

PAINLESS

DIGITAL POWER MANAGER



Part #40121 D.P.M. w/Jump Start **Perfect Performance Products, LLC**

Painless Performance Products Division

2501 Ludelle Street

Fort Worth, TX 76105-1036

800-423-9696 phone – 817-244-4024 fax

Web Site: www.painlessperformance.com

E-Mail: tech@painlessperformance.com

If you have any questions concerning the installation of this product or having trouble in general, feel free to call Painless Performance Product's tech line at 1-800-423-9696. Calls are answered from 8am to 5pm central time, Monday thru Friday, except holidays.

We have attempted to provide you with as accurate instructions as possible, and are always concerned about corrections or improvements that can be made. If you have found any errors or omissions, or if you simply have comments or suggestions concerning these instructions, please write us at the address on the cover and let us know about them. Or, better yet, send us a fax at (817) 244-4024 or e-mail us at painless@painlessperformance.com. We sincerely appreciate your business.

Perfect Performance Products, LLC shall in no event be liable in contract or tort (including negligence) for special, indirect, incidental, or consequential damages, such as but not limited to, loss of property damage, or any other damages, costs or expenses which might be claimed as the result of the use or failure of the goods sold hereby, except only the cost of repair or replacement of the Painless Product.

P/N 40121 Painless Instruction

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NOTE:

- **A color copy of these instructions can be found at <http://www.painlessperformance.com/InfoSearch/manuals.php>**
- **Painless Performance Products recommends you, the installer, read this installation manual from front to back before installing this harness. Due to the variables in modifications that can be done to vehicles, reading this manual will give you considerable insight on the proper routing and installation of this harness.**

INTRODUCTION

Congratulations on purchasing the most robust, vibration resistant, battery monitoring device on the market. It is designed for easy installation, even with little or no electrical experience

The **Digital Power Manager w/ Jump Start P/N 40121** is a weather-proof battery isolator; battery combiner and jump start system for your vehicle. It provides Main start-battery charging priority protection along with automatically combining two batteries for large electrical loads up to 500 amps momentarily: such as winches, auxiliary lights, and other large electrical accessories. The DPM also automatically controls when the auxiliary battery will be charged based on the charge level of the Main battery. This means the Main battery voltage must reach 12.6 volts before the Auxiliary battery will be allowed to charge.

The **DPM w/Jump Start P/N 40121** kit only contains the wires and terminals needed to install this kit between two 12 volt batteries. The DPM is designed to pass 280 amps of current continuously or 500 amps momentarily during a “Jump Start”. All wires included in this kit can be seen in the **Installation Schematic** on page 4 of this manual.

This Painless wire harness is manufactured using high quality 600 volt, 275°F, TXL wire. Standard automotive wire is GPT, 300 volt, 176°F, with PVC insulation.

Note: Please pay close attention to the torque specifications for the threaded posts on the DPM. 75 INCH/LBS for large posts and 10 INCH/LBS for the small post.

WARNING: Do not connect anything to the reserve battery other than the Digital Power Manager. Any accessories such as a winch or amplifiers for your stereo should be connected to your main (original) battery. The Digital Power Manager may be damaged if anything is connected to your reserve battery other than Digital Power Manager.

-NSTALAT-ON SCHEMAT-C

- NSTAL-LAT-ION SCHEMAT-IC**



Installation Steps: BE SURE TO REFER TO THE INSTALLATION SCHEMATIC IN ADDTION TO READING THE FOLLOWING STEP-BY-STEP INSTRUCTIONS.

DISCONNECT MAIN BATTERY BEFORE INSTALLING!

