. This low speed is crucial for safe operation of the door.
 - b. To increase the system efficiency and to reduce cycle times, the distance the door travels in “Slow” speed may be adjusted by moving the deceleration limit switches.
 - c. Loosen the 2 set screws on the limit switch body to allow you to move the deceleration switch body side to side, tightening the screws will lock the switches in place.
 - d. Sliding the deceleration limit switch body toward the upper or lower limit switches will decrease the distance the door will travel in Mode [1] or Mode [2].
 - e. Properly adjusted deceleration should be about 12” to 18” of door operation.

Section 5 - Installation

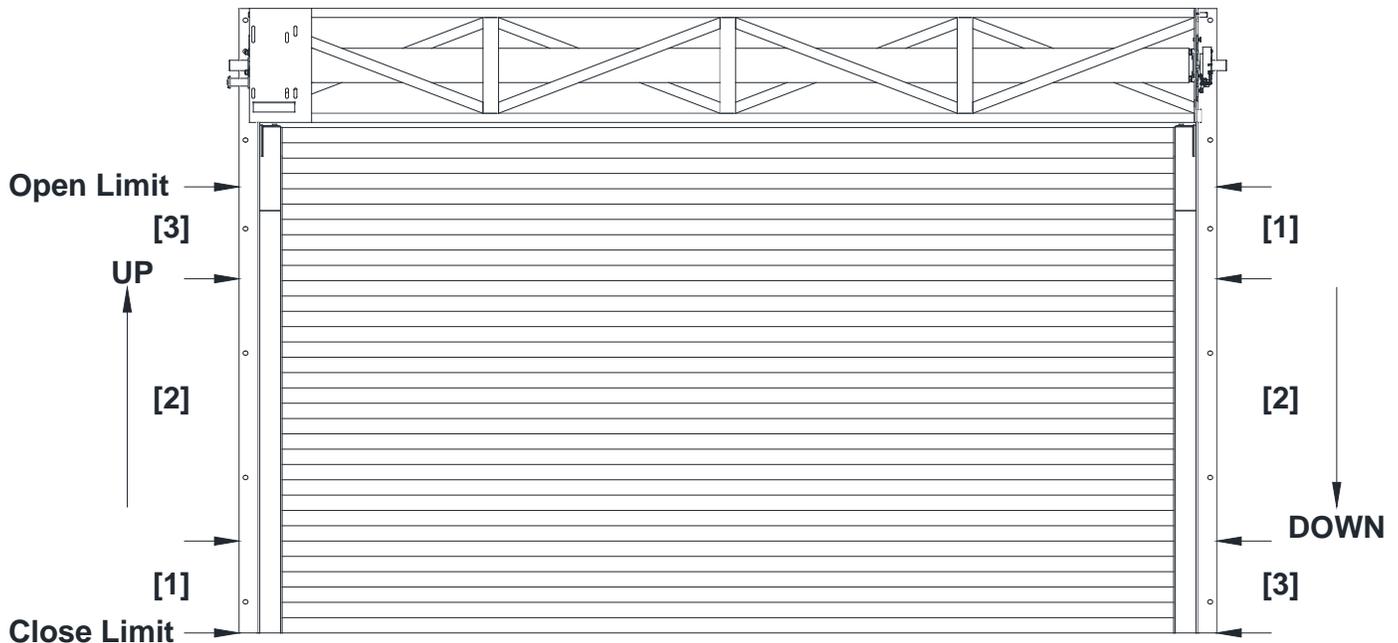


Figure 2 – Door Limits

9. **Maximum Run Time Timer:** For maximum safety and reliability, you can adjust the maximum run timers to turn the operator off, and reduce the risk of significant damage to the door system in the unlikely event the operator over travels the limits. Now that the door is operating at full speed, run the door in both directions tracking the total travel time of the door in both directions. The timer should be set to the time rounded up to the nearest second in the closing direction. Single timer is used for both directions, timer needs to be set for longest time frame. See instructions on page 11 for setting timers.

