



Power Distribution Unit PDU14-K

Installation/Operations Manual



PDU14

Table of Contents

Applicable Models	2
Introduction	2
General Warnings	2
Unpacking & Pre-Installation Check	3
Installation & Mounting	3
Wiring and Setup Instructions	4
Maintenance	8
Troubleshooting	8
Parts List	10
Product Specifications	11
Warranty	12

Applicable Models

- PDU 14

Introduction

The *Power Distribution Unit (PDU)* is a compact and convenient point of load power distribution product for installed electrical devices. By using this device and carefully planning the distribution of mobile equipment power feeds, complex independent wire runs and unreliable fuse panel connections can be avoided.

Each circuit can be individually fused further reducing risk of damage to devices from circuit overload. The *PDU 14* unit provides constant and ignition outputs to meet the typical vehicle and equipment requirements.

General Warning

1. The use of emergency warning devices does not ensure the safety of the operator. The operator is responsible to ensure safe operation of the vehicle regardless of whether the warning device is in operation or not
2. The effectiveness of this or any warning device is highly dependent on proper installation and maintenance. ***Read the manufactures instructions before installing and follow all recommendations.***
3. When in use the operator must ensure that the warning signal is visible and not obstructed by vehicle components (i.e. open trunk lid), people or other obstructions
4. This device is intended for use by authorized personnel only The user is responsibility to ensure that all local, state/provincial and federal laws are being complied with. D&R assumes no liability for any loss resulting from the use of this device.
5. The device must be installed so as not to reduce the output performance of vehicle systems
6. Placement of control switches must be so as to provide convenient reach for the operator without loosing eye contact with the road.
7. Emergency warning devices require high electrical voltages and/or currents. Properly connect and ground all circuits. Shorting or improper grounding of this device may caused personal injuring, vehicle damage or both
8. ***All operators should be properly trained in the operation of this device to ensure both their and public safety***

Unpacking & Pre-Installation Check

D&R Electronics Co. advises that you open and examine all shipments within **48 hours of receipt**. The *Power Distribution Unit PDU* is shipped pre-assembled and factory tested. All necessary hardware for standard installation is included. Remove all components from the shipping carton.

Use this pre-installation check list to verify your unit:

1. Confirm contents with the packing slip
2. Examine unit for damaged in transit (i.e. scratches, broken or bent connectors. etc). Report any damage to the carrier immediately. Keep all shipping material
3. The unit is factory tested and a pre-installation check is not needed.

Installation and Mounting

Warning

1. Any device used inside a vehicle, may cause severe personal injury if not properly mounted and secured. Objects used in the vehicle may become airborne during a collision or other sudden changes in vehicle speed or direction, such as braking, acceleration or turns.
2. Be sure to mount unit through the steel of the vehicle. Avoid mounting through plastic or other non-structural materials.
3. **POINT OF INSTALLATION MUST NOT INTERFERE WITH DEPLOYMENT OF VEHICLE AIR BAGS.**
4. **D&R Electronics recommends this or any of our products be installed by qualified professionals.**

Mounting the PDU unit

The *PDU14* may be mounted anywhere inside the vehicle away from heat, moisture or the elements.

1. Ensure that mounting location is flat and that device is secured to solid vehicle body parts

To mount the *PDU* unit proceed as follows:

1. Determine an appropriate mounting location
2. Confirm there is adequate access and clearance for the wiring and its connections.
3. Secure the *PDU* with 4 self tapping mounting screws (not supplied).

Wiring and Setup Instructions

Warning

1. Looms, grommet, cable ties or other installation hardware should be used to anchor and protect wires
2. All wire should conform to the minimum wire size as specified by the manufacturer.
3. Splices should be minimized and made in a fashion so as to protect from corrosion to reduce loss of conductivity.

Note: The exact number of available connections varies by application, refer to the specifications and typical output fusing combinations to ensure that the safety and reliability of this product is not compromised.