1. Start by mounting the Digital Power Manager and Jump Start solenoid a safe distance away from any moving parts or hot spots under the hood; meaning keep the unit at least 3 feet away from headers or exhaust manifolds and away from any engine belts or hood hinges.
2. This kit includes 10 feet of 6ga red wire to allow mounting the DPM on either side of the vehicle. Most of the time, it's best to mount the unit as close to the MAIN battery as possible. (THE MAIN BATTERY IS YOUR VEHICLE'S ORIGINAL BATTERY.)
3. Once a flat mounting spot has been located, accurately mark the two mounting holes and drill them with a 13/64" drill bit.
4. Now carefully insert each of the provided 10-32 / 3/4" screws through the two mounting holes on the DPM and the previously drilled holes in the desired mounting location and fasten them with the provided 10-32 Nylon Lock Nuts. Be sure the DPM is mounted to a flat location as to not put a twist in the DPM's plastic housing.
5. Next find the provided 1/4-20 bolts, nuts, lock washers and flat washers. These will be used to mount the 250 amp solenoid very close to the DPM. First, loosely install the two red 6 gauge wires with ring terminals and then carefully determine where to mount the 250 amp solenoid. Accurately mark the two mounting hole locations and drill them with a 1/4" drill bit. Install and tighten the 1/4" fasteners on the solenoid.
6. Next remove all of the nuts and lock washers from the unit and install the wires as displayed on the Installation Schematic on page 4. Be sure to mark and carefully drill the two 1/4" holes for the Jump Start solenoid after connecting the two pre-made red 6 gauge cables to connect the solenoid to the DPM unit. These wires are 10" and 13" long and must be connected correctly. Failure to carefully read these instructions and follow them may result in a catastrophic failure. BE CAREFUL, the amperages available from the battery can easily start a fire when connected improperly.
7. Next cut the two 5ft. long red 6ga wires to length and connect the MB 6ga red wire to the Main battery positive post and to connect the RB 6ga red wire to the Reserve battery positive post. Crimp on one of the provided 5/16" cable lugs to each of the ends and apply one of the provided pieces of red shrink tube to each.
8. Now connect these wires to the original battery posts 5/16" clamp bolt. If your vehicle has a side post battery it will be necessary for you to either purchase a four post battery with both side and top posts or to go to your local auto parts dealer and pickup two adaptor battery ends.

9. Next install the 6ga black wire from the 3/8" ground post on the DPM to a good ground on the vehicle. This step is just as important as the red wires connected in the previous steps. Examples of a good ground would be the engine block, chassis frame (with paint scraped off) or to the negative (-) post on the Main Battery. Ideally your vehicle will have a large ground wire run from the engine to the frame and from the frame to the body. If not, it is highly recommended to add these wires to improve the performance of your vehicles electrical system. PAINLESS GROUND STRAP KIT P/N 40140.
10. Last step is to drill a 5/16" hole in a suitable dashboard location for the remote indicator light. In this kit, we have provided you with a blue 5/16" light that will provide you with the DPM's current state during operation in the vehicle.
11. Insert the remote indicator light into the hole drilled in step 9 and run the two wires out to the DPM unit.
12. Cut the 18ga red wire to length, apply the provided ring terminal and attach it to the small 10-32 threaded post on the DPM.
13. Next, find a suitable ground location for the 18ga black wire and permanently ground it to the vehicle using the provided ring terminal, #10 star washer and black self tap screw.
14. Connect the red 18 gauge wire with the 5/16 ring terminal on it and the fuse holder to the MB post with the 10" wire on the Jump Start solenoid. See the installation Schematic for more details.
15. Connect the red 18 gauge wire with the #10 size ring terminal to the small 10-32 solenoid winding post on the right hand side of the jump start solenoid. Route this wire with the previous 18 gauge wire from step 14 to a suitable location for the Jump Start push-button switch. The location of the switch needs to be reachable with one's left hand when one's right hand is being used to turn the ignition switch to the start position. Once this location is determined, drill a 15/32" hole and mount the jump start push-button switch.
16. Cut to length both 18 gauge red wires and then strip and crimp on one .250 female spade terminal to each wire. Connect one red wire to each side of the Jump Start push-button switch. (Polarity is not important on this step. Either wire can be connected to either terminal on the switch.)
17. Lastly, connect the preterminated 18 gauge black wire to the small 10-32 solenoid winding post on the left hand side of the jump start solenoid and then over to the 5/16" GROUND terminal on the DPM. See the Installation Schematic on page 4 for more details.

