PARALLAX® POWER SUPPLY
by Parallax Group Inc.

1-800-443-4859

8300 Series
Installation Guidelines

WARNING:

RISK OF ELECTRICAL SHOCK OR BURNS.

THIS CONVERTER ASSEMBLY SHOULD BE INSTALLED BY A QUALIFIED ELECTRICIAN OR CERTIFIED RV TECHNICIAN.

IMPROPER INSTALLATION OR CONNECTION COULD CAUSE SERIOUS INJURY OR DEATH. NO ENDORSEMENT OF TECHNICAL EXPERTISE IS EITHER EXPRESSED OR IMPLIED.

Electrical installation shall comply with the standards and safety requirements of the ANSI/RVIA 12V Standard for Low Voltage Systems in Conversion and Recreational Vehicles, NFPA 70 National Electrical Code and the NFPA 1192 Standard for Recreational Vehicles.

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The Power to Bring People and Places Together !

TABLE OF CONTENTS

PAGE

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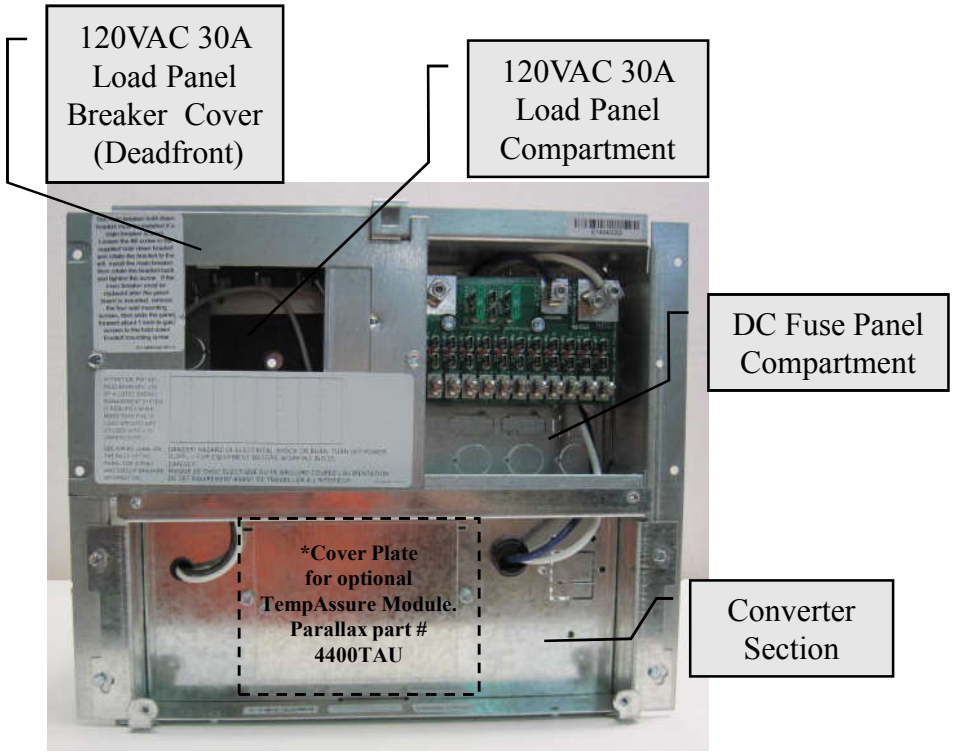
Assembly Section Identification, with Options, & Upgrade Information

The 8300 series models can be ordered as an option A to include a 30 ampere line/generator switch, or an ATS 301 can be added as a field installable upgrade.



The 8300 series can be field upgraded to provide temperature compensated output voltage by installing a model 4400TAU TempAssure module and sensor cable.
**** Installation instructions are provided inside the kit. ****

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1. **Horizontal Mounting Only!** Listed for indoor use only. Mount the 8300 Series assembly to a suitable mounting surface (wall or cabinet) with the base of assembly parallel to the floor. Leave the area in front of the control center open to the living area of the RV. Provide a minimum of 22 inches of clearance to the front of the 8300 Series assembly and adequate space behind the assembly for ventilation and wire routing. Refer to the Technical Note on the next page for additional information.

2. **Panel rated for a maximum 30 ampere main breaker.** Refer to the current NFPA 70 National Electrical Code Article 551 for maximum number of branch circuits allowed. See AC wiring label for list of suitable breakers for main and branch circuits. Use suitable filler plates for any unused breaker locations.

