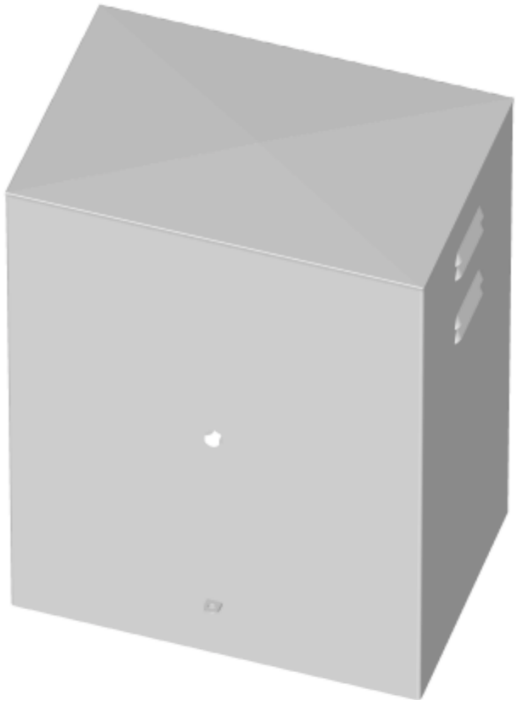
APOLLO

Gate Operators, Inc.

Model 7100UL

Residential & Medium Duty Commercial Slide Gate Operator



INSTALLATION MANUAL

ETL LISTED US

10-04-00

CONTENTS

IMPORTANT SAFETY PRECAUTIONS

IMPORTANT - READ CAREFULLY BEFORE BEGINNING INSTALLATION

WARNING—To reduce the risk of injury or death:

- **Read this installation manual completely prior to installation.**
- **Installation should be performed by a professional installer.**
- **Required welding should be performed by a qualified welder.**
- **Should electricity be required, use a certified electrician only.**
- **Any device that requires 120 Volts AC should be U.L. approved.**
- **Review with the owner all safety concerns including:**

    - ⇒ **Do not operate the gate unless area around gate is in full view.**
    - ⇒ **Do not allow children or adults to "ride" on gate during operation.**
    - ⇒ **Do not allow children to play in the gate area.**
    - ⇒ **Periodically test the obstruction sensitivity to assure safe and proper operation. *****Do not test sensitivity by standing between the gate and the hinge or stop post.***
    - ⇒ **Keep the remote control away from children.**
    - ⇒ **The "CAUTION AUTOMATIC GATE" sign should be clearly visible from both sides of the gate.**
    - ⇒ **Always insure that the gate has closed securely before leaving area.**
    - ⇒ **Arrange with local fire and law enforcement for emergency access.**
    - ⇒ **Always keep people and objects away from the gate. No person should cross the path of the moving gate.**

- **Recommend safety devices such as loop detectors, edge switches, and beam detectors when applicable.**
- **Install control devices such as keypads far enough away (5 feet or further) from any moving parts of the operator and gate to prevent possible injury.**
- **Always disconnect the battery or power source when making adjustments or repairs to any part of the gate or operator.**
- **All rollers should be covered to prevent injury.**

Test the gate operator monthly. The gate must reverse on contact with a rigid object or stop when an object activates the non contact sensors. After adjusting the force or limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of injury or death.

APPLICATIONS

The **Apollo** Model 7100UL Slide Gate Operator is approved for **Vehicular Class I & II** usage under **UL 325** Guidelines, and is designed to handle a slide gate up to 27 feet in total length (accomodates a 25 foot drive) and 400 pounds. A professional fence or gate dealer is recommended to assure proper installation. **Apollo Gate Operators** are available only through qualified dealers with an outstanding reputation in the fence and gate industry. These dealers will be able to recommend the proper equipment for particular applications. **Apollo Gate Operators** are 12 Volt DC (*Direct Current*) powered. A 12 Volt marine type battery is recommended. There are several advantages with 12 Volt DC systems:

- ***Battery powered operators provide up to 200 operations in the event of power outages.***
- ***The battery may be recharged with a trickle charger or by solar energy (eliminating the need for costly trenching to remote entrances).***

If a trickle charger is used and a standard electrical outlet is not readily available, a licensed electrician will be required for proper electrical hook up.

The following table should be used as a guide for capacity of operation of operators only, additional options may reduce the the daily usage. *Please note that the charge capability of solar panels will vary with different geographical locations.*

Model #	Daily Usage ⇨	1-15	16-30	31-60	61-120	121+
(2) 201	(2) 5 watt solar panel w/battery	X				
210	10 watts of solar panel w/battery	X				
MSX20	20 watts of solar panel w/battery & regulator SRX6		X			
MSX40	40 watts of solar panel w/battery & regulator SRX6			X		
404	1.5 amp automatic charger w/battery				X	
405	6 amp automatic charger w/battery (dual gates)					X

PRE-INSTALLATION CHECKLIST

The following checklist should be used before beginning installation:

- **Verify that the proper operator has been selected for this application.**

- **Verify proper installation and operation of the gate.**

    1. *Are all rollers covered with a protective housing?*
    2. *Are the rollers servicable?*
    3. *Does the gate roll free and level?*
    4. *Will the gate require a locking device?*
    5. *Are the main posts sturdy enough to handle the gate & operator?*

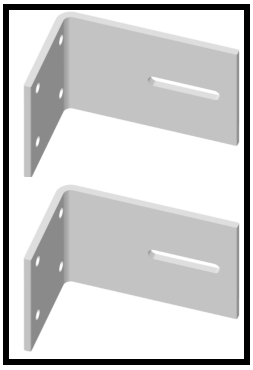
- **Determine the general location of the operator, chian brackets, and solar panel (if used).**

    1. *Is there a suitable location for the operator?*
    2. *Can the solar panel (if used) be mounted in an unobstructed area facing south?*
    3. *Will additional solar panel cable be required?*
    4. *Is electricity available (if required)?*

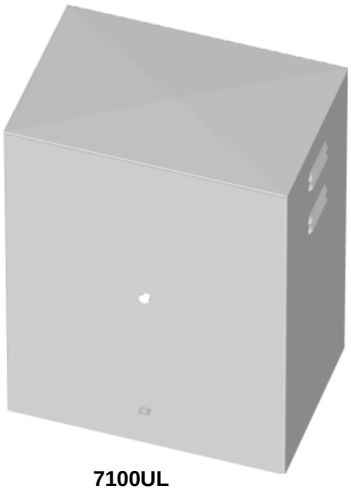
- **Consider safety and access options. Recommend if needed.**