Connecting the Battery Input (+12V IN) to the PDU

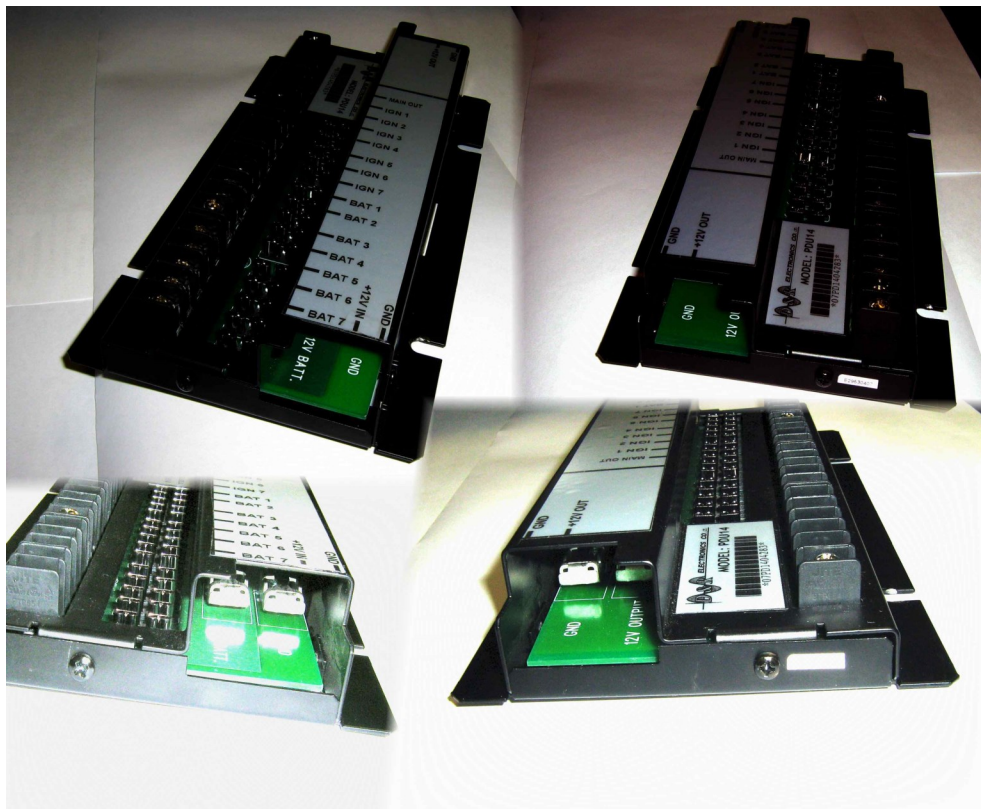


Figure 1
End Views of the PDU14 showing the location of the “power claw” connector clips

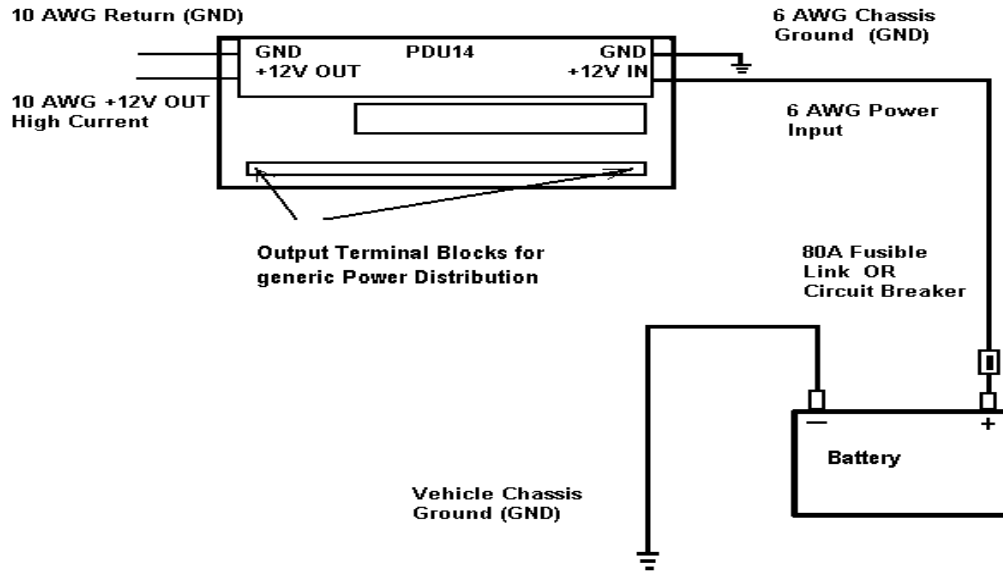


Figure 2
 PDU14 Input and Output Wiring Diagram for the following
 detailed instructions

