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**Connection
Systems**



**RED BOX
AVIATION**

RBSC300 MANUAL

LPA Connection Systems

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28 Volt 225Amp DC Power Supply System

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Specifications

Input Voltage	200 to 500 Volt AC 47/63Hz 3 Phase Delta – neutral not required
Input Rating	9400VA
Output Voltage	28.8 ± 0.5 Volts DC (Trimmable from 27.6 to 30.0 VDC)
Output Current	300Amp (Maximum)
Operating Temp	0 to 40° C
Cooling	Forced - Fan
Protection	Input: Emergency Stop
Output	Short Circuit, Over Voltage, Over Current

AC Input Wiring

L1 = BROWN L2 = Black L3 = Grey GREEN / YELLOW is Earth

*This unit does not require a Neutral connection

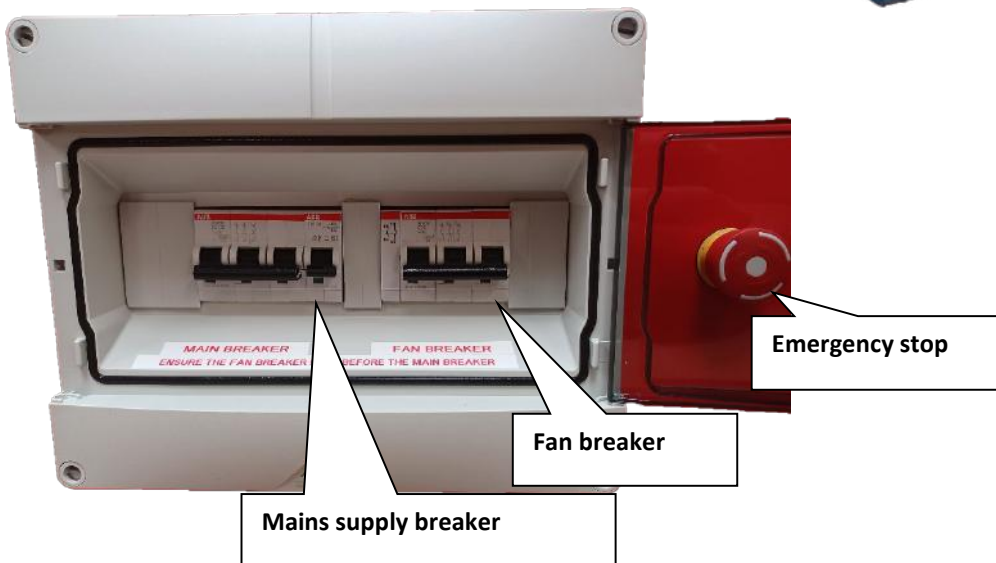
Health and Safety Information

This portable power supply should only be used by personnel who have received instruction on the correct operating procedures. Failure to follow the correct procedures or to take adequate precautions could cause damage to electrical systems, result in injury to the operator, or damage to equipment.

SAFETY

1. The AC supply should always be fed from a 30mA Residual Current Device (RCD) protected supply.
2. This unit is not weatherproof and should not be used in rain or excessively damp conditions.
3. **Never** block or obstruct the vents on either end of the unit.
4. **Never** short circuit the equipment - check there are no bare leads that could touch the aircraft or vehicle. If charging an external or onboard battery, ensure there are no bare terminals or connections.
5. Always use extreme caution when connecting to other batteries ENSURE that the voltage AND polarities are correct first. Always double check.
6. Do NOT open the unit; there are very high, DANGEROUS voltages inside.
7. When not being used, always disconnect from the AC supply, and remove the output cable.