    1. *Will there be chidren or animals in the area?*
    2. *Are safety loops, edge switches, or photo beam detectors required?*
    3. *How can the gate be opened in emergencies?*
    4. *How will visitors enter and exit?*
    5. *Will vehicles (and trailers) have sufficient room off roadway to operate any control devices such as keypads?*

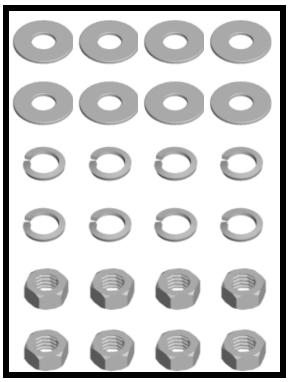
PARTS IDENTIFICATION



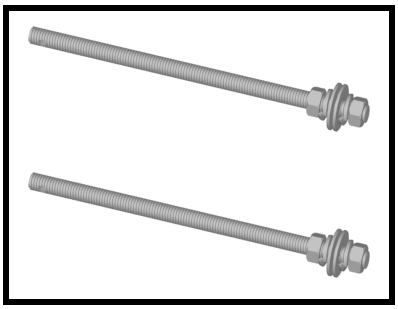
 # L Bracket
Chain Brackets (2)



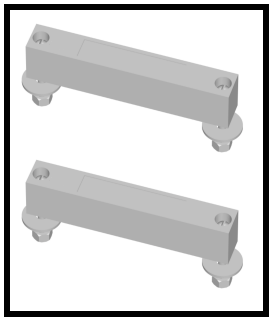
7100UL
Operator



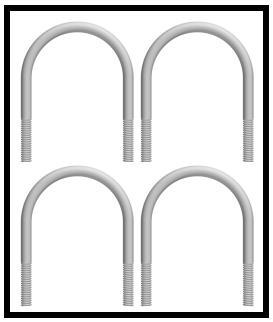
5/16 Washers, Lock
Nuts, & Nuts (8 each)



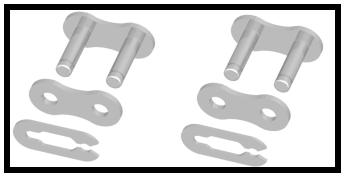
#Bolt50
Chain Bolts with hardware (2 each)



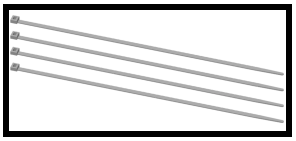
#1933G
Magnetic Chain Limits
with hardware (2 each)



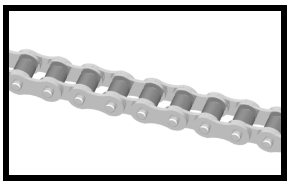
#5/16 X 2
5/16 U Bolts (4 each)



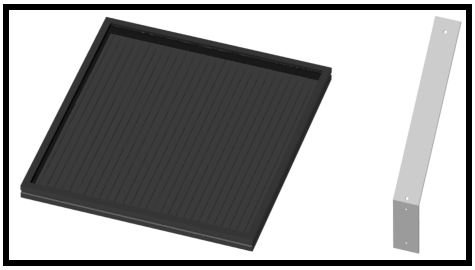
#40 Link
Master Chain Links (2 each)



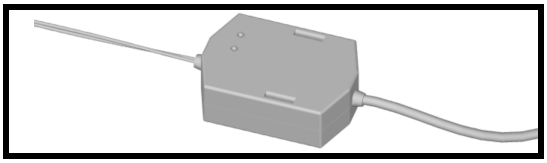
Tie Wraps (4 each)



#40 X 30
#40 Roller Chain (30 feet)



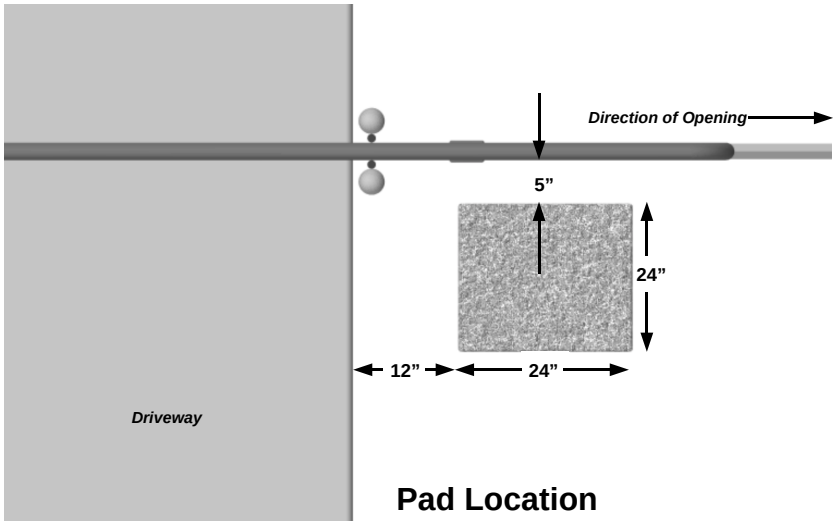
#201 **#208**
5 Watt Solar Panel & Bracket (optional)



#404
1.5 Amp Automatic Battery Charger (optional)

#273G
CAUTION Signs (2 each)

PAD INSTALLATION



Pad Location

The required depth of the pad will vary from site to site. Normally, the pad should be at least 4” above the surface and 18” below (Figure A & B).

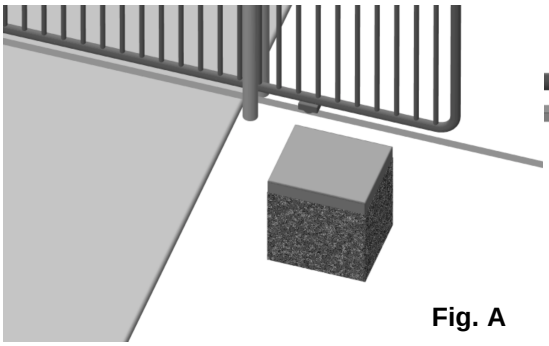


Fig. A

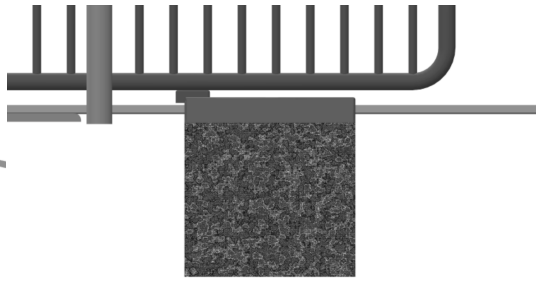


Fig. B

In harder soil or rock, pilings may be preferred (Figure C).

