

POWER PAL™

**WIRED/WIRELESS REMOTE
ELECTRIC/HYDRAULIC CONTROLLER**



MODEL: V-16

**POWER UP PRODUCTS
76 Hardy Drive
Sparks, NV 89431
(775) 336-2400**

**READ ME FIRST OR
VOID YOUR WARRANTY!**

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BEFORE YOU START: READ THE ENTIRE MANUAL

YOUR POWER PAL KIT INCLUDES THE FOLLOWING:

- **WIRED 15 FUNCTION REMOTE KEYPAD WITH 25ft. HEAVY DUTY COILED CORD**
- **HARNESS,V-16-PP-05 (2 pcs)**
- **POWER DISTRIBUTION CENTER**
- **ENGINE KILL RELAY**
- **MOUNTING FEET AND SCREWS**
- **WARRANTY CARD (BACK OF MANUAL)**

MODEL # V-16

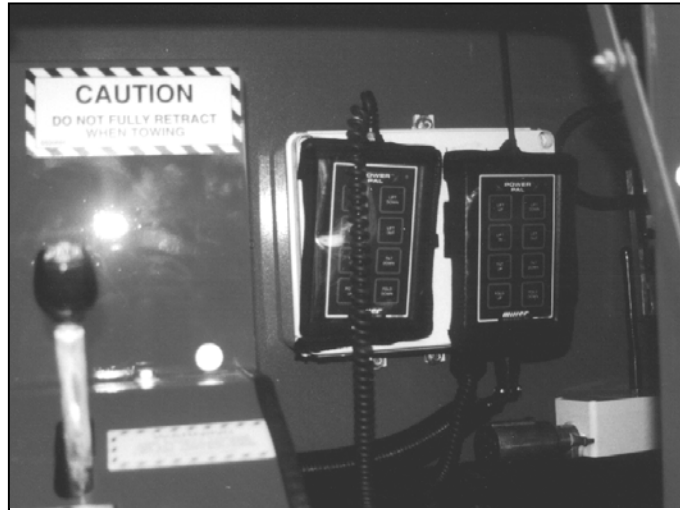
REVISION 1 January 2004

STARTING YOUR INSTALLATION

Installation time: Approximately 60 minutes

Mount the Power Distribution Center (PDC)

Choose a suitable location to mount the PDC. The ideal location is in the rear of the truck inside the toolbox. The four mounting feet can be mounted to the sides or the top and bottom of the PDC enclosure. It is best to mount the PDC with the strain reliefs and wired/wireless button facing down. Remove the cover from the PDC.



Typical mounting location of Power Pal™

NOTE: Leave enough clearance to route all of your input and output wires to the PDC enclosure.

Install the Output Harness w/Power Wires

Connect the output harness to the 16 pin Amp connector. The color code chart on page 5 describes the color codes and functions of the output harness. The power wires are also included in the harness, the #10 AWG BLACK wire is for ground (-GND), the #10Awg RED is for power (+12V). Take caution when connecting the power wires and the output wires. Incorrect connections may cause harm to the unit.

Connect the ground wire

Connect the #10 AWG black ground wire from the harness to the ground terminal inside the PDC. Attach the opposite end of the black ground wire to the J-Box ground connection or a clean metal to metal chassis ground, tighten securely.

IMPORTANT- (Do not connect to the sub frame, but to the truck's chassis)
Protect the chassis ground connection with a light coating of grease to prevent corrosion.

Install the Power Wire

Connect the #10 AWG RED wire from the harness to the terminal marked BATT inside the PDC enclosure. Attach the opposite end to the J-Box connection which is powered from the switch on your switch panel or appropriate switched 12-Volt power source (this must be fused or have circuit breaker protection with a minimum of a 10 amp draw).

Install the Wired Remote Keypad

Feed the end of the coiled cord through a strain-relief of the PDC. Insert the connector into the telephone cord receptacle on the PDC circuit board.

Test the Power Pal™

Turn on the 'control' switch providing power to the Power Pal™. A green indicator LED on the PDC circuit board will light. If the green LED on the circuit board does not come on, consult the troubleshooting section and correct the problem before proceeding.

Make sure that the 'wired/wireless' switch is in the 'wired' position. A green indicator light on the top right corner of the wired remote keypad will light. If it does not, consult the troubleshooting section on page 8.

Check the operation of the wired remote keypad. Press each position on the keypad and check that each position operates the associated output on the PDC.

NOTE: On the 15 function Power Pals™, the 16th output will activate when each position is pressed. This 16th position is the auto-throttle function. The number printed on the PDC circuit board can locate each output. There are two indicator LEDs located near each output. The GREEN LED will light if the output is functioning correctly. The RED LED will light to indicate a circuit problem.

