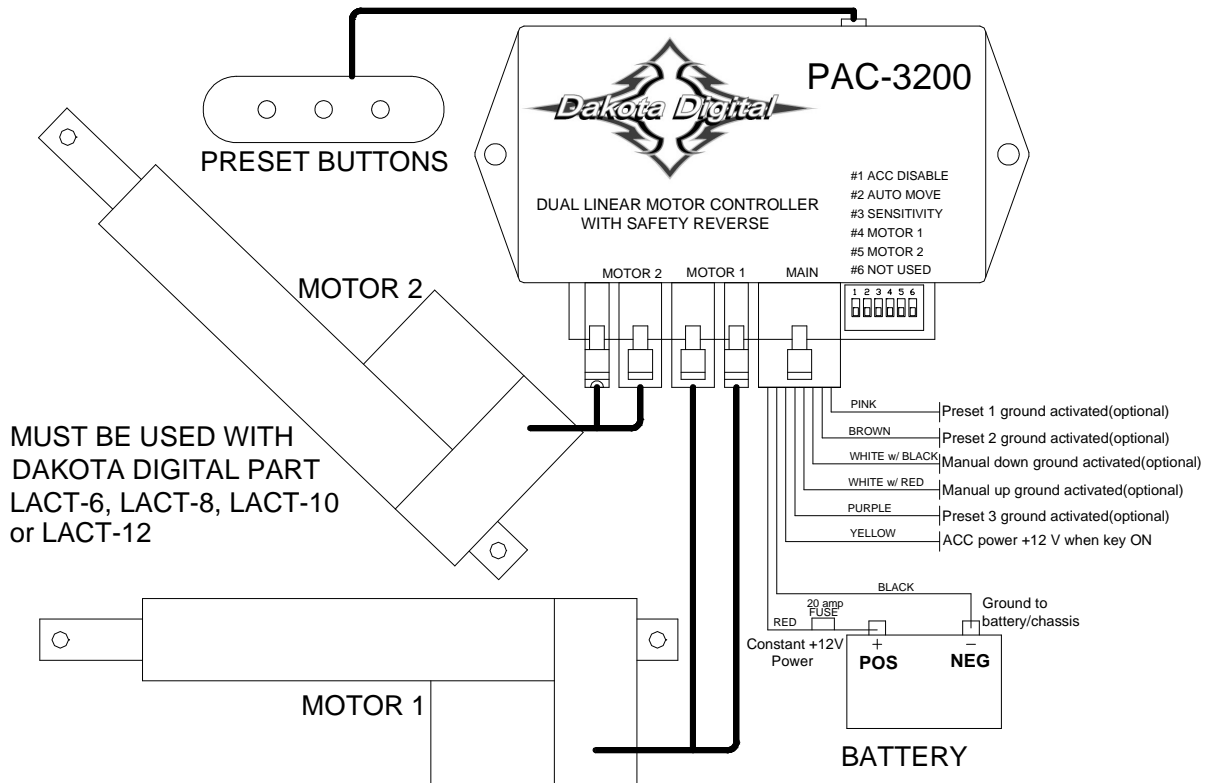




## PAC-3200 DUAL LINEAR MOTOR / ACTUATOR CONTROLLER W/ CURRENT SENSING AUTO REVERSE



MUST BE USED WITH  
DAKOTA DIGITAL PART  
LACT-6, LACT-8, LACT-10  
or LACT-12

**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 and Switch 5 (single motor adjust and auto reverse enable)**

- SW4 ON & SW5 OFF - move motor 1 only
- SW4 OFF & SW5 ON - move motor 2 only
- SW4 & SW5 ON - auto reverse enabled
- SW4 & SW5 OFF - auto reverse disabled

**Switch 6 - NOT USED**

## Features

The PAC-3200 is designed to control two linear motors at the same time. It is intended to be used to lift heavier trunk lids and toppers / Tonneau covers that require more than one motor. The PAC-3200 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
- Single motor adjustment

## Wiring

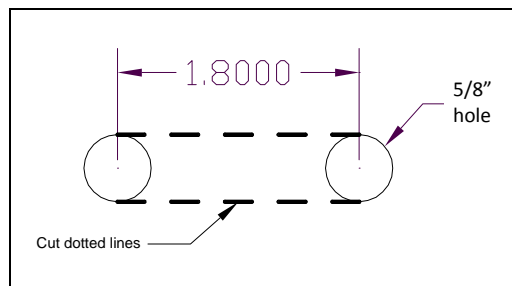
BLACK	-	Connect to a main ground location
RED	-	Connect to fused constant 12 volt power
YELLOW	-	Connect to switched 12 volt power (An accessory terminal will work for this)
PURPLE	-	Optional remote ground trigger for preset 3
PINK	-	Optional remote ground trigger for preset 1
BROWN	-	Optional remote ground trigger for preset 2
WHITE w/ BLACK	-	Optional emergency switch (ground for manual down)
WHITE w/ RED	-	Optional emergency switch (ground 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 rise 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 manual up/down switches 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 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. The external manual up and down emergency switch input wires will always be functional.

### 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 whenever 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 auto move is 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, 4, and 5)

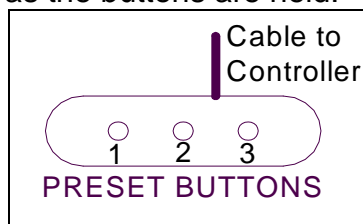
The auto reverse feature uses current sensing circuitry to shut the motors off and reverse them if an over current condition is detected. The system only senses current when the linear actuators are closing in order to sense something blocking the trunk/cover.