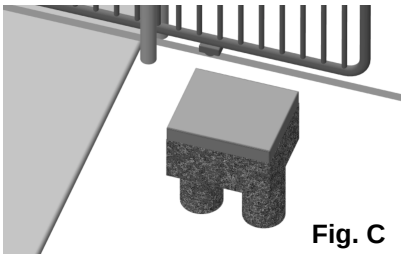


Fig. C

Conduit requirements should be considered in the planning stage. If electrical power is required, a separate conduit should be installed for electrical only. A certified electrician should be consulted for the proper conduit material (Figure D & E).

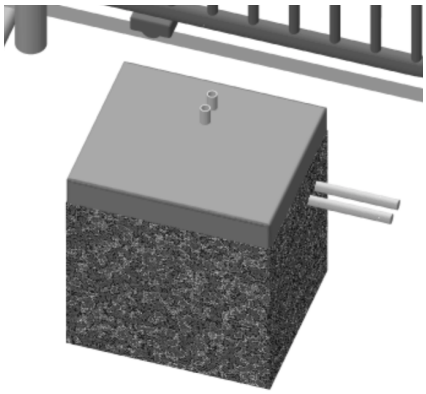


Fig. D

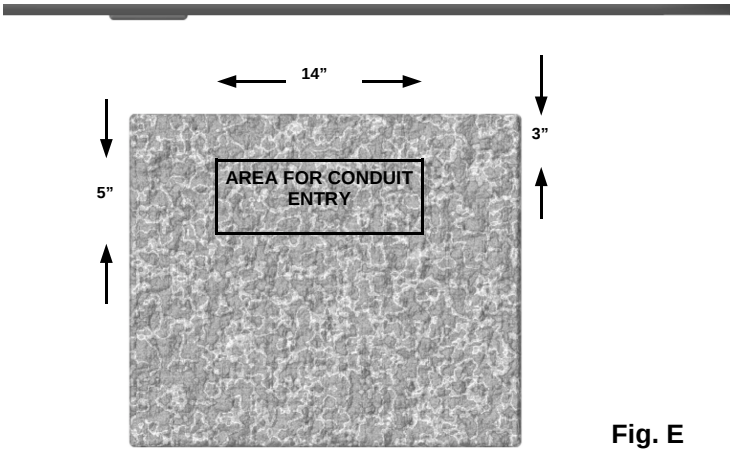


Fig. E

Note:
Allow the concrete to cure as per the directions on the bag. The mounting holes for the operator should be drilled after the concrete has cured.

OPERATOR INSTALLATION

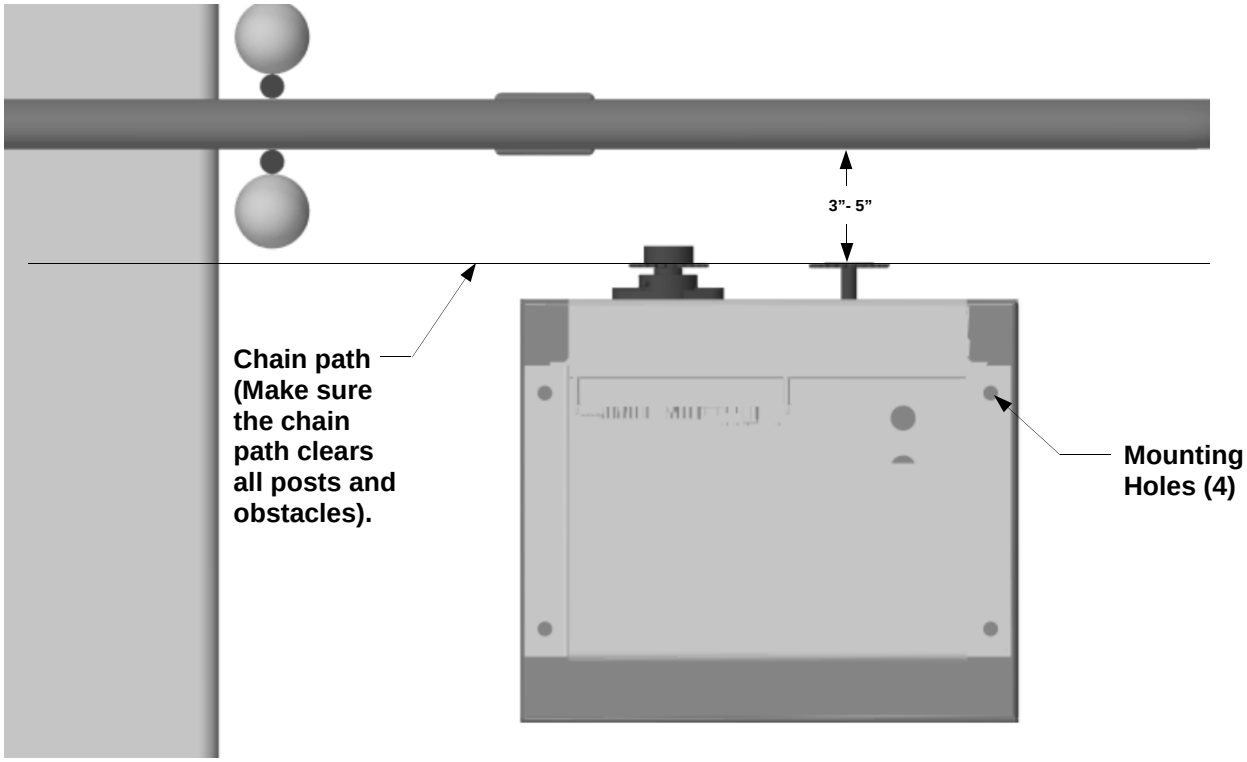
Four 1/2” anchor bolts (*not supplied*) are recommended to mount the chassis. The holes should be drilled with a 1/2” concrete drill bit.

STEP 1. Set the operator on the pad as shown. Align the sprockets 3 to 5 inches from the inside surface of the gate.

STEP 2. Mark the four mounting holes on the pad.

STEP 3. Remove the operator and drill the holes according to the anchor bolt manufacturers instructions.

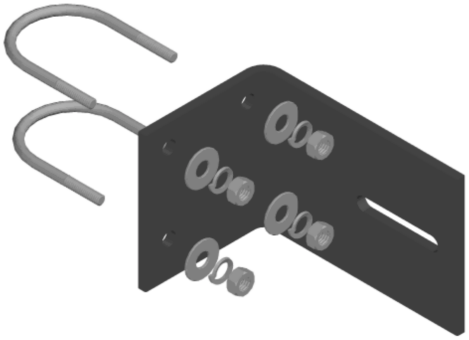
STEP 4. Replace the operator and fasten to the pad.