3. Install appropriately sized strain relief connectors on all AC or DC chassis knockouts removed to provide wire support and wire strain relief.

4. Connect 30 ampere supply line input (black -"hot") from Shore line cord or line generator switch output (if equipped) to the back-fed 30 ampere maximum main breaker line terminal.

5. **NEC requires breaker "hold-down" bracket to secure 30 ampere "main" breaker.**

6. Shore Line and 120 VAC load circuit (white) (common) neutrals connect to this isolated terminal bar.

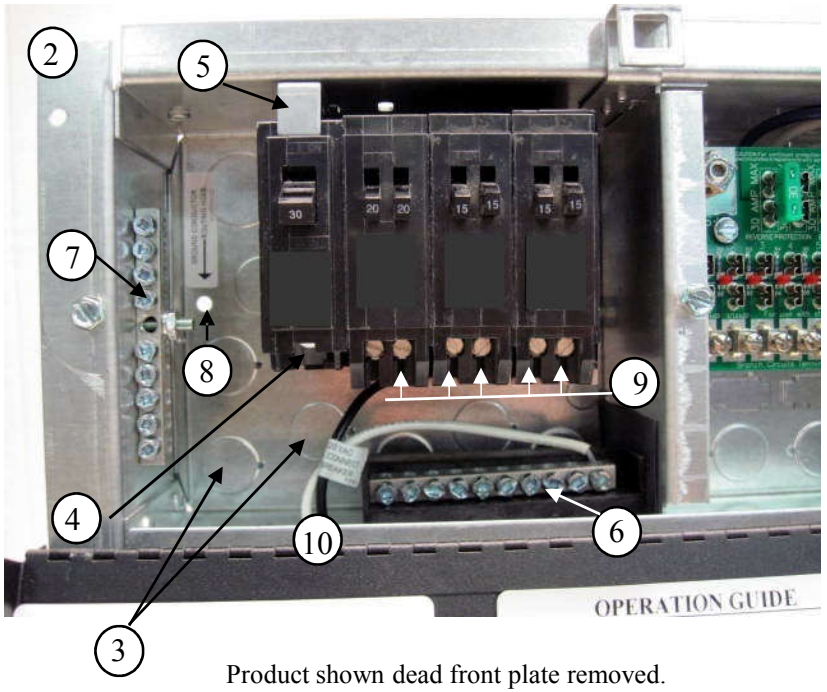
7. Shore Line and 120 VAC load circuit (green) grounds and bonding conductor connect to this terminal bar.

8. AC bond routing hole for (# 8 AWG minimum required) AC bonding conductor.

9. 120 VAC load breakers amperage rating chosen by AWG wire size used for the load circuit. Connect to (black) load circuit "hot" conductors. **#14 AWG may connect to a maximum 15 ampere load breaker. #12 AWG may connect to maximum 20 ampere load breaker.**

10. Connect black converter power "hot" lead to a 15 or 20 ampere (maximum) load breaker. **Do not install converter section supply conductor to the main breaker.**

8300 Series AC Wiring



Product shown dead front plate removed.

***** Note- AC Breakers and DC load fuses not supplied with unit.*****

120VAC load breaker amperages shown for illustrative purposes only!

Refer to item #9 at left regarding 120VAC load breakers.

Refer to breakers and wiring labels for terminal torque ratings. .

Electrical installation shall comply with the standards and safety requirements of the ANSI/RVIA 12V Standard for Low Voltage Systems in Conversion and Recreational Vehicles, NFPA 70 National Electrical Code and the NFPA 1192 Standard for Recreational Vehicles.

Parallax Power Supply Technical Note

INFORMATION REGARDING MOUNTING CLEARANCES FOR PARALLAX POWER SUPPLY POWER CENTERS.

The Owners Manual states that there must be a minimum of 22 inches of clearance provided to the front of the converter. Also, that adequate room should be left for wire routing and fan air intake located at the rear of the converter. The Owners Manual also states that the converter should not be mounted in zero clearance compartments because overheating and thermal shutdown will result.

Regarding the 22-inch clearance requirement to the front of the converter:

This statement was made in reference to the NEC article 551-45(b) exception No 1 pertaining to the AC panelboard section of the converter. It simply states that the power center panelboard must have 22 inches of clearance workspace after Installation.