- To enable the auto reverse feature switch 4 and 5 ON
- To disable the auto reverse feature switch 4 and 5 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 and 5 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 down (buttons 1 & 2) or Manual up (buttons 2 & 3) to move the motors to the desired height.
- Once at the desired height, press and hold the button that you wish to save the current height to for about 2 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 a button is pressed while moving to a preset height the motors will stop at the current height.

## Single Motor Adjust

The single motor adjust can be used if the linear actuators are not traveling at similar speeds and the trunk/cover is stopping slightly crooked. ***This should only be done if the trunk or cover is crooked, improper adjustment of a single motor could cause damage to the vehicle. Also, if the motors differ in set travel by too much, it may cause an error when attempting to move to a preset.***

*To adjust motor 1:*

- Move to the desired position (one of the 3 preset heights)
- Turn SWITCH 4 ON and SWITCH 5 OFF
- Use the Manual Up/Down to match motor 1's height to the height of motor 2
- Once the motors are at the same height press and hold the current height preset button to save motor 1's height (***this will only save the new position for motor 1***)
- Turn SWITCH 4 and 5 back ON (or OFF if auto reverse is disabled) to resume normal operation

The next time this correct preset position is moved to one motor may run a slightly longer so the trunk/cover stops at a level height.

*To adjust motor 2:*

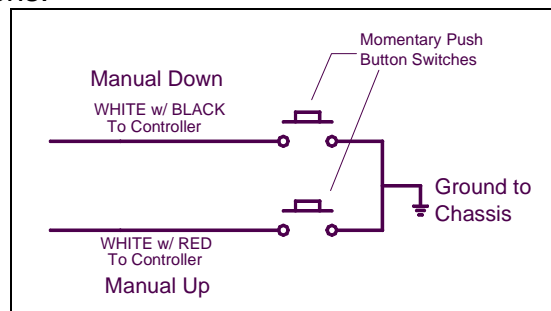
- Move to the desired position (one of the 3 preset heights)
- Turn SWITCH 4 OFF and SWITCH 5 ON
- Use the Manual Up/Down to match motor 2's height to the height of motor 1
- Once the motors are at the same height press and hold the current height preset button to save motor 2's height (***this will only save the new position for motor 2***)
- Turn SWITCH 4 and 5 back ON (or OFF if auto reverse is disabled) to resume normal operation

*NOTE: The single motor adjust should only be done if the linear actuators are stopping and the trunk/cover is crooked. Improper adjustment could cause damage to the vehicle. The system will not move to a preset if switches 4 and 5 are not both ON or OFF. Switches 4 and 5 have to both be ON or OFF for the preset heights to work, or only a single motor will move with the manual up/down commands.*

## Optional Presets and Remote Manual Up/Down

The three 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 optional preset wires: pink, brown, and purple represent preset heights 1, 2, and 3 respectively. To activate a move to a 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) wires should NOT be tied to a remote system. These wires are intended for emergency movement of the motors by remote switches and will always move the motors regardless of their current state. These wires are also ground activated and will move the motors as long as they are grounded. Connecting one side of a push button switch to the momentary up/down wire of the PAC-3200 and the other side to ground will allow the linear actuators to move as long as the push button is held. This can be used as an emergency open feature by mounting a push button switch outside the vehicle and connecting it to the Manual up and/or down wires. See figure below for wiring push buttons.



BUTTON LIGHT ERROR CODE CHART			
KEY: ● =button light off    ○ =button light on    ☉ =button light flash			
BUTTON			DESCRIPTION OF ERROR CODE
1	2	3	
●	●	●	Normal operation (lights off or dimly lit)
☉	☉	☉	One or both motors did not move or stopped moving.
☉	○	☉	Motor potentiometer does not match motor movement. Check for broken wires, loose connections or swapped motor connectors.
○	☉	○	Call to go to a preset location while in single motor mode. Turn SW 4 and SW 5 to either both on or both off.
○	☉	☉	Large travel difference between motors needed to reach preset. Check motor positions before pressing preset button again. (see <i>motor travel distance differences</i> )
☉	○	○	Auto reverse feature was triggered. Check for obstructions.
☉	●	○	One or both motors traveling in wrong direction.

## Motor travel distance differences

The PAC-3200 is designed to have the travel distance between the two motors to be very close to matching. If the travel needed of one motor in order to reach a preset position is much larger than the other, or if the direction of needed travel of one motor is different than the other, the motor with the furthest distance to travel will only move a short distance. The motors will then stop and the travel distance button light code will display. Pressing the preset button again will move the motor another short distance until the two motor's travel distance is close to matching.

This is done to prevent excessive automatic movement of only one motor which could possibly cause damage. If this error code is displayed, examine the system before pressing the button again to verify no damage will occur. If the error happens often, consider adjusting the preset points so the motors are more closely matched in travel distance.

## TROUBLESHOOTING GUIDE

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Linear actuators will not move	Red wire does not have power The safety disable is on  Fuse is blown Motors are disconnected  Unit is damaged	Check power connection Check ACC power connection check switch 1 Replace fuse Check wiring between controller and the linear actuators Return for repair
Linear actuators only move a short distance then reverse	Auto reverse is enabled Sensitivity is to high	Turn switch 4 and 5 OFF Turn switch 3 OFF
Only one motor is moving	Unit is in adjust mode Motor is unhooked	Check switch 4 and 5 turn both ON/OFF Check connections between controller and the linear actuators
Preset buttons will not work	Safety disable is on Buttons are not connected	Check switch 1 and ACC, yellow, wire Check connection between controller and the preset buttons
One or more buttons flash	An error code is being displayed	See the "BUTTON LIGHT ERROR CODE CHART"

## 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)



4510 W. 61st St. North  
Sioux Falls, SD 57107  
www.dakotadigital.com  
dakotasupport@dakotadigital.com

Phone (605) 332-6513  
Fax (605) 339-4106

Copyright 2011 - Dakota Digital, Inc.