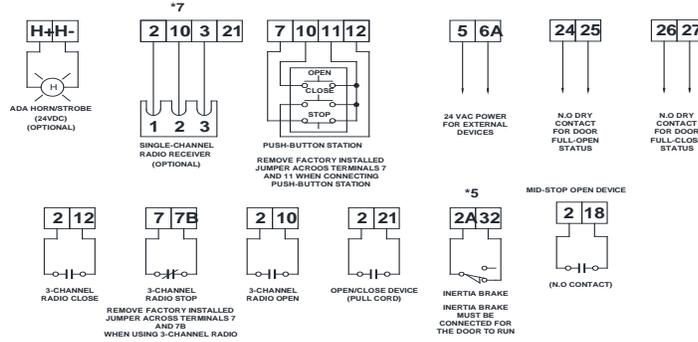
PLC Adjustment Procedures

1. Press the “Menu/OK” button.
2. While “Parameters” option is blinking, press the “Menu/OK” button again.
3. Press “↑” button until the ROOB number is changed to desired value.
4. Press “→” button “Now Active” value starts blinking.
5. Press “↑” or “↓” button to change the value and press “Menu/OK” – Now you see yes option.
6. Press “Menu/OK” button again to confirm changes.

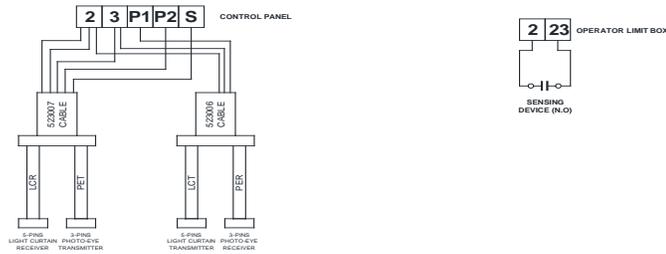
NOTICE After the limits have been set, run the curtain and align in onto the pipe. The curtain should be centered between the brackets and onto the pipe. Failure to complete this step may result in damage to the curtain.