OUTPUT HARNESS WIRING SCHEME FOR POWER PAL MODEL # V-16

WIRE COLOR	OUTPUT FUNCTION
BLUE WITH BLACK STRIPE	STINGER IN
BLACK WITH WHITE STRIPE	STINGER OUT
RED WITH BLACK STRIPE	LEFT WINCH IN
YELLOW WITH BLACK STRIPE	BOOM UP
GREEN WITH BLACK STRIPE	BOOM DOWN
WHITE WITH BLACK STRIPE	LEFT WINCH OUT
PINK WITH BLACK STRIPE	TILT UP
ORANGE WITH BLACK STRIPE	TILT DOWN
RED	RIGHT WINCH IN
BLACK	BOOM IN
BLUE	BOOM OUT
YELLOW	RIGHT WINCH OUT
GREEN	AUX 1
WHITE	ENGINE KILL
ORANGE	AUX 2
PINK	AUTO THROTTLE

NOTES OF CONCERN:

1. The maximum amperage on any output must be no more than 5 amps. The electric over hydraulic solenoids does not require more than 5 amps to operate.
2. Overdriving an output will cause the output to temporarily cease function (RED LED should be on). Correct the problem and test for proper function.
3. Overload conditions must be fixed as soon as possible.
4. Continuous overloading of an output may cause damage to the circuit board and will void your warranty.
5. Overload conditions must be fixed as soon as possible.

Installation of the Engine Kill Circuit

An engine kill relay is included in the V-16 Power Pal™ kit. Refer to figure 1 for identification of the relay terminals. Use an insulated female ¼" push-on for connecting the wires to the relay terminals.

Cut the fuel shut-off switch wire in the engine compartment and connect one side of the wire to terminal 30, and the other side of the wire to terminal 87a of the relay.

Connect the engine kill wire from the output harness (white wire) to terminal 85 of the relay.

Run a ground wire from a chassis ground to terminal 86 of the relay. Mount the relay in the engine compartment.

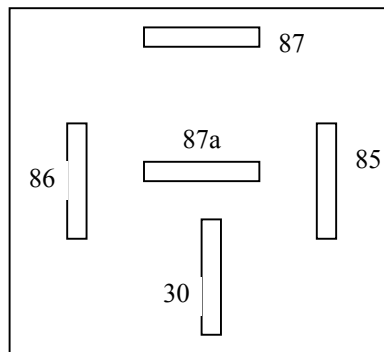


Figure 1

Test the System

Apply power to the Power Pal™ and test the functionality of the system. Make sure that each button on the keypad turns on the correct output. If the function does not come on, check the indicator LED at the output on the PDC circuit board. If the red LED comes on when you press a button, there is an overload or short circuit in the wiring for that output. Locate and correct the problem as necessary.

If all outputs function correctly, turn off power to the Power Pal™ and replace the cover. Tighten the strain reliefs. The Power Pal™ handheld remote comes with a protective pouch and an adhesive Velcro™ strip, which can be used for mounting.

Installation of the Power Pal™ PDC is complete.

Install the Batteries into the Transmitter

Remove the wireless keypad from its pouch and place it face down on a table or bench. Remove the two screws on the battery cover. Install the 'AA' alkaline batteries into the battery holder and replace the battery cover.

Install the Antenna

Install the antenna using the provided 90° antenna-mounting bracket. The antenna is designed to fit this bracket and it should be used for optimum range. An ideal location for mounting the antenna is by the rear deck of the rear toolbox which contains the Hydraulic Controller. Mount the bracket to a flat bare metal surface that is well grounded.

Route the coax antenna cable from the mounting bracket to the Power Pal™ PDC. Insert the cable through the mounting bracket and attach the antenna mount to the bracket. Attach and tighten the antenna to the threaded cable mount on the bracket. A loose antenna may cause intermittent operation and limit the distance of operation.

Route the other end of the antenna cable through the black strain relief on the Power Pal™ enclosure. Attach the cable connector to the antenna connector on the receiver board. Be careful not to over tighten the cable.

Program the Receiver Board

Apply power to the Power Pal™ PDC. Be sure the 'wired/wireless' button is in the 'wireless' mode.

In the wireless mode, the green indicator light in the top right of the wired keypad will be off and the wired remote will not function.

The transmitter keypad will not display a green power light like the wired keypad. The wireless keypad will display a RED flashing light when the positions are activated on the keypad.

Located on the receiver board is the programming button. Press the programming button and hold down. The RED LED indicator on the receiver board will turn on solid. While holding the button, press the top left-most position on the wireless transmitter keypad.

When the programming is accepted, the indicator light will begin to flash. Release the receiver button, and then release the position on the transmitter. If the red indicator goes out when attempting to program, release both buttons and repeat the procedure. Be sure the transmitter has a good, visual 'line of sight' to the antenna.

Test the Wireless Keypad

There are over 10 billion transmit codes available, so there will never be two transmitters that will operate the same truck. Your transmitter code is unique.

Be sure that the wired/wireless switch is in the 'wireless' position.

- Test the operation of all the functions of the wireless keypad.
- Test the operating range of the wireless keypad.