Wiring information:

- Red 6 AWG - this is the Battery Input for the PDU
- Black 6 AWG - this is the Battery return for the PDU
- Blue 10 AWG - this is the high current output
- Black 10AWG - this is the high current output return

1. Run a 6 AWG wire lead from the Battery via a fusible link or circuit breaker rated at 80A to the PDU14.
2. Cut to length and slide one of the provided grommets over the wire (Figure 3.)
3. Strip 1/2" length of insulation from the end of the wire, insert the bare wire into the pin connector , crimp or solder.
4. Insert pin and wire into the Red connector housing until it “snaps” into place, pay attention to the orientation of the pin when inserting it into the housing see Figure 3.
5. Slide the grommet down the wire into the plug to seal connection (Figure 4).
6. Connect the Red plug on to the battery input “+12V IN” power claw clip of the PDU14.

Connecting ground input to the PDU

1. Run a 6 AWG wire lead to the chassis of the vehicle, if necessary run this wire directly to the battery negative terminal if a good low resistance chassis connection is not available
2. Prepare and the 6 AWG Ground wire for connection to the PDU using the same procedure as the battery input wire (Figures 3 & 4) and insert the finished pin, wire, and grommet combination into the remaining black housing.
3. Connect the plug to the “GND” Input power claw clip next to the “+12V IN” plug (Figure 3).

Connecting +12V OUT from the PDU

The *PDU* supplies a single high current output which may be used to power a high current device such as a light-bar, this output uses the same style of power connector as the input wire from the battery:

1. Run the wire from device (i.e. light and siren controller) to the *PDU* mounting location. Using the same process for the Battery input wire (steps 2 and 3) prepare the wire for insertion into the BLUE pin housing.
2. Insert the wire and pin combination into the Blue housing until it “snaps” into place, slide the grommet down the wire into the plug to seal connection (Figures 3 & 4).
3. Connect the Blue plug onto “+12V OUT” power claw clip (Figure 1).



Figure 3



Figure 4

Connecting the ground output (GND) from the PDU

This output ground connection is the return path for the device connected to the +12V Power from the PDU.

1. Run the ground wire from device (i.e. light and siren controller) to the PDU mounting location.
2. Prepare the wire in the same manner as the “+12V OUT” and insert the wire, pin and grommet combination into the black housing.
3. Connect the Black “GND” plug to the power claw clip next to the +12V OUT plug.

All other connections from the PDU are made via the terminals on the chassis. These terminal connections should be made using good industry practice ensuring no loose or frayed wire be present at each screw-down terminal. We further recommend using a good quality crimping tool and wire terminals to secure the wire and provide a solid screw-down connection at the terminal block.

Application Brief

The connections and fusing configurations are installation specific and should be planned out by the installer.

The following charts indicate some typical output connections and fusing options, that ensure the PDU operates within the designed maximum specifications.

Table 1 shows some of the possible combinations when only one area of output (Ignition OR 12V Battery) is used.

Terminal block outputs showing possible fuse combinations

	1	2	3	4	5	6	7
Ignition	15A	15A	x	x	x	x	x
	15A	10A	5A	x	x	x	x
	15A	7.5A	7.5A	x	x	x	x
	10A	10A	10A	x	x	x	x
	10A	7.5A	7.5A	5A	x	x	x
	7.5A	7.5A	7.5A	7.5A	x	x	x
	7.5A	7.5A	5A	5A	5A	x	x
	5A	5A	5A	5A	5A	5A	x
OR							
12V Battery	15A	15A	10A	x	x	x	x
	15A	10A	10A	5A	x	x	x
	10A	10A	10A	10A	x	x	x
	10A	7.5A	7.5A	7.5A	7.5A	x	x
	10A	5A	5A	5A	5A	5A	5A
	7.5A	7.5A	7.5A	7.5A	5A	5A	x
	5A	5A	5A	5A	5A	5A	5A