10. Use enable timer to close procedure on Page 11.

Wiring Diagram Field Connections



PHOTOEYE AS MONITORED ENTRAPMENT DEVICE

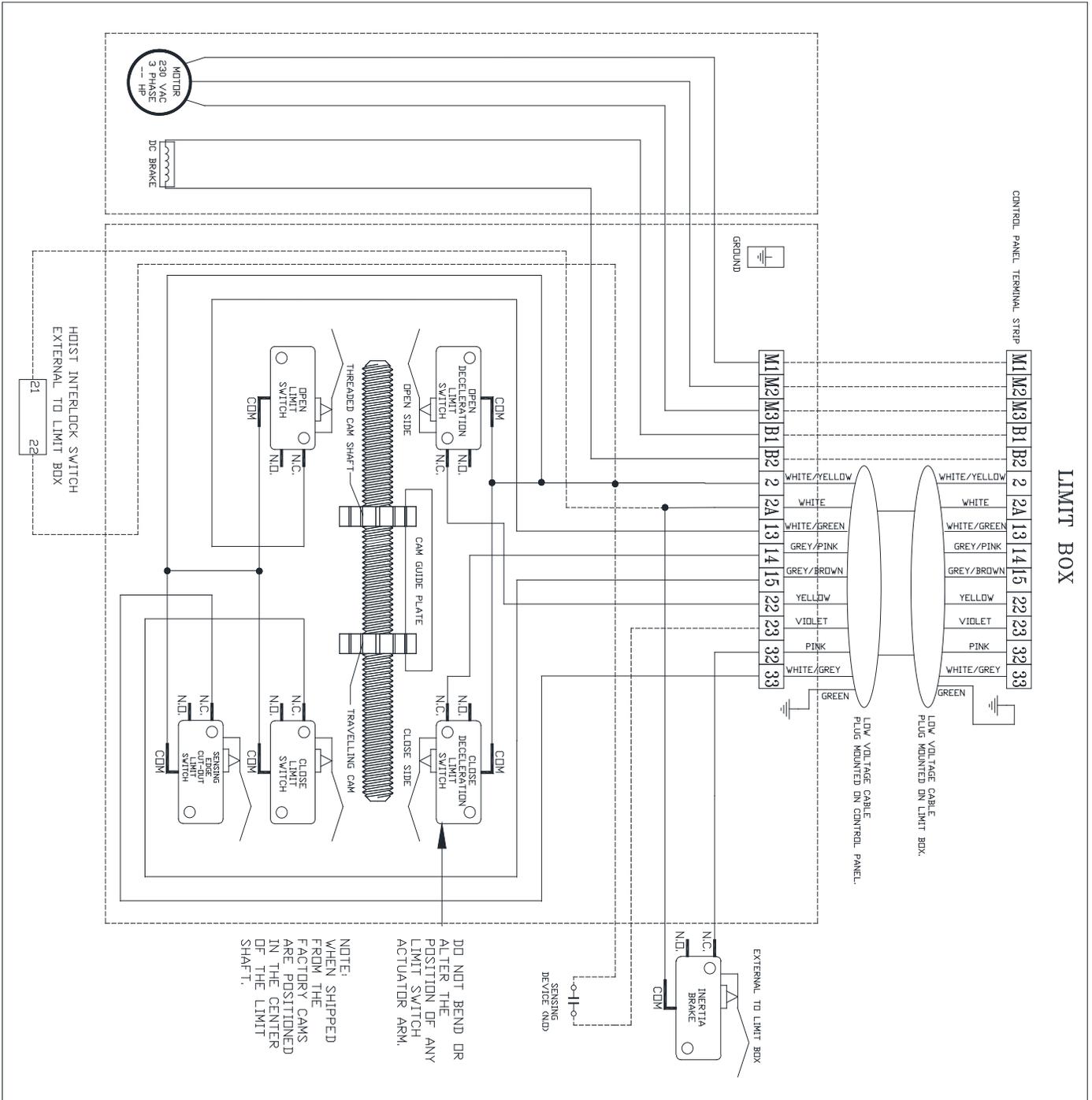


NOTE:

