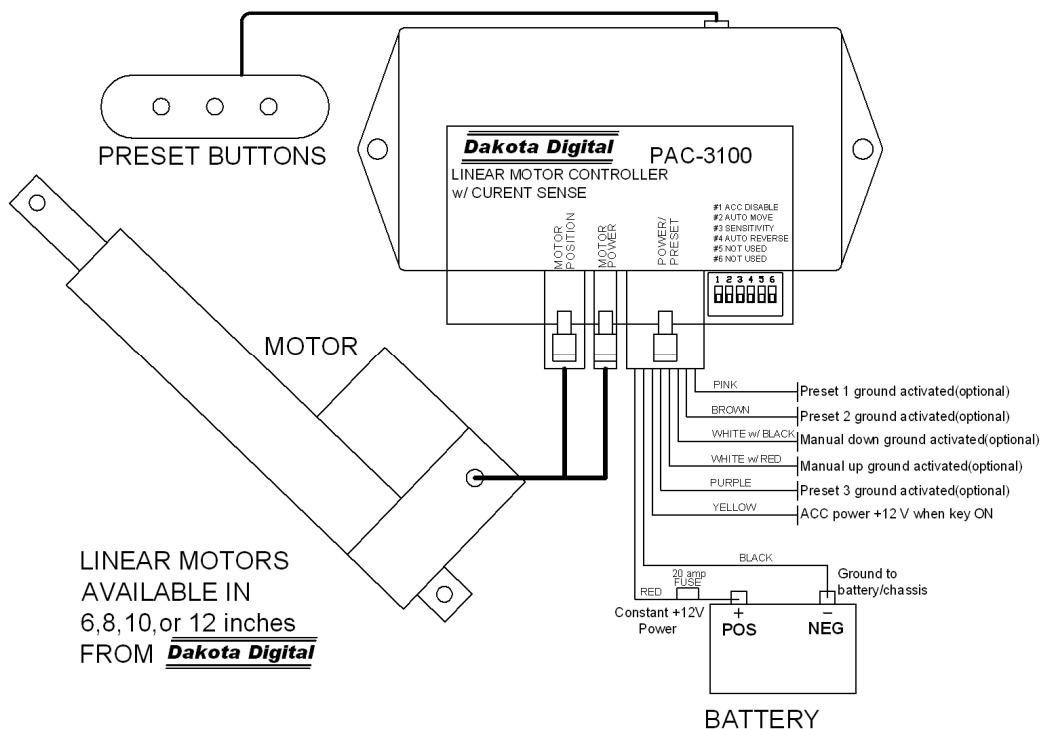




## PAC-3100 LINEAR MOTOR CONTROLLER W/ CURRENT SENSING AUTO REVERSE



**Switch 1 (safety disable, page 3 for more detail)**

- ON - Disables preset buttons and external presets when key is ON
- OFF - Buttons work the entire time key ON/OFF

Note: the external manual UP/DOWN will work all of the time

**Switch 2 (auto move feature, page 3 for more detail)**

- ON - Enable auto move: when key ON move to position 1  
when key OFF move to position 2
- OFF - Disable auto move feature

**Switch 3 (auto reverse sensitivity, page 3 for more detail)**

- ON - High sensitivity
- OFF - Low sensitivity

**Switch 4 (auto reverse enable, page 3 for more detail)**

- SW4 ON - Auto reverse enabled
- SW4 OFF - Auto reverse disabled

**Switch 5 - NOT USED**

**Switch 6 - NOT USED**

## Features

The PAC-3100 is designed to control a single linear actuator/motor. It is intended to be used to lift trunk lids and toppers/tanneau covers. The PAC-3100 has many convenient features which include:

- Three user programmable heights
- Stylish, lighted push button control
- Remote, ground activated, input lines to control the system with a remote system
- Safety auto reverse
- Auto move to position when the vehicle is turned on/ off