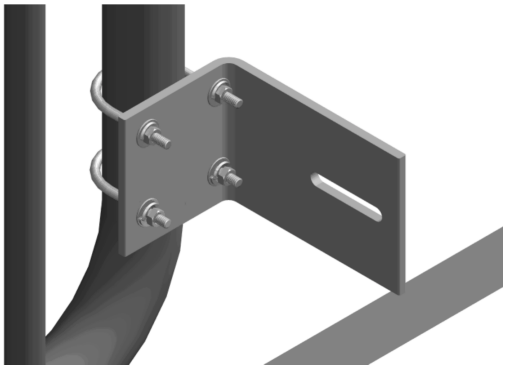


TOP VIEW

CHAIN BRACKET INSTALLATION

STEP 1. Assemble chain bracket with 5/16” U-bolt & hardware to each end of the gate as shown. Do not tighten at this time.



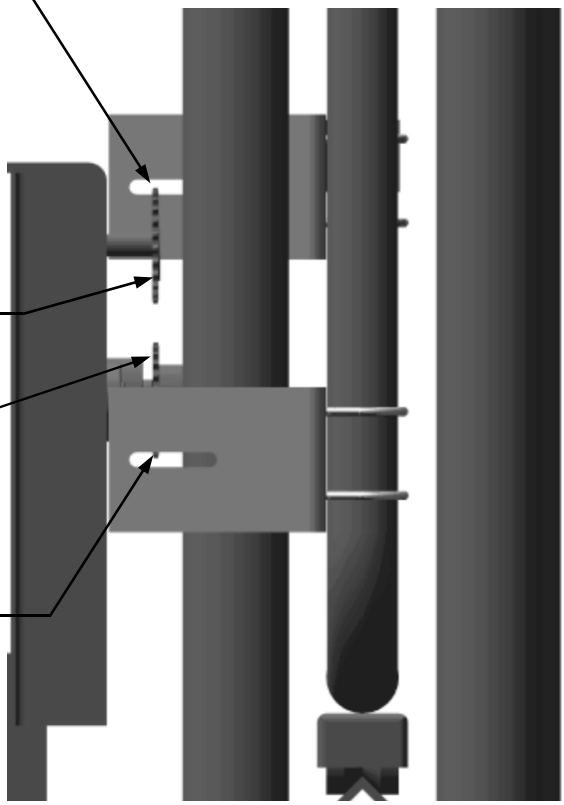


STEP 2. Align the left chain bracket slot with the top teeth of the idler sprocket.

Idler Sprocket

Main Sprocket

STEP 3. Align the right chain bracket slot with the bottom teeth of the main sprocket.



STEP 4. Tighten all hardware.

CHAIN & CHAIN BOLT INSTALLATION

STEP 1. Connect chain bolt to the chain bracket as per Figure A & B on both ends of the gate.

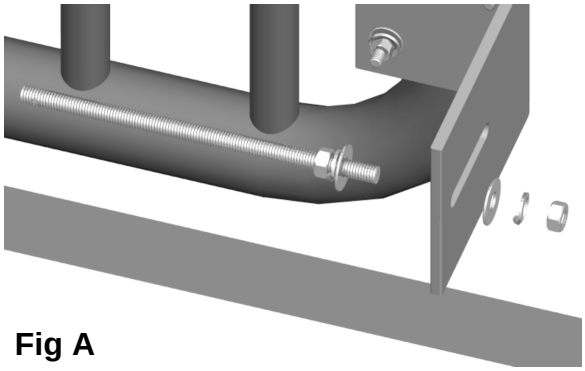


Fig A

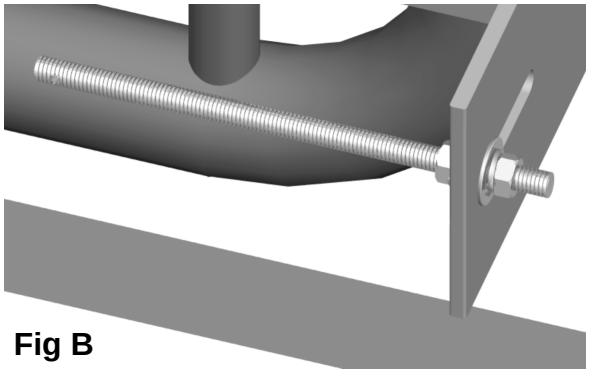
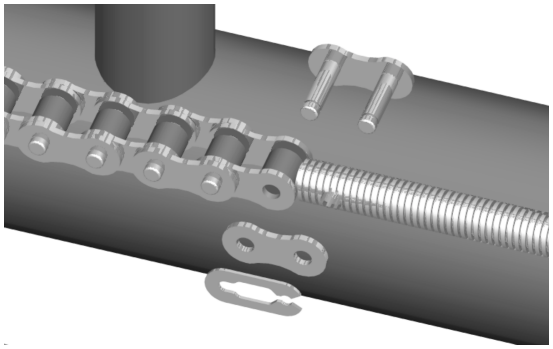
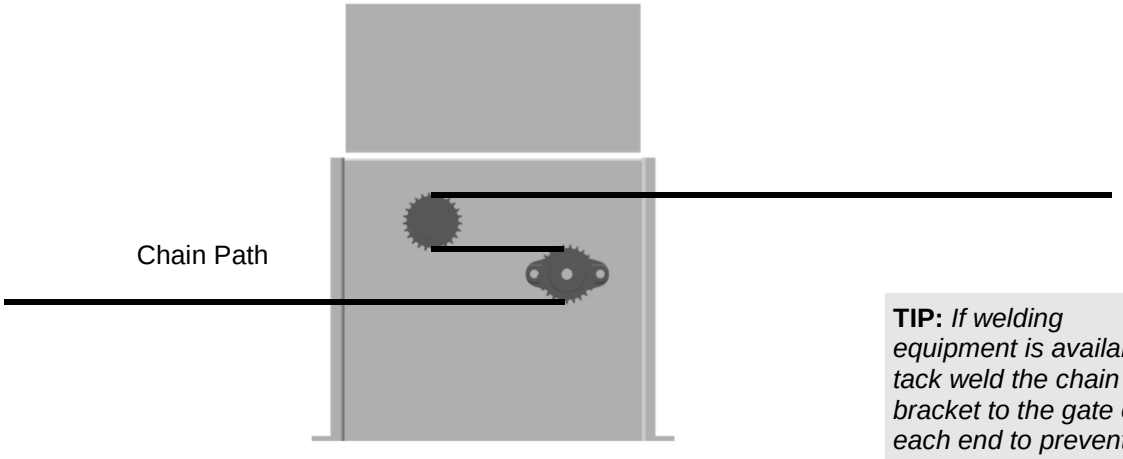


Fig B



STEP 2. Attach the chain to the chain bolt using the master chain link.