REMOVE FACTORY INSTALLED JUMPER ACROSS TERMINALS 2 AND 5 WHEN CONNECTING N.C ENTRAPMENT DEVICE

- RUN-TIMER ADJUSTMENT *1** NOTE: FOR ANY MODIFICATIONS TO THE PARAMETERS IN SMART RELAY, POWER TO SMART RELAY SHOULD BE ON. THE RUN OUT TIMER VALUE IS PRE-SET AT THE FACTORY FOR 25 SECONDS.
- RUN-OUT TIMER ON OPEN ADJUSTMENT:
- PRESS THE "MENU/OK" BUTTON.
 - WHILE "PARAMETERS" OPTION IS BLINKING PRESS THE "MENU/OK" BUTTON.
 - PRESS BUTTON UNTIL THE ROOB NUMBER IS CHANGED TO 0252.
 - PRESS BUTTON, NOW ACTIVE TIME DELAY STARTS BLINKING.
 - USE OR ARROW TO CHANGE THE VALUE AND PRESS "MENU/OK". NOW YOU SEE YES OPTION BLINKING.
 - PRESS "MENU/OK" BUTTON AGAIN TO CONFIRM CHANGES.
- NOTE: ALL THE TIMER VALUES ARE DISPLAYED ON SCREEN IN SECONDS.
- TIMER TO CLOSE ADJUSTMENT *2** TIMER TO CLOSE IS DISABLED WHEN SHIPPED FROM THE FACTORY. TO ENABLE TIMER TO CLOSE, GO TO R00B 184 AND CHANGE ITS VALUE TO 1. TIMER TO CLOSE IS PRE-SET AT THE FACTORY FOR 20 SECONDS.
- TIMER TO CLOSE ADJUSTMENT:
- PRESS THE "MENU/OK" BUTTON.
 - WHILE "PARAMETERS" OPTION IS BLINKING PRESS THE "MENU/OK" BUTTON.
 - PRESS BUTTON UNTIL THE ROOB NUMBER IS CHANGED TO 0174.
 - PRESS BUTTON, NOW ACTIVE TIME DELAY STARTS BLINKING.
 - USE OR ARROW TO CHANGE THE VALUE AND PRESS "MENU/OK". NOW YOU SEE YES OPTION BLINKING.
 - PRESS "MENU/OK" BUTTON AGAIN TO CONFIRM CHANGES.
- NOTE: ALL THE TIMER VALUES ARE DISPLAYED ON SCREEN IN SECONDS.
- *3** TELCO PHOTOEYE IS CONNECTED AS MONITORED ENTRAPMENT DEVICE AND TELCO LIGHT CURTAIN IS CONNECTED AS N.O ENTRAPMENT REFER TO ENTRAPMENT DEVICE CONNECTIONS FOR DETAILED CONNECTION INFORMATION. IF PRIMARY MONITORED ENTRAPMENT DEVICE IS NOT CONNECTED OR IF ANY SENSING DEVICES ARE ACTIVATED, DOOR CAN BE CLOSED BY CONSTANT PRESSURE ON CLOSE IF CONSTANT PRESSURE IS REMOVED PRIOR TO DOOR REACHING FULL-CLOSE POSITION, DOOR WILL REVERSE BACK TO FULL-OPEN POSITION.
- *4** ANY SECONDARY REVERSING DEVICE(S) WITH A N.O. CONTACT CAN BE INSTALLED TO 2 AND 23 IN THE OPERATOR LIMIT BOX.
- *5** INERTIA BRAKE MUST BE CONNECTED BETWEEN TERMINALS 2A AND 32 IN ORDER FOR THE DOOR TO RUN.
- *6** THIS OPERATOR IS WIRED AT THE FACTORY FOR CONSTANT PRESSURE ON OPEN. FOR MOMENTARY ON OPEN, REMOVE THE JUMPER ACROSS TERMINALS 2 AND 19.
- *7** SINGLE CHANNEL RADIO RECEIVER IS WIRED AS OPEN REVERSE/REFRESH TIMER DEVICE. IF OPEN/CLOSE FEATURE IS REQUIRED, CONNECT THE RADIO RECEIVER CONTACT TO TERMINAL 21 IN LIEU OF TERMINAL 10.
- MID-STOP: *8** MID-STOP FEATURE IS DISABLED WHEN SHIPPED FROM THE FACTORY. TO ENABLE MID-STOP FEATURE GO TO R00B 067 AND CHANGE ITS VALUE TO 1. MID-STOP FEATURE WORKS BASED ON TIME. WHEN MID-STOP OPEN DEVICE IS ACTIVATED, DOOR TRAVELS AT HIGH OPEN SPEED FOR A TIME SET BY MID-STOP HIGH-OPEN SPEED TIMER, THEN SLOWS DOWN FOR A TIME PERIOD SET BY MID-STOP SLOW SPEED TIMER AND THEN COMES TO FULL-STOP. THESE TIMERS HAVE TO BE ADJUSTED IN THE FIELD BASED ON THE DESIRED MID-STOP POSITION.
- THE MID-STOP HIGH OPEN SPEED TIMER IS PRE-SET AT THE FACTORY FOR 5 SECONDS. TO CHANGE THIS VALUE GO TO R00B 046 AND CHANGE ITS CONSTANT VALUE.
- THE MID-STOP SLOW SPEED TIMER IS PRE-SET AT THE FACTORY FOR 3 SECONDS. TO CHANGE THIS VALUE, GO TO R00B 047 AND CHANGE ITS ACTIVE TIME-DELAY VALUE. (NOTE:ALL THE MID-STOP TIMER VALUES ARE DISPLAYED IN THE UNITS OF 0.1 SECONDS)
- TIMER TO CLOSE WHEN ENABLED IS ACTIVE FROM BOTH MID-STOP AND FULL-OPEN POSITION.
- MID-STOP OPEN DEVICE IS DISABLED WHEN DOOR IS STOPPED AT MID-STOP POSITION.
- ANY OPEN DEVICE CONNECTED ACROSS TERMINALS 2 AND 10 WILL OPEN THE DOOR TO FULL-OPEN POSITION AND BYPASS THE MID-STOP POSITION.
- THE MID STOP LIMIT POSITION CANNOT BE SET IN THE PLANE OF THE LIGHT CURTAINS.