## Wiring

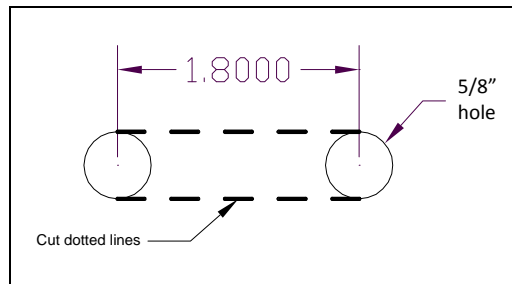
|                |   |   |
|----------------|---|---|
| BLACK          | - | Connect to a main ground location   |
| RED            | - | Connect to fused constant 12 volt power   |
| YELLOW         | - | Connect to switched 12 volt power<br>(An accessory terminal will work for this) |
| PURPLE         | - | Optional remote ground trigger for preset 3                                     |
| PINK           | - | Optional remote ground trigger for preset 1                                     |
| BROWN          | - | Optional remote ground trigger for preset 2                                     |
| WHITE w/ BLACK | - | Optional remote ground trigger for manual down                                  |
| WHITE w/ RED   | - | Optional remote ground trigger for manual up                                    |
| PRESET BUTTONS | - | To mating 4 pin connector   |

## Mounting

The linear actuators should be mounted following the instructions supplied with them. It is very important to mount the motors correctly or damage to the vehicle could result. Remember that the motors should be mounted so they are completely closed when the trunk/cover being lifted is shut all the way. Also insure that the motors can not raise too far and cause damage.

The controller should be mounted inside the vehicle and all wires routed through the vehicle to appropriate connections or motors. ***The controller should NOT be mounted in the trunk area or under the cover being lifted for emergency service access. It is also recommended that remote manual up/down buttons be installed in case of emergency.***

The preset buttons require an oval hole to be cut for mounting, keeping in mind the buttons can be mounted horizontal or vertical. Drill two 5/8" holes 1.8" apart on center, then cut from hole to hole.



Once the hole is cut insert the button panel from the front. From the back, slide the two L-clamps over the studs and secure with the supplied lock washers and nuts.

### **Safety Disable (SWITCH 1)**

The safety disable feature will only allow the system to operate when the key is off. For proper operation the yellow wire should be connected to a keyed +12 V source, or ignition terminal.

- Turn switch 1 ON to enable safety feature
- Turn switch 1 OFF to disable safety feature

**NOTE:** This safety feature will only permit the preset buttons, and remote ground activated preset lines to work when the vehicle is off. Manual up and down will still work since they require two buttons to be pressed and held along with the external manual up and down wires.

### **Auto Move Feature (SWITCH 2)**

The auto move feature will automatically open or close the linear actuators when the key is turned ON or OFF. This feature can be used to automatically open the trunk/cover when ever the vehicle is parked.

- To enable the auto move feature turn switch 2 ON
- To disable the auto move feature turn switch 2 OFF

**NOTE:** When enabled the linear actuators will move to preset height 1 when the key is turned ON, and to preset height 2 when the key is turned OFF

### **Auto Reverse Feature (SWITCH 3 and 4)**

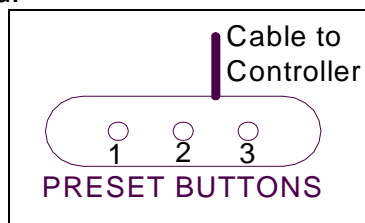
The auto reverse feature uses current sensing circuitry to shut the motors off and reverses them if an over current condition is detected. The system only senses current when the linear actuators are closing, or sensing something is blocking the trunk/cover.

- To enable the auto reverse feature switch 4 ON
- To disable the auto reverse feature switch 4 OFF
- Auto reverse high sensitivity turn switch 3 ON
- Auto reverse low sensitivity turn switch 3 OFF

**NOTE:** If the system keeps reversing when closing turn the sensitivity down, (switch 3 OFF); if the system is still having problems closing, the auto reverse may not be suitable for the application and you will need to shut switch 4 OFF to disable the auto reverse feature.