If the wireless keypad does not function properly, consult the wireless troubleshooting section that came with the wireless kit.

NOTE: The wired keypad and the wireless keypad will not operate at the same time.

This completes the installation of the Power Pal™ Wireless System.

WIRED POWER PAL TROUBLESHOOTING SECTION

The power LED on the PDC circuit board does not come on.

- The PDC is not getting power. Be sure that the power and ground wires are connected properly.
- Using a DC test lamp, check that there is power applied to the BATT terminal of the PDC.
- Check with a voltage meter the power applied is 12 volts.
- Check for a tight, metal to metal chassis ground.

There is no green light in the upper right hand corner of my wired keypad.

- Make sure the coiled cord is properly inserted into the jack on the PDC circuit board.
- Check the 'wired/wireless' switch; switch to the 'wired' position.

Some or no outputs function when I press a button on the remote.

- Check for the green indicator light on the keypad.
- Make sure all output wires are properly connected to their destination.
- Check suspected output wire for a secure connection at the output stab of the PDC circuit board.
- Short or overload condition. While pressing the position on the keypad, look at the indicator LED on the PDC board that is associated with the suspected function. If the RED LED is lit, there is an overload condition or a short circuit in the output wiring. Correct the condition.
- If only the green LED is lit, there is an open connection somewhere between the output of the circuit board and the solenoid valve. Check your wiring.
- If no LED's light up, contact Power Up Products for further assistance.

I press a button and the wrong function comes on.

- Check that the output wires are connected to the correct output position.
- Following the wiring scheme on page 5.

If you require further assistance, contact Power Up Products Technical Assistance. Monday through Friday from 8:00 to 4:00 PST. (775) 336-2400

WIRELESS POWER PAL TROUBLESHOOTING SECTION

The red light on the receiver card does not come on when the program button is pressed.

- Check to make sure the receiver card is properly mounted and seated into the connector on the PDC board, secured with three (3) screws.
- Make sure that there is power going to the Power Pal box. A green LED on the PDC board labeled 'Power' should be on.
- Check to make sure that your 'control' switch is turned on.
- Using a voltmeter, check that there is 12 volts on the 'Batt'. Terminal and that the PDC has a metal-to-metal chassis ground. Inspect the connections for loose wires, loose connections, and poor crimps.

The program light stays on solid or goes out when I attempt to program the receiver card.

- Use the top left position on the transmitter keypad to program. Any other button does not allow the unit to program.
- Remove the receiver antenna from the connector on the receiver card. Hold the transmitter close to the receiver card and attempt to program again. If the program is accepted, THOROUGHLY check your antenna for loose connections, kinked cable, broken cabling, or excess cable that is coiled.
- Check the status of your batteries. Replace them with fresh alkaline 'AA' batteries.

I programmed the receiver to the transmitter, but the unit still won't function.

- Check to make sure the 'wired / wireless' switch is in the wireless position.
- Try moving around the vehicle and operating the transmitter. If the unit operates intermittently, check your antenna connections thoroughly.
- Remove the antenna cable from the receiver card. Hold the transmitter near the receiver card. If the unit operates correctly, inspect the entire antenna system for poor connections, kinked, broken, or excess coiled cable.

The transmitter works, but it is intermittent and / or the range is not what it should be.

- The area of operation may have a high amount of radio frequency (RF) noise. Try the transmitter in another area and see if the intermittence stops or changes.
- Check your batteries. Use only alkaline 'AA' batteries.
- Make sure that the antenna connections are tight and clean. DO NOT splice the antenna cable to extend or shorten. Make sure that the antenna is tight and secure on its base and that the antenna base is free of oil, dirt, and corrosion inside and out.

- Check to make sure that the transmitter antenna is tightly screwed into the transmitter.
- Check the operation of the wired keypad. If it is intermittent, check the power and ground into the Power Pal.
- If it is always the same function that is intermittent check the output wire coming from the Power Pal to the distant function.

NOTE: If there is another truck that is operating wireless nearby the two signals will cancel each other becoming intermittent, or cease to operate.

If you need further assistance, our technical assistance department can be reached Monday through Friday, 8:00 a.m. to 4:00 p.m. Pacific Time. 775-336-2400.

WARRANTY REGISTRATION

The Power Pal™ System is guaranteed for one year against defects in material and workmanship. This registration form must be returned within 30 days of vehicle purchase to validate the warranty.

Customer information:

Name _____
Address _____
City _____ State _____ Zip Code _____
Phone _____ Fax _____

Power Pal™ Serial Numbers:

PDC serial number _____
Wired Keypad serial number _____
Wireless Keypad serial number _____

Purchased From:

Name _____
Address _____
City _____ State _____ Zip Code _____
Date of Purchase _____

Type of Vehicle:

Make _____
Model _____
Year _____

MAIL TO:
Power Up Products
Attention: Warranty Registration
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