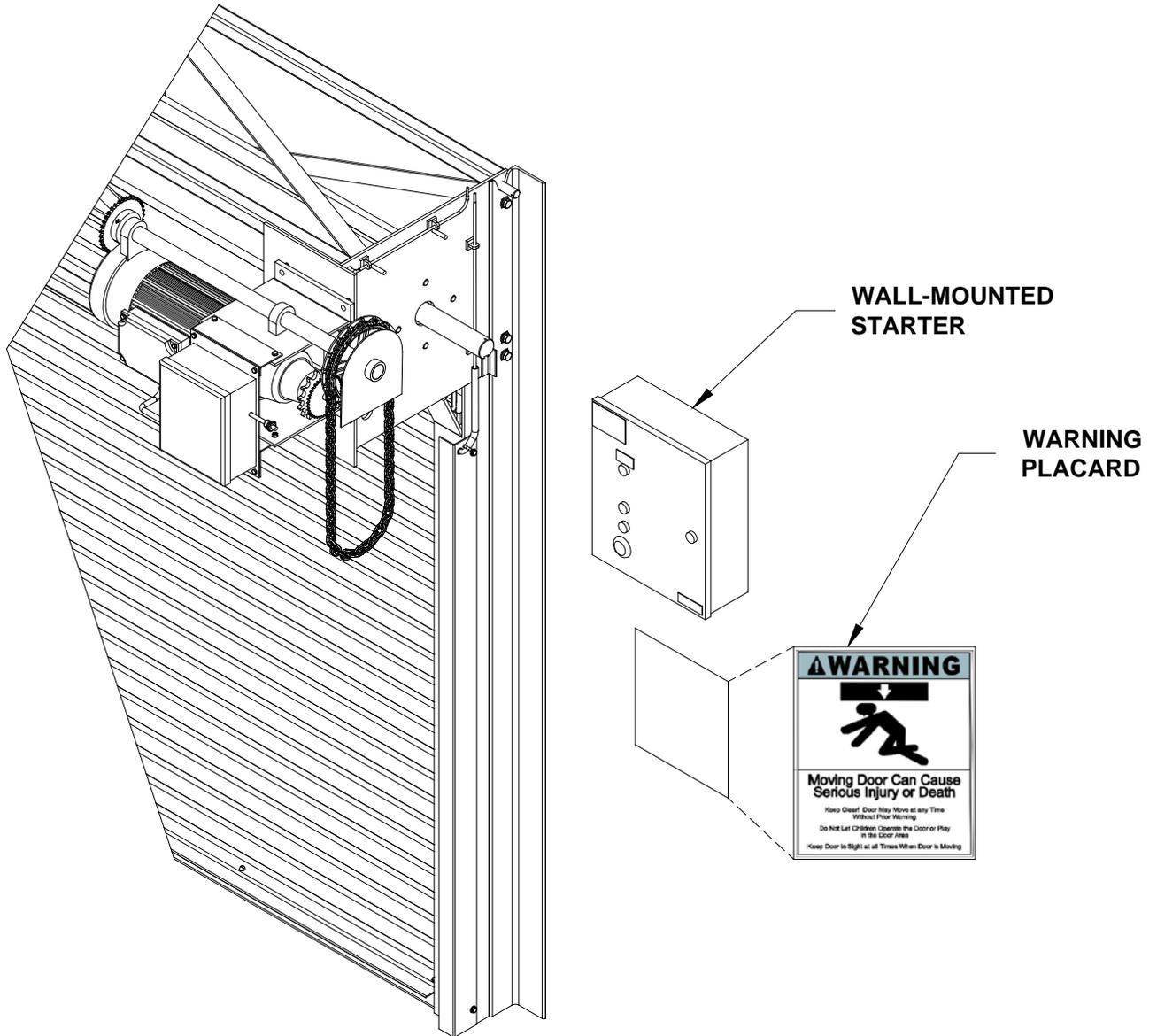
Wiring Diagram Limit Box



Warning Placard

Moving Door Warning Placard

Install Moving Door Warning Placard in a conspicuous place near Open/Close/Stop station as indicated. Please refer to Door Installation Manual for proper motor connection and orientation on door.