### **Preset Buttons (Preset heights and Manual Up/Down):**

There are three buttons that represent a preset height. The drawing below shows the button numbers, button 1 is furthest from the wires that connect the buttons to the controller. To move the motors down press and hold buttons 1 and 2 at the same time, the motors will begin moving down until the buttons are released. Holding button 2 and 3 at the same time will move both motors up as long as the buttons are held.



## Saving and Setting Presets

Each button on the button panel represents a preset height. The three user programmable heights can be changed or set as many times as desired. Follow the steps below to set the heights.

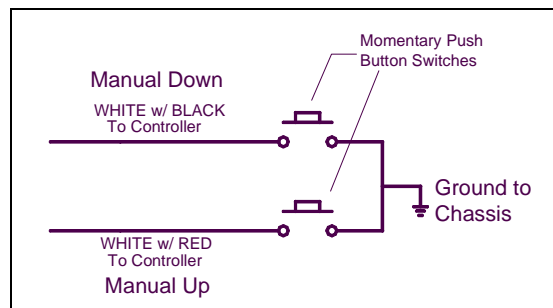
- Use Manual up and Manual down to move the motors to get to the desired height (buttons 1 & 2 or 2 & 3).
- Once at the desired height, press and hold the button that you wish to save the current height for about 5 seconds.
- The other buttons will flash indicating that the position has been saved
- Release buttons and repeat the above steps for the remaining buttons

**NOTE:** To move to a preset push and release a button. The motors will move automatically to the preset height for that button. If any button is pressed while moving to a preset height the motors will stop at the current height.

## Optional Presets and Remote Manual Up/Down

The five optional remote wires coming from the controller can be used to activate the linear motors via remote system, such as a Dakota Digital Commander Series. The option preset wires: pink, brown, and purple represent preset heights 1, 2, and 3 respectively. To activate a move to position the wire needs to be momentarily grounded; this is how most outputs of remote systems work. Check your remote system owner's manual to insure that the outputs are grounding.

The Manual up (white/red) and Manual down (white/black) can also be tied to a remote system to move the linear actuators up or down. The wires are also ground activated as long as they are grounded; connecting them to a momentary ground will only move the motors a short distance. The Manual up/down wires can also be connected to a momentary push button switch. Hooking one side of a push button switch to the momentary up/down wire of the PAC-3100 and the other side to ground will allow the linear actuators to move as long as the push button is held. This can be use as an emergency open feature by mounting a push button switch outside the vehicle and connecting it to the Manual up (white/red) wire. See figure below for wiring push buttons.



## TROUBLESHOOTING GUIDE

| Problem  | Possible cause                              | Solution   |
|--|---|--|
| Linear actuators will not move                                     | Red wire does not have power                | Check power connection                                     |
|  | The safety disable is on                    | Check ACC power connection<br>check switch 1               |
|  | Fuse is blown                               | Replace fuse   |
| Linear actuator only moves a short distance then reverses or stops | Motors are disconnected                     | Check wiring between controller and the linear actuators   |
|  | Unit is damaged                             | Return for repair  |
|  | Auto reverse is enabled                     | Turn switch 4 OFF  |
| Preset buttons will not work                                       | Sensitivity is to high                      | Turn switch 3 OFF  |
|  | Motor pot wires are disconnected or damaged | Check the 4 pin connector and motor wires for damage       |
|  | Safety disable is on                        | Check switch 1 and ACC, yellow, wire                       |
|  | Buttons are not connected                   | Check connection between controller and the preset buttons |

## SERVICE AND REPAIR

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

**Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.** Package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. Be sure to include the RMA number on the package, and include a complete description of the problem with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day. Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase. Send no money. We will bill you after repair.

## Dakota Digital 24 Month Warranty

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship within 24 MONTHS FROM THE DATE OF PURCHASE, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. Any action for breach of any warranty hereunder, including any implied warranty of merchantability, must be brought within a period of 24 months from date of original purchase. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



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