The panelboard is considered exposed where the panelboard face is within 2 inches of the finished surface to which it is mounted . A non-locking decretive door may be installed in front of the distribution panelboard however the panelboard must be within 2 inches of a finished surface, not including the door thickness. This is so that the panelboard can be readily accessed when the door is opened, exposing the 22-inch minimum clearance workspace but not allowing enough room between the panelboard and the door for storage.

Regarding adequate room for wire routing and fan air intake:

Our intent here is to state that there must be enough clearance around the converter to provide adequate intake airflow for cooling the converter system electronics. Also you must leave enough room for the AC and DC field wiring to be installed. In most cases leaving enough room for the field wiring will assure adequate air intake clearance. The main concern seems to be about the clearance to the converter exhaust louvers located in the front of the converter when a decorative door is added over the front of the converter. Because of physical design of the converter the exhaust louvers and the AC panelboard are in the same plane, hence the added door will not be greater than 2 inches from the louvers because of compliance with NEC 551-45 (b) requirement for the panelboard. This will restrict to some degree the exhaust airflow.

The only way to attack this problem is through trial and error. The converter must be placed under the clearance-limiting condition then its operation monitored to verify correct operation. If the converter shuts down due to overheating then the clearance area must be increased to allow proper airflow. The converter has been tested under completely blocked ventilation conditions and will not become a fire hazard but will not hold up to its full rated output load specifications.

Please keep in mind that operating the converter under restricted air flow conditions will elevate the operating temperatures inside the converter and may reduce the life expectancy over time. The converter was designed to operate indefinitely at full load @25c (77f) ambient with the ventilation openings open to the living quarters.

Parallax Power Supply will not be held liable for poor performance or failures of the converter due to restricted air flow installations.

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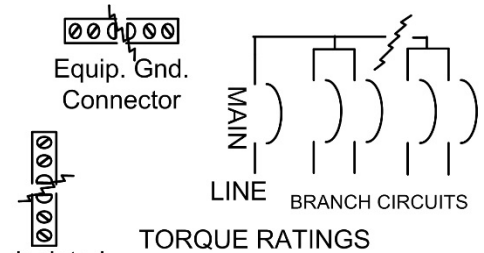
8300 Series

120 VAC Wiring Label

(located on back of metal dead front plate covering breaker compartment)



TORQUE RATINGS
LINE TERMINAL: 35 IN. LBS.
NEUTRAL BAR: 35 IN. LBS.
EQUIP. GND: AWG IN. LBS.
8 40
10-14 35

NOTE: Main breaker must be used when 3 or more branch breakers are used.

PANELBOARD WIRING DIAGRAM

MOUNT PANEL AS SHOWN AT LEFT

Short circuit rating of this panelboard is 10,000 RMS symetrical amperes, 120VAC, but the rating is limited to the lowest interrupting capacity at a supply voltage of any breaker installed. Replacement circuit breakers must be of the same type and interrupting ratings.

When equipped with “Option A” option, suitable for use in accordance with Article 702 of the National Electrical Code ANSI 1192/NFPA 70.

NOTE: The breakers indicated at the right are suitable for MAIN and BRANCH breakers:

CUTLER-HAMMER – BR, BD, GFCB
FILLER PLATE-FP-1B
SIEMENS – QP, QT FILLER PLATE-QF3
CONNECTICUT-ELECTRIC INC. – TB, TBBD;
FILLERPLATE- FP-1CTB
SQUARE D -HOM; FILLER PLATE HOMFP
TORQUE RATINGS: 8-14 AWG – 36 IN. LBS.
SQUARE D – HOMT; FILLER PLATE – HOMFP
TORQUE RATINGS: 8-14 AWG –26 IN. LBS

011-8300-002 REV A

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Examples of Listed Circuit Breaker Types