Maintenance

Maintenance Schedule

Coordinate operator maintenance schedule with manufacturer's maintenance schedule for your door.

Gearbox – The gearbox on the motor operator is factory sealed, and non-vented, and should not require service for the life of the operator

Brake Friction Material – The electromagnetic brake on the motor operator is factory adjusted, and should not require service for the life of the operator.

- Do not lubricate motor. Motor bearings are lubricated and sealed at the factory.
- Inspect and service whenever a malfunction is observed or suspected.

⚠ WARNING Before servicing, always disconnect operator from power supply.

For Technical Support Please Call

1-(855) 594-4969

Motor Operator Maintenance

Operators require practically no special maintenance other than periodic checking to see that mechanical parts where necessary are lubricated and electrical components are free of dirt.

The Service Technician should familiarize themselves with the proper sequence of operation and all related controls. Power to operator must be disconnected when removing or replacing covers on electrical components, making adjustments, or performing maintenance.

1. Check wire connection for tightness and wire insulation for defects or abrasions.
2. Check to see that all conduit connections are secure.
3. Check wires to all sensing and anti-entrapment devices.
4. Inspect operation of brake.
5. Inspect the gearbox for leaks.
6. Inspect roller chain and drive sprockets. Align, lubricate* the sprockets and tighten loose wiring connections
7. Lubricate* limit shaft very lightly, careful not to get the lubricant on limit switches or other electrical components.
8. Generally inspect the motor mounting, and tighten the fasteners and bracing.
9. Verify that all conduit connections are tight and have no exposed wires.
10. Inspect the electrical enclosure for debris, arcing and moisture. Check for and tighten loose wiring connections.

Maintenance

11. Test motor operation through all control stations.
12. Check limit switch settings.
13. Examine all sensing and anti-entrapment devices for damage.
14. Test the operation of all sensing and anti-entrapment devices.
15. Check motor amperage draw for a full open and close cycle. Compare reading to those listed on the motor nameplate.

*Use a moly based chain lubricant for chain, sprockets and limit shaft lubrication

Troubleshooting

▪ **Operator Troubleshooting:**

Note: If you suspect you are having an issue with your operator, use the following table to determine the potential causes. If the provided solution does not eliminate the issue, or the table does not address your particular problem, contact the Service Department.

Component	Problem	Potential Cause	Solution
Motor Operator	Emergency hand chain fails or is difficult to operate door	Door may be jammed or obstructed	Remove obstruction
		Problem in gearbox housing	Consult Dealer
	Emergency hand chain turns but does not turn the output of gear box	Keys fixing gears to shafts are sheared	Check keys and keyways
	Motor fails to run or control circuit fails to energize	Fuses blown or circuit breaker tripped	Consult Dealer
		Operators are protected from running in overload condition by thermal overload devices of automatic reset type	Consult Dealer
		If contacts for motor controller energize but motor still fails to operate	Consult Dealer
		Push button energized on only one side of the control contacts	Check all electrical connections for broken or loose wire, etc.
	Movement of the door is in agreement with push button station, but the limit switch does not stop door	Electrical connections are switched	Check electrical connections and jumper wire between the micro switches. Consult Dealer
	Electrical control circuit energizes but push button station does not run or motor overloads trip	Incorrect Wiring	Consult Dealer
	Low Voltage to Motor	Incorrect electrical power to motor	Check voltage against the correct voltage stamped on the motor. If the voltage is 10% below the rating, there is not sufficient voltage to run motor
Motor is burned out	Incorrect Wiring	Consult Dealer	

VFD Error Codes

Call Factory Tech Support @ 1-855-594-4969 with Job# and Operator Serial# and VFD error code for assistance