Note: *A chain breaking tool may be required to reduce the chain to the proper length.*



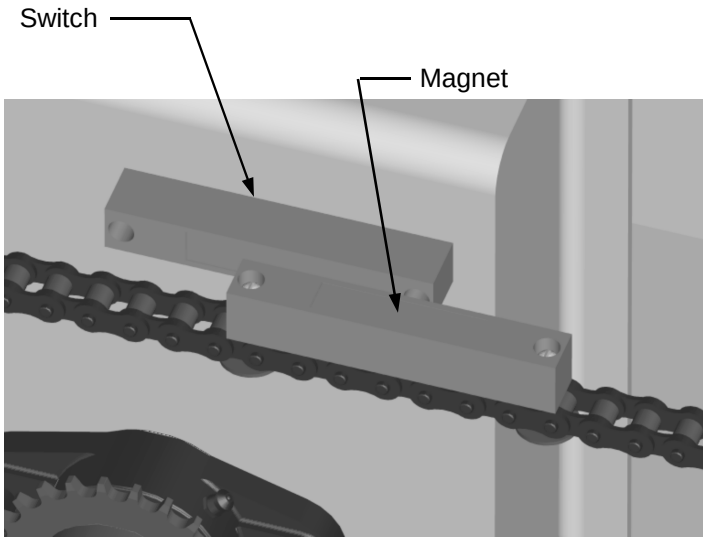
TIP: *If welding equipment is available, tack weld the chain bracket to the gate on each end to prevent slippage.*

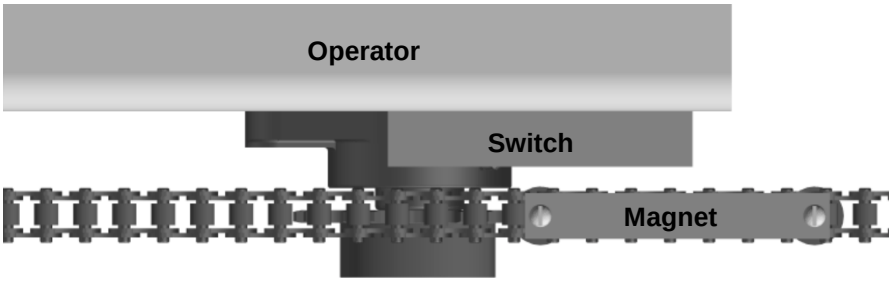
CHAIN MAGNETS INSTALLATION

1. Align each magnet with the corresponding switch on the operator.
2. Connect the battery and adjust the magnets for proper open & close limits.

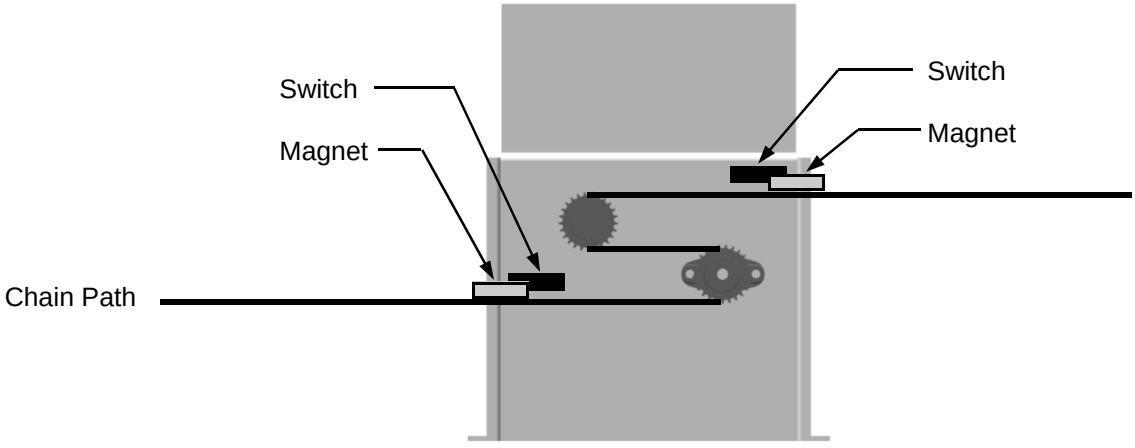
WARNING : Always disconnect battery prior to relocating the magnet.

TIP: *If the gate automatically opens after the close timer expires, reverse the red & black motor wires and reverse the orange & white limit wires.*