SIEMENS ITE /GOULD

Type QT **Twin Pole– Plug In**

Requires One 1" Space

HACR 120/240VAC

10,000 AIC

SQUARE D®

Type HOMT **Twin Pole– Plug In**

Requires One 1" Space

HACR 120/240VAC

10,000 AIC

Cutler-Hammer
Bryant

Type BD– Type C **Twin Pole– Plug In**

Requires One 1" Space

HACR SWD Rated

120/240VAC 10,000 AIC

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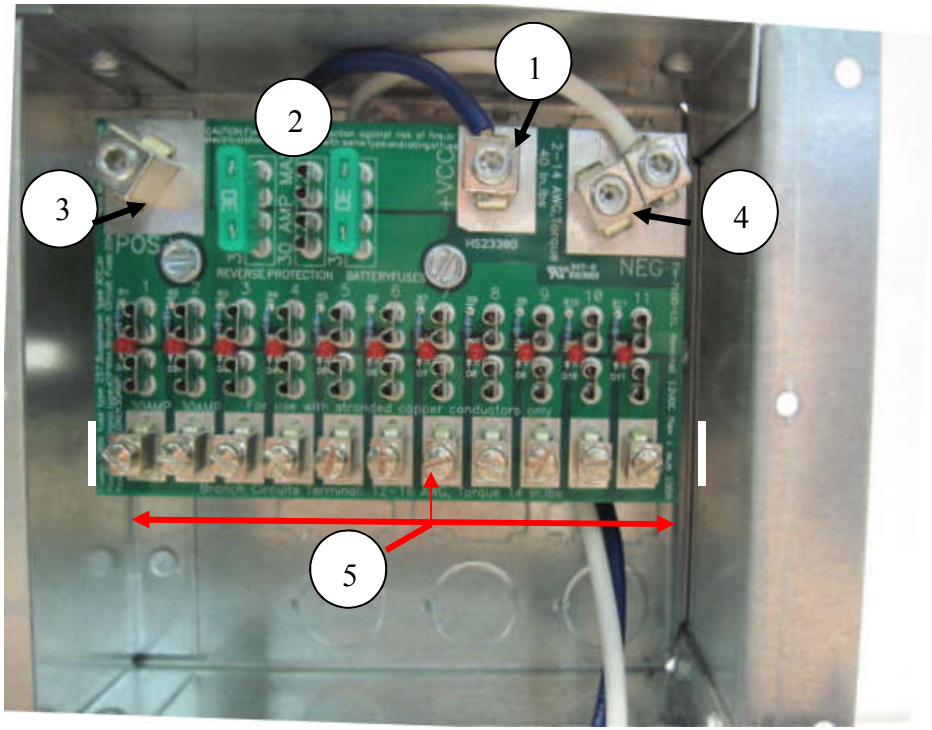
8300 Series DC Wiring



Electrical installation shall comply with the standards and safety requirements of the ANSI/RVIA 12V Standard for Low Voltage Systems in Conversion and Recreational Vehicles, NFPA 70 National Electrical Code and the NFPA 1192 Standard for Recreational Vehicles.

1. Converter DC positive output lead.
2. Converter "reverse battery polarity" protection fuses. Do not over-fuse. Refer to the DC wiring label.
3. Positive (POS) Terminal – Connect to battery Positive wiring. # 8 CU AWG minimum w/ 90 degree Celsius insulation rating minimum required. Battery fuse or breaker required by NEC Code within 18" of the battery. Fuse or breaker amperage rating is determined per NEC Code (Table 310.16) appropriate to AWG conductor size and insulation temperature rating of the conductor used.
4. DC Negative (NEG) Terminal – Must connect to the battery negative and 12 volt branch circuit negatives. Use an appropriately sized conductor (# 8 CU AWG minimum w/ 90 degree Celsius insulation rating minimum) from the NEG terminal to an appropriately sized and rated terminal bar. **Do not mount the terminal bar to the converter chassis.** Mount the terminal bar behind the converter assembly to a suitable surface and provide an air gap or fire protection barrier material underneath the terminal bar. Connect the battery negative and the 12 volt branch circuit negatives to the terminal bar. Tighten all terminal bar connections to recommended specifications provided on or with the terminal bar.
5. 12 Volt branch load circuit positive connection terminals. Fuse each load circuit per NEC Code (Table 310.16) appropriate to AWG conductor size and insulation temperature rating of the conductor used.
6. Tighten all terminals to specifications provided on the DC fuse panel or the DC wiring label.

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8300 Series DC Wiring Label

(located inside door right side)

OPERATION GUIDE

A: AC DISTRIBUTION PANEL:
This panel contains the AC breakers for each of the 120 VAC branch circuits of the RV. To turn AC breakers ON or OFF, switch breaker handle. Breaker position is indicated by visual ON, OFF. To reset a tripped breaker switch breaker handle OFF then ON.

B: DC DISTRIBUTION PANEL:
This panel contains the 12 volt DC fuses for each of the 12 VDC load circuits of the RV. The DC distribution panel is designed for blade type fuses. Each DC load circuit has a red open fuse LED indicator. If a fuse blows, the LED for that circuit should illuminate. DO NOT replace with a fuse larger than indicated on the label.