How to manually jump start your vehicle:

Once you determine the vehicles Main Battery (MB) is close to being dead and won't start the vehicle it will be necessary to press the red jump start switch and then turn the key to the start position to allow the starter to utilize the available current from the Reserve Battery.

Things to keep in mind...

It is not a good idea to always have to use this jump start option to start your vehicle because of a faulty Main Battery (MB). If your Main Battery is weak or faulty; replace it. This kit is not designed to be a bandage because of faulty parts.

Don't use this kit for loads that draw more than 250 amps continuously. It will stress all of the components in the kit and likely cause a failure. This kit can handle 500 amps momentarily, but not for any longer than 10 seconds.

The Digital Power Manager has 5 (Five) states of operation:

- 1) **Slow Flash** – this is when the Main battery's voltage is at 12.6 and is not drawing a large amount of charge current, so the DPM is allowing the alternator to charge the Auxiliary battery as well.
- 2) **Fast Flash** – this indicates the Auxiliary battery is discharged below 11.6 volts.
- 3) **Solid ON** – this indicates the DPM sensed a large load on the Main battery and connected the Auxiliary battery to add for the extra load on the system.
- 4) **Off** – The DPM is Idle. This means the Main and Auxiliary batteries are both fully charged and there is not a large load on either battery.
- 5) **Jump Start** - The DPM is either idle or **Solid ON** and being assisted by the Jump Start solenoid in handling the larger current needed by the vehicles starter because the Main Battery is not fully charged.

Some important information regarding lead-acid batteries:

- 1) A fully charged lead-acid battery will measure 12.6 volts with a voltmeter.
- 2) A fully discharged lead-acid battery will measure 11.6 volts with a voltmeter. (If a battery with this state of charge was checked with a hydrometer; the instrument would indicate a dead battery.)
- 3) Lead-Acid batteries experience a phenomenon known as a Surface Charge. This is a small residue charge that remains on the battery for a short period of time after charging that often causes confusion as to the battery's charge level.
- 4) Surface charge is normally experienced directly after a battery charger is disconnected from a fully charged battery or directly after the engine is shut off. The batteries voltage is then measured to be approximately 14.3 volts with a normal high-impedance digital voltmeter. Then within an hour or so the voltage drops to 12.6 volts. What happened to the 14.3 volts? Is the battery failing?
- 5) The battery is still fully charged, but a very low capacity battery charge known as a Surface Charge was gradually dissipated by the Digital Power Manager keeping the Main and Auxiliary batteries connected, thus allowing the Auxiliary battery to discharge the Surface Charge. A Surface Charge will naturally decay usually within an hour with the rate of decay increased by adding a load to the battery. Turning on your headlights will almost always instantly decay the Surface Charge.
- 6) Since the Digital Power Manager draws very little power, it may take several minutes for sufficient Surface Charge to decay on larger batteries. This may result in the DPM staying in "Charge Mode" after the charging source (i.e. alternator or battery charger) has been turned off. This is normal and should not be a concern. Once the detectable Surface Charge has been removed, the Digital Power Manager will automatically exit the "Charge Mode", isolate the batteries and return to "Idle Mode"

Painless Performance Limited Warranty and Return Policy

Chassis harnesses and fuel injection harnesses are covered under a lifetime warranty. All other products manufactured and/or sold by Painless Performance are warranted to the original purchaser to be free from defects in material and workmanship under normal use. Painless Performance will repair or replace defective products without charge during the first 12 months from the purchase date. No products will be considered for warranty without a copy of the purchase receipt showing the sellers name, address and date of purchase. You must return the product to the dealer you purchased it from to initiate warranty procedures.