Terminal block outputs showing some possible fuse combinations

Ignition							AND	12V Battery						
1	2	3	4	5	6	7		1	2	3	4	5	6	7
15	15	x	x	x	x	x		10	x	x	x	x	x	x
15	10	5	x	x	x	x		10	x	x	x	x	x	x
10	10	10	x	x	x	x		10	x	x	x	x	x	x
10	10	10	x	x	x	x		10	x	x	x	x	x	x
10	7.5	7.5	x	x	x	x		10	5	x	x	x	x	x
10	5	5	x	x	x	x		10	10	x	x	x	x	x
10	5	x	x	x	x	x		10	10	5				
7.5	7.5	x	x	x	x	x		10	10	5	x	x	x	x
5	5	5	5	x	x	x		10	10	x	x	x		x
5	5	5	x	x	x	x		15	10	x	x	x	x	x
5	5	x	x	x	x	x		15	15	x	x	x	x	x
5	x	x	x	x	x	x		15	10	10	x	x	x	x

Table 2 shows some of the possible combinations when both outputs are used at the same time (Ignition AND 12V Battery).

Maintenance

The *PDUI4* does not require user maintenance except for the individual fuse replacement.

Warning

There are no user maintained parts. Do not attempt to open or repair. Contact your local distributor or D&R Electronics for repair

Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
No power at the outputs No relay “click”	No power to “ <u>12V INPUT</u> ” Faulty ground Faulty Unit	Check 12V INPUT connection for loose or missing wires. Check Battery fusible link or circuit breaker, if this is faulty replace it if it is tripped reset it. Check Vehicle Chassis “Ground” connection Return Unit for repair
No power to “Ignition” circuits No relay “click”	Ignition trigger wire not connected to PDU “ignition” terminal	Verify “ignition” input connection
No power to Individual Circuits	Fuse Blown Faulty Circuit	Replace fuse Return Unit for repair

Parts

PART NUMBER	QUANTITY	DESCRIPTION	NOTES
Standard Parts			
PDU 14	1	POWER DISTRIBUTION UNIT	
201-0012	1	PLUG, 75A, RED HOUSING	Power INPUT plug
201-0046	1	PLUG, 75A, BLUE HOUSING	Power OUTPUT plug
201-0013	2	PLUG, 75A, BLACK HOUSING	GROUND plugs
196-0002	4	PIN, 75A, #6 AWG	Pins for INPUT and OUTPUT plugs

Specifications

General

Description	No. of Available Connections
Power Inputs:	
6 AWG +12V	1
6 AWG Ground	1
18 AWG Ignition Control Input	1
Power Output	
10 AWG @ 20A Max +12V (fused at 30A)	1
10 AWG Ground	1
Terminal Block Power Outputs	
Ignition Controlled Power 40A relay (all combined output power not exceed 30A max.)	7
Continuous Power the total current not to exceed 40A	7
Ground return path for the Output terminal blocks the total return current not exceed 40A	6

WARRANTY

D & R Electronics warrants its new products to be free from defects in material and workmanship, under normal use and service for a period of one year on parts replacement.

This warranty applies only to original purchasers acquiring the product directly from D&R Electronics, or its authorized dealers. Warranty will not be recognized without proof of purchase or bill of sale.

This warranty is not transferable.

The warranty begins on the date of delivery to the first user/purchaser.

This warranty shall not apply to products which must be repaired due to normal wear and tear, negligence, improper installation, abuse, misuse, or which have been altered or modified at a facility other than D & R Electronics, or its authorized depot centers. Units proved to be defective within the warranty period, based on an examination by D&R Electronics, will be replaced or repaired at D & R Electronics' option. This warranty does not cover travel expenses or labor charges for removal or installation.

Lamps, flash tubes, batteries or other items considered consumables are not covered under warranty.

This warranty is in lieu of all other express warranties. D&R Electronics makes no warranties, expressed or implied, other than the express warranties contained herein.

PRODUCT RETURN POLICY

In order to provide you with faster service, product returns for repair or replacement, must have a **Return Goods Authorization Number (RGA number)**. Please contact our company to obtain a RGA number before you return the product to D & R ELECTRONICS. Write the RGA number clearly on the package. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

D & R ELECTRONICS assumes no responsibility or liability for expenses incurred for the removal and/or the installation of products requiring service and/or repair. Repairing or replacing product is at the discretion of D & R ELECTRONICS.

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