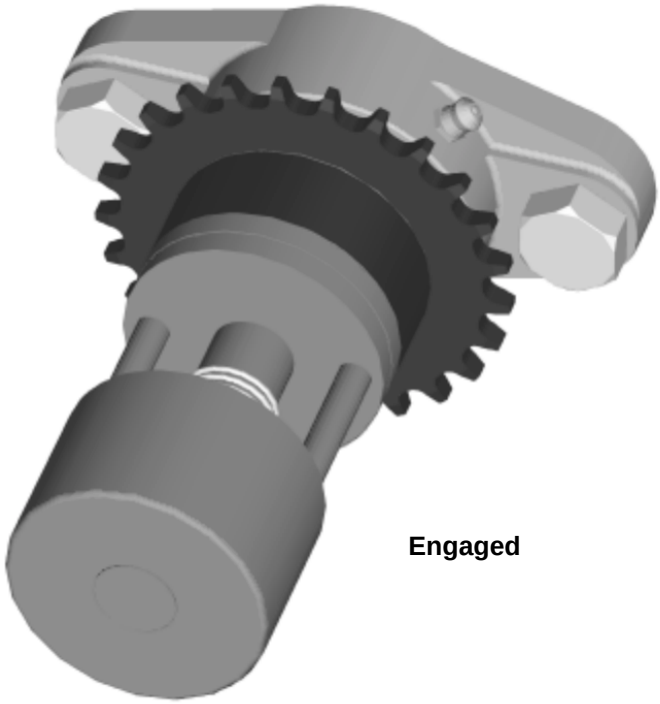


Top View - Right Side

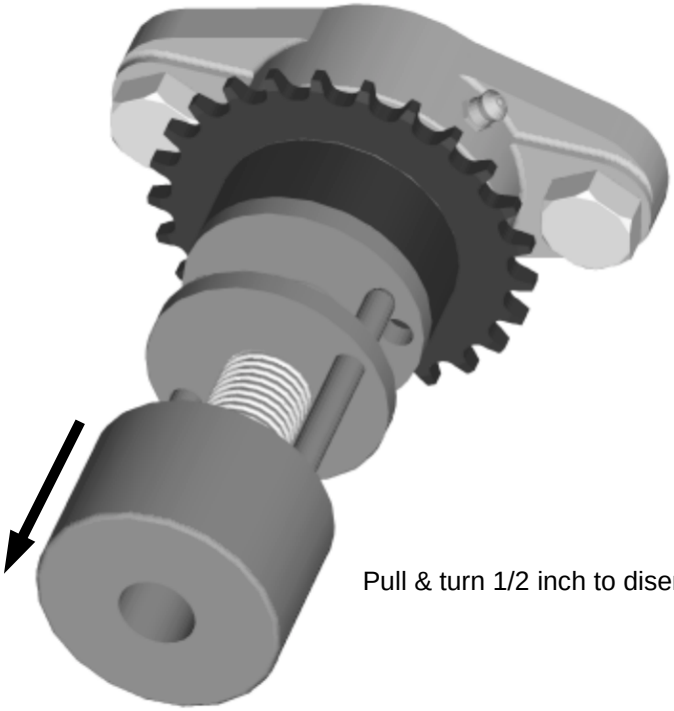


Front View

QUICK RELEASE OPERATION



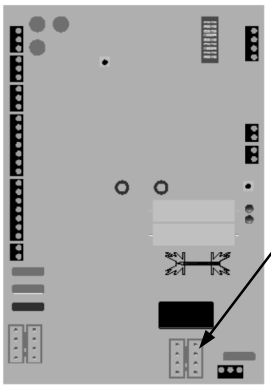
Engaged

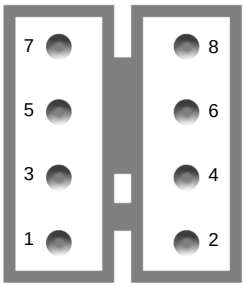


Pull & turn 1/2 inch to disengage

CONTROL BOARD CONNECTIONS #833/834

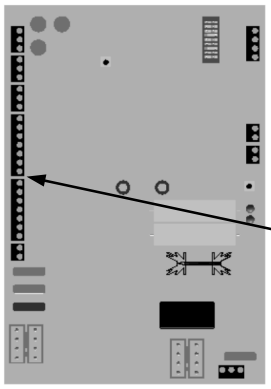
8 Pin White Connector (two on 834)

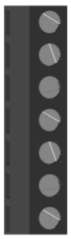




1 ORANGE - Open Limit Input (Normally open circuit unless gate is opened)
2 WHITE - Close Limit Input (Normally open circuit unless gate is closed)
3 BLACK - Motor - Positive during open cycle, Negative during close cycle
4 RED - Motor - Negative during open cycle, Positive during close cycle
5 GREEN - Ground (Limit Switch Common)
6 NOT USED
7 BLACK - Ground - Battery Negative
8 RED - Battery Positive (+12 VDC)

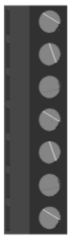
7 Pin Black Connectors



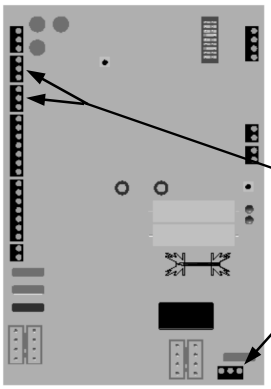


1 Edge 1 Input
2 Edge 2 Input
3 Ground
4 Ground
5 Stop Input (N/C)
6 Close Input (N/O)
7 Open Input (N/O)

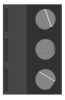
} **3 Button Control Only**



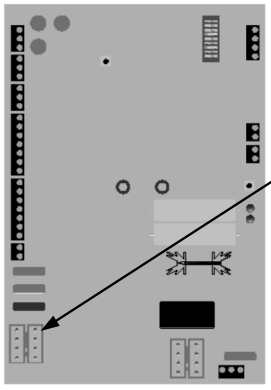
8 Ground
9 Ground
10 Free Exit Input (recommended telephone entry)
11 Ground
12 Under Gate Loop Input
13 Ground
14 Safety Loop Input

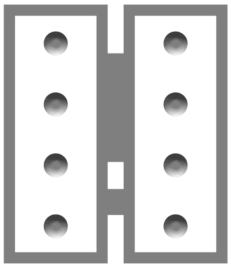


3 Pin Black Connectors (3)



GND Ground
INP Input (Activates gate when momentarily connected to ground)
12V +12 Volt Output (For powering options - 2 Amps Max.)





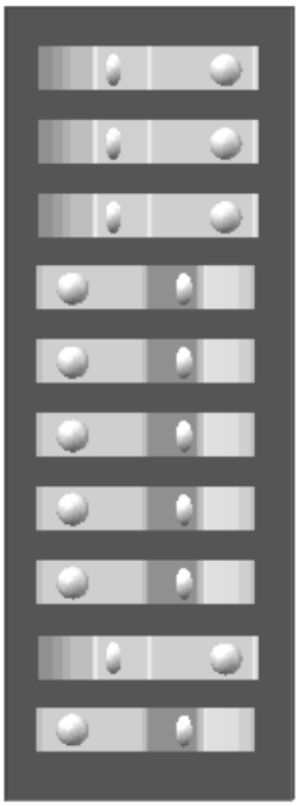
Emergency Bypass Connector

Used when the control board is not functioning. Unplug the motor harness from the main connector and momentarily insert into the Emergency Bypass Connector to open the gate. In the event the motor is not disconnected quickly enough, the blue 15 amp fuse will protect the circuit board from damage and should be replaced when the original problem is fixed.