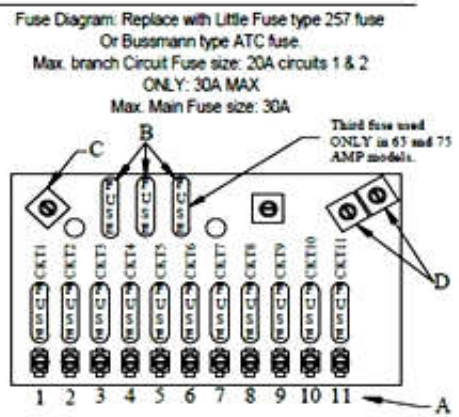
C: CONVERTER SECTION - 120VAC to 12 volt DC
When 120VAC is supplied to the converter section, the converter will provide regulated DC power to keep the RV "house" battery(ies) charged and power the 12 volt DC loads in the RV up to the maximum DC amperage capacity of the converter section installed. When 120VAC is not supplied to the converter section, the RV "house" battery(ies) (if installed) provide the necessary 12 volt DC directly through the DC Distribution Panel to operate the 12 volt loads in the RV.

D: BATTERY CHARGING:
When 120 VAC is connected to the Power Converter, the total output of the converter is available for recharging the RV battery(ies) minus the amperage of operating DC loads such as lights, pumps, and fans.

E: INSTALLATION REQUIREMENTS (HORIZONTAL MOUNTING ONLY)
Mount the Load Panel/Converter assembly to a vertical surface with the front of the control center open to the living area of the RV. Leave adequate room behind the assembly for wire routing and ventilation.

DC DISTRIBUTION PANEL

1. _____ AMP_____
2. _____ AMP_____
3. _____ AMP_____
4. _____ AMP_____
5. _____ AMP_____
6. _____ AMP_____
7. _____ AMP_____
8. _____ AMP_____
9. _____ AMP_____
10. _____ AMP_____
11. _____ AMP_____



A: CONVERTER OUTPUT: CKTS 1-11 VDC Positive load circuits for RV 12V loads. DO NOT USE HIGHER THAN 30 AMP FUSE.

B: MAIN CONVERTER FUSES. REPLACE WITH 30 AMP MAX.

C: LUG FOR POSITIVE LEAD OF 12 VOLT BATTERY. Use 8 AWG CU 90C MIN conductor.

D: LUG FOR NEGATIVE LEAD FROM BATTERY. Use 8 AWG CU 90C MIN conductor.

CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, OR ELECTRIC SHOCK REPLACE ONLY WITH SAME RATINGS AND TYPE OF FUSE.

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011-8300-003 REV D

AWG	Diameter		Turns of wire		Area		Copper resistance[6]		NEC copper wire ampacity with 60/75/90°C insulation (A)[7]	Approximate stranded metric equivalents
	(inch)	(mm)	(per inch)	(per cm)	(kcmil)	(mm²)	(Ω/km)	(Ω/kFT)		
2	0.2576	6.544	3.88	1.53	66.4	33.6	0.5127	0.1563	95 / 115 / 130	
3	0.2294	5.827	4.36	1.72	52.6	26.7	0.6465	0.1970	85 / 100 / 110	196/0.4
4	0.2043	5.189	4.89	1.93	41.7	21.2	0.8152	0.2485	70 / 85 / 95	
5	0.1819	4.621	5.50	2.16	33.1	16.8	1.028	0.3133		126/0.4
6	0.1620	4.115	6.17	2.43	26.3	13.3	1.296	0.3951	55 / 65 / 75	
7	0.1443	3.665	6.93	2.73	20.8	10.5	1.634	0.4982		80/0.4
8	0.1285	3.264	7.78	3.06	16.5	8.37	2.061	0.6282	40 / 50 / 55	
9	0.1144	2.906	8.74	3.44	13.1	6.63	2.599	0.7921		84/0.3
10	0.1019	2.588	9.81	3.86	10.4	5.26	3.277	0.9989	30 / 35 / 40	

7. ^ *NFPA 70 National Electrical Code 2008 Edition* — Table 310.16 page 70-148, *Allowable ampacities of insulated conductors rated 0 throrugh 2000 volts, 60°C through 90°C, not more than three current-carrying conductors in raceway, cable, or earth (directly buried) based on ambient temperature of 30°C.* Extracts from NFPA 70 do not represent the full position of NFPA and the original complete Code must be consulted.