



Installation Instructions



Part #40120

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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 40120 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 is a weather-proof battery isolator and battery combiner. It provides Main start-battery drain protection along with automatically combining two batteries for large electrical loads such as winches, auxiliary lights, and other large electrical accessories. The DPM will also automatically control which battery will be charged by the alternator first. Meaning the Main battery's voltage must reach 12.6 volts before the Auxiliary battery will be allowed to charge.

The DPM kit only contains the wires and terminals needed to install this kit between two 12 volt batteries. The DPM is designed to pass a peak current of 280 amps. If it senses a large drop in voltage on the Main battery it will supplement the load by connecting both batteries together. It will not allow you to drain your auxiliary battery below 11.5 volts. If for some reason your auxiliary battery drops below 11.5 volts; the DPM will not recharge it from this level. This is designed into the DPM in case a dead cell occurs in an otherwise functioning battery.

DO NOT CONNECT ANYTHING OTHER THAN THE DIGITAL POWER MANAGER TO YOUR AUXILLIARY BATTERY. THIS KIT IS NOT DESIGNED FOR YOUR AUXILLIARY BATTERY TO HAVE YOUR ACCESSORIES CONNECTED TO IT. YOU WILL DRAIN YOUR AUXILLIARY BATTERY AND IT WILL NOT BE RECHARGED IF IT'S DRAINED BELOW 11.5 VOLTS.

All wires included in this kit can be seen in the **Installation Schematic** on the last page 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.

Installation Steps:

1. Start by mounting the Digital Power Manager 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 nice, 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 remove all of the nuts and lock washers from the unit and install the wires as displayed on the Installation Schematic on page 6.
6. Now cut the red wires to the needed lengths to 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.
7. 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.)
8. 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 ran 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.
9. Last step is to drill a 5/16" hole in a suitable location for the remote indicator light. In this kit, we have provided you with a blue 5/16" light with a lightning bolt stamped in the middle of it. This light will provide you with the DPM's current state of operation during operation of the vehicle.
10. Insert the remote indicator light into the hole drilled in step 9 and run the two wires out to the DPM unit.
11. Cut the 18ga red wire to length, apply the provided ring terminal and attach it to the 10-32 small threaded post on the DPM.
12. 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.

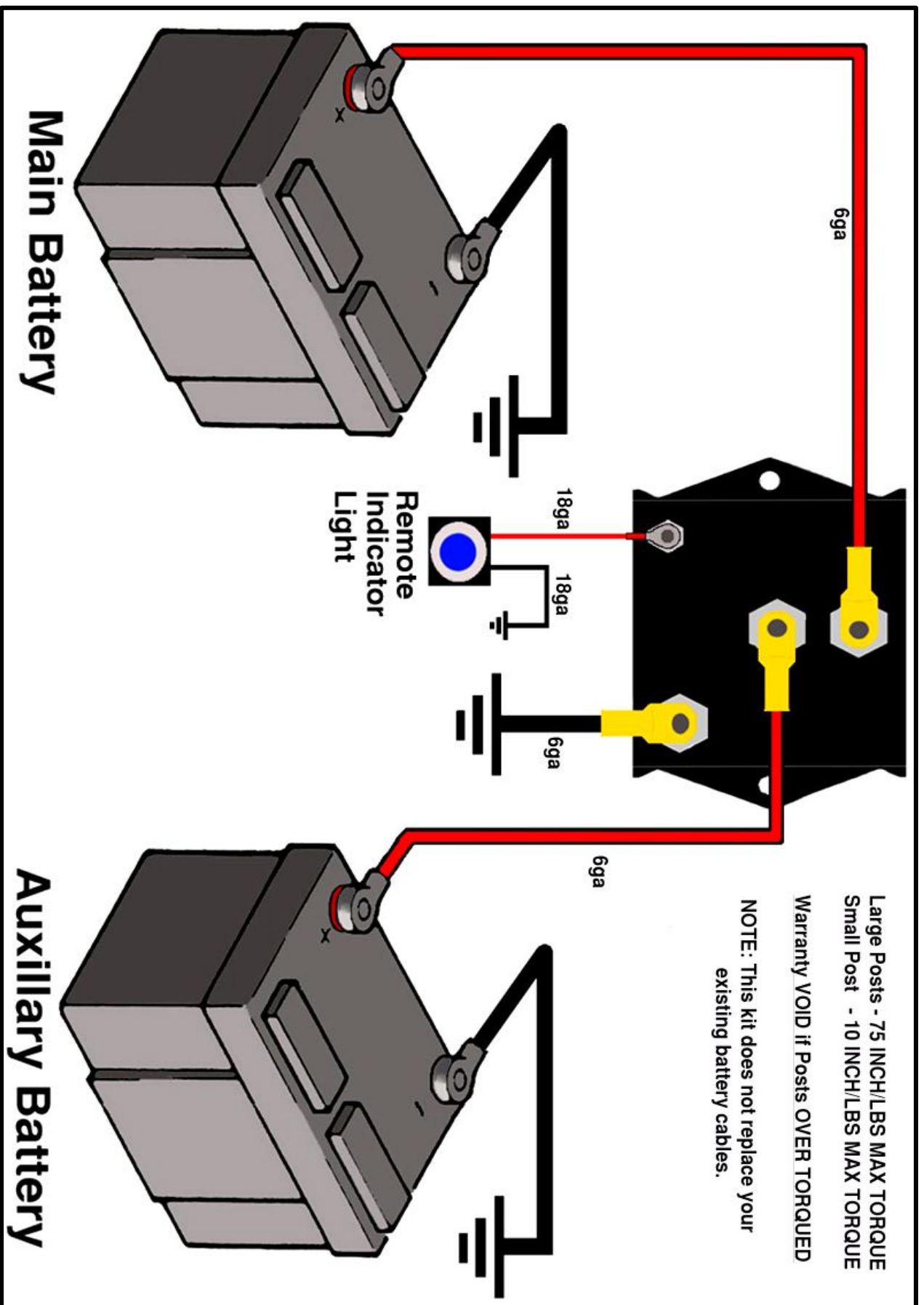
The Digital Power Manager has 4 (Four) states of operation:

- 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.

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"

Installation Schematic



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.