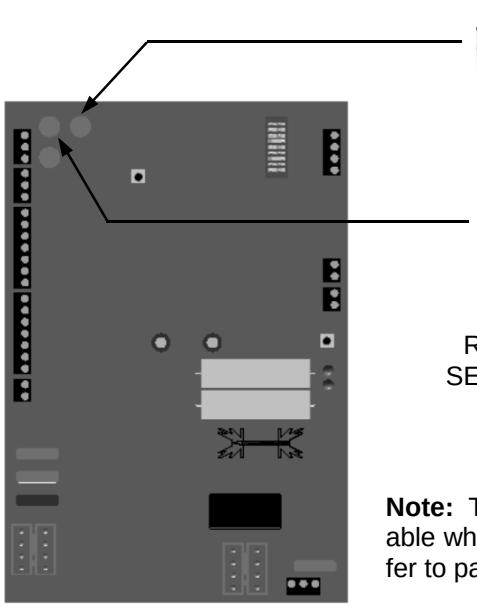
833/834 CONTROL BOARD ADJUSTMENTS

PROGRAM SWITCHES

OFF **ON**



	Factory Setting	Description
#1	ON	**TIMER TO CLOSE -** Automatically closes gate *ON - Close timer enabled* *OFF - Close timer disabled*
#2	ON	**TIMER TO CLOSE OPTION** *ON - Timer to close works only when open limit switch is activated* *OFF - Timer to close works from any open gate position*
#3	ON	**SLAVE DISABLE** *ON - Slave side of board disabled (Used for Single Gates)* *OFF - Slave side of the board enabled (Used for Dual Gates)*
#4	OFF	**SIREN DELAY** *ON - Siren output is active for a 3 second delay before the gates move* *OFF - Siren output is active and gates start immediately*
#5	OFF	**3 BUTTON ENABLE** *ON - Enables the use of a 3 Button Station* *OFF - Disables the use of a 3 Button Station*
#6	OFF	**LOCK TYPE** *ON - Output for lock is normally 12V when the gate is closed (For Magnetic locks)* *OFF - Output for lock is 12V during open cycle (For Solenoid locks)*
#7	OFF	**COAST ENABLE** *ON - Coast feature enabled (delay before motor brakes)* *OFF -Coast feature disabled (relays open immediately)*
#8	OFF	**FREE EXIT OPTION** *ON - Free exit input will open gate on open and close cycles* *OFF - Free exit input will open gate on close cycle only*
#9	ON	**LEARN MODE** *ON - Controller is in learn mode* *OFF - Controller is in normal operation mode*
#10	OFF	**INTELLIGENT ACTUATOR ENABLE** *ON - Controller is connected to "Intelligent actuator" (816E & 816EX)* *OFF - Controller is connected to slide gate or other type of actuator*



TIMER TO CLOSE ADJUSTMENT

(When Switch #1 is On)

Rotate clockwise to increase time before gate closes.
Rotate counter clockwise to decrease time before gate closes.
If program switch #2 is on, the gate must activate the open limit switch in order for the timer to close to operate.

AUTO REVERSE SENSITIVITY

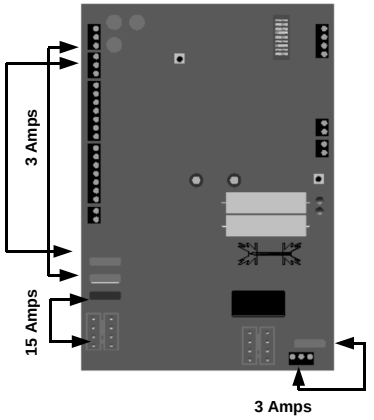
The 833/834 circuit board automatically sets the current sensitivity.

The Auto Reverse Sensitivity can be adjusted while the 833 control board is in Learn Mode.
Rotate clockwise to decrease the percentage of the current draw.
Rotate counter clockwise to increase the percentage of the current draw.
WARNING: The AUTO REVERSE SENSITIVITY will automatically be adjusted to prevent injury in the event of someone being entrapped in the gate. This feature should be periodically tested to assure proper operation. Refer to SAFETY PRECAUTIONS.

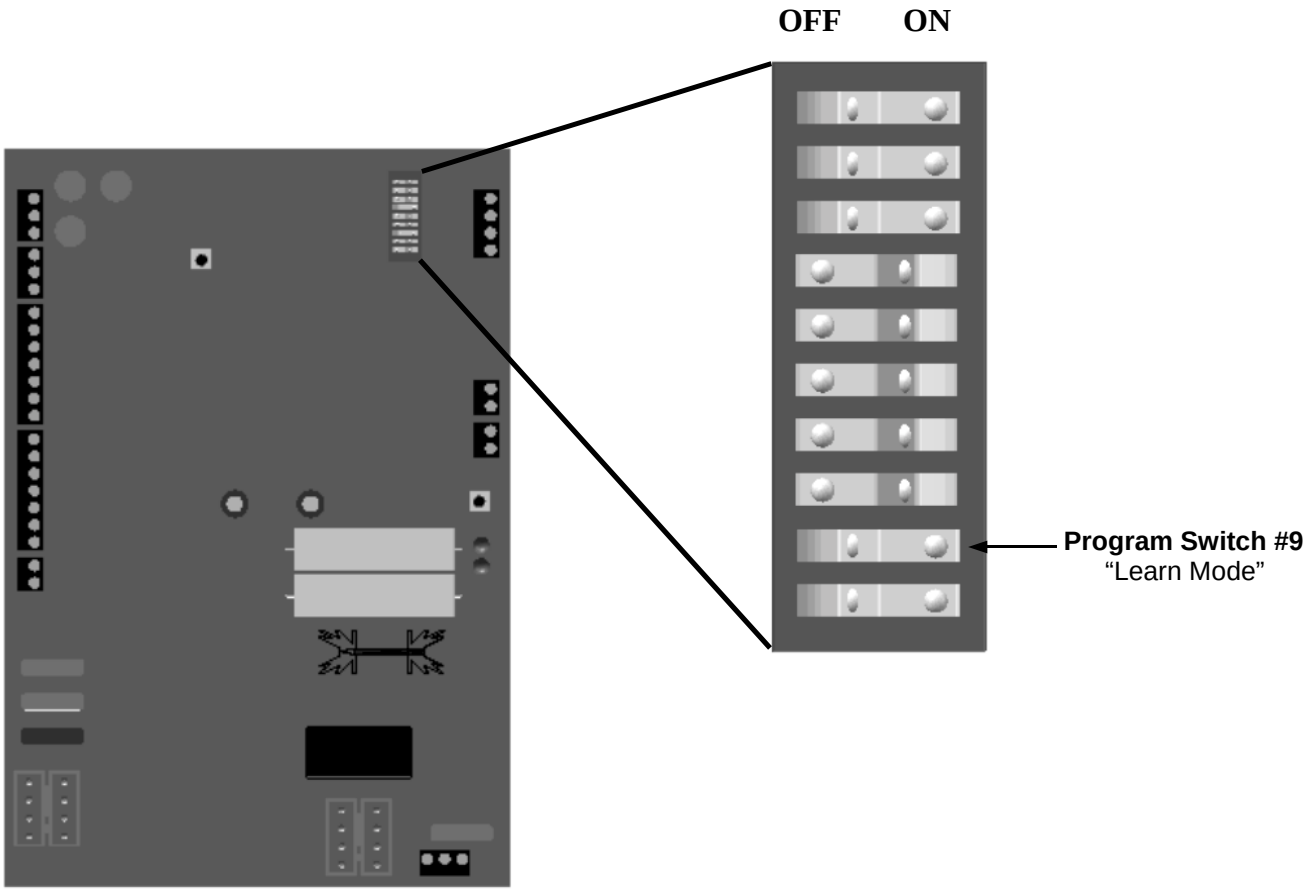
Note: The Auto Reverse Sensitivity is only adjustable while the control board is in "Learn Mode". Refer to page 14 for more information on "Learn Mode".

Fuses

There are 4 standard automotive type fuses on the 833/834 circuit board. The **EMERGENCY BY-PASS** plug is protected by a 15 Amp fuse. The remaining three fuses (one for each of the 12 Volt outputs) are 3 amp.



833/834 CONTROL BOARD ADJUSTMENTS



Learn Mode

When switch #9 is in the 'ON' position, the controller is in learn mode. Learn mode is used to 'train' the controller on the installation. Specifically the controller monitors the current draw and stroke length during learn mode. This allows the controller to automatically set the auto reverse sensitivity of the installation in addition to determining when to engage the soft stop feature.

When the controller is initially installed, it must be put into learn mode. The gate should be fully opened and closed 3-5 times and partially opened and closed 3-5 times to allow the controller to adjust to the weight and size of the gate. Program switch #9 should then be moved to the 'OFF' position to exit learn mode.

Any changes to the condition of the gate (i.e. cold weather, rust, etc.) may require the controller to be put into learn mode to train the controller once again.

Note: The controller must be put into learn mode any time that it is disconnected from the power supply.

Switch #9 Must Be In The OFF Position During Normal Operation.

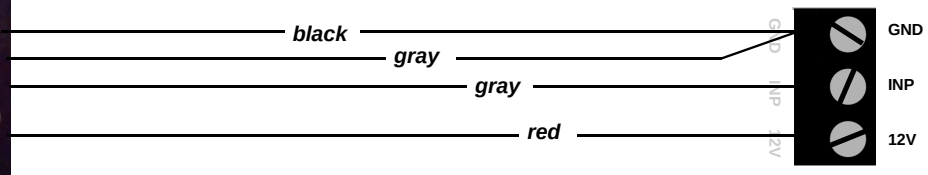
RECEIVER OPTIONS

Do not confuse the receiver code switches with the red program switches on the gate control board.

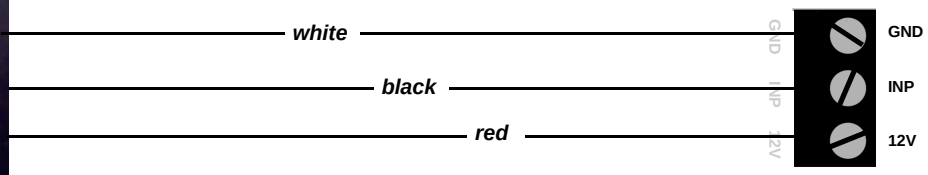
Never set all code switches to the same position. Transmitters must match code switches for proper operation.

If power is taken directly from battery or connected as shown below, receiver should be configured for 12VDC.

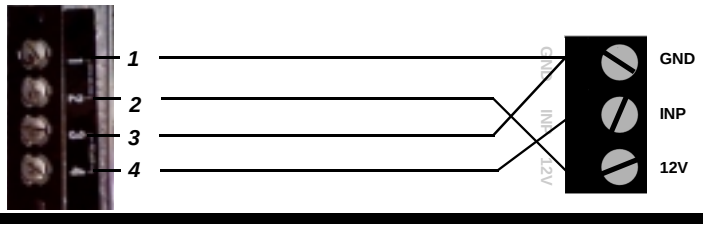
Multi-Code



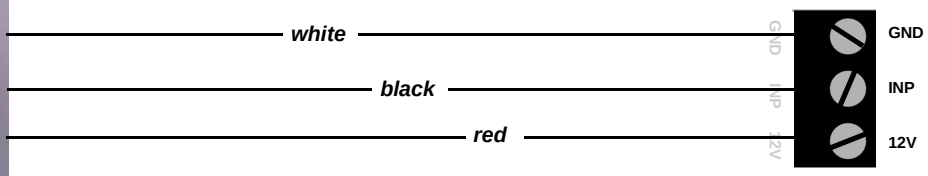
Allister



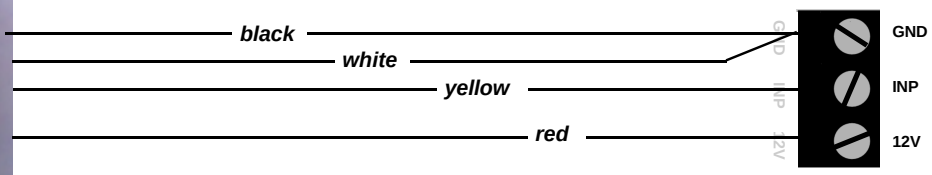
Lift-Master



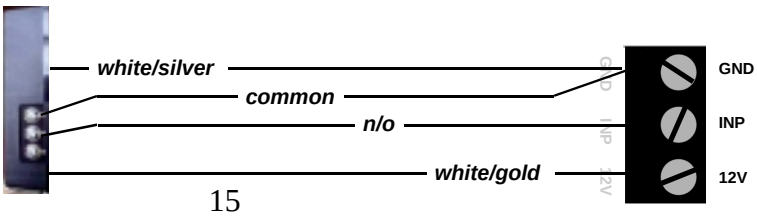
Genie



Heddolf



Linear



LIMITED ONE-YEAR WARRANTY

Apollo products are warranted against defects for a period of 12 months from the date of purchase, providing recommended installation procedures are followed. This warranty is in lieu of all other warranties expressed or implied (some states do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you) and shall be considered void if damage was due to improper installation or use, connection to improper power source, or if damage was caused by fire, flood, or lightning. The manufacturer will not be responsible for any labor charges incurred in the removal or replacement of defective parts.

In case of failure due to defective material or workmanship during the warranty period, the defective part will be repaired or replaced at the manufacturer's option at no charge if returned freight prepaid. New or factory rebuilt replacements may be used. Replacement parts are warranted for the remaining portion of the original warranty period. The manufacturer will pay standard ground freight on the return of repaired or replaced items in warranty.