Displays and Controls



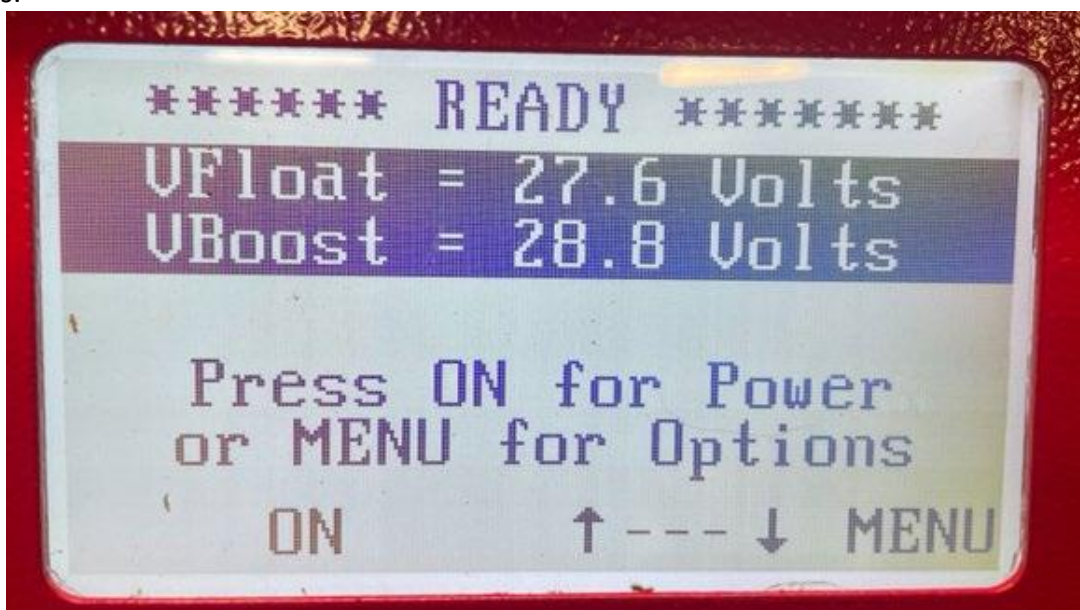
Initial Power-Up

The unit can be set so that when it powers up, it either defaults to “Power On” or holds awaiting for the Lefthand button to be pressed – toggling the unit On – Off. Even is defaulted to Power On the unit can always be switched off (Paused) by pressing the Lefthand button. It will illuminate “Red” when in pause mode and turn “Green” when providing power.

Pushing the Emergency Stop will cause the main AC input breaker to trip, stopping the incoming power. This should only be used in Emergency situation and is not intended for regular use.

Menu Options

With the unit toggled Off (Red LED) – the Righthand button says Menu – pressing this will enter the user options:



Option 1 – **Adjust Boost Voltage**

These units always default to a Safe 27.6 Volts (VFloat) output – in case the unit is left connected to a Lead Acid Battery – this is a “Float” charging condition. If the current demand is increased to more than 5 Amps the unit will step up to the normal 28.8 volts for Aircraft supply or battery charging. This value can be trimmed from the 26.7 up 30.0 Volts (VBoost) to make the system more compatible with some Aircraft systems. Below the 5 Amp current draw the system will display “Float” and the voltage reduce to 27.6 V – this cannot be altered.

The trim value is achieved by using the up/down buttons until the desired voltage is reached and then the Righthand button pressed to accept the new value and then advance to the next option. During trim adjustment the display will show “Voltage Trimmed” this will disappear if the trim value is set back to the default of 28.8 V

Option 2 – Use Push Button to Start

This gives the option as describe in the Initial Power Up above – settings are:

Immediate Start – Unit will power up ON by default.

Push Button Start – Unit will hold until the Lefthand button is depressed.

Both modes will then allow the unit to toggle On – Off as desired.

Pushing the Righthand button again will accept the option and default back to the Off condition.

Operational Procedure:

1. Ensure the unit is Switched Off at the AC breaker (lefthand.)
2. Connect the input to a suitable AC Supply.
3. Switch on the Fan Breaker. (Extreme Right of Breaker Panel) _ can be left On.
4. Switch on the Main Breaker (Lefthand.)
5. The display will show RedBox Logo and the unit will go to the Initial Power Up – see page 3.
6. Connect the Aircraft plug to the Aircraft.
7. If no load is applied, then the Digital Display will show 27.6 volts and “float” showing it is in standby mode and ready for use.
8. As soon as a load is applied the voltage will rise to 28.8 volts (or the trimmed value) and the current draw up to 300 Amps will be indicated.

Note – The current is limited to 300 Amps Output, but if the load is further increased this will lower the output voltage. The unit will supply 28.8 volts up to the full rated current.

Cooling & Maintenance

Note – If the Fan Breaker (Righthand) trips it will cause the Main Breaker to trip to prevent the unit to be operated without the fans.

During normal Operation the Top Right of the display shows – Temp. Initially this will say “OK” but as the unit warms up and the Case cooling fans come on it will show “Fans” and the increase in airflow can be sensed at the Case Air Exit. When “OK” internal fans maybe run intermittently inside the unit as required. If the Temp shows “High” please check and Clean the filter mesh underneath for obstruction, dust or fluff. In extreme cases the unit may need opening by a suitably qualified person and a thorough clean performed.

Emergency stop

In case the unit needs to be switched off in an emergency, depress the RED emergency stop button; this will immediately operate the circuit breakers to isolate the supply and turn off the unit. Before using the unit again, ensure the breakers are switched off. Then release the emergency stop by twisting the red button in the direction of the arrows.



Maintenance & Troubleshooting

The unit is essentially maintenance free and only requires to be kept clean and free from liquid ingress. The vents both inlet and outlet must be kept clear at all times and should be periodically checked for obstructions.

If an error or fault occurs the details or error code will appear on the digital display – Please contact LPA for advice. On very rare occasions it is possible for a mains voltage spike to 'stop' the unit. To reset, switch off for a few seconds and the restart the unit.

Should the unit become over heated, the voltage (or current) will reduce as the thermal management system becomes operative. Ensure the vents on both ends are unobstructed and clear

There are no user serviceable parts inside – Do NOT open; there are very high, dangerous voltages inside.

Opening the unit will invalidate the warranty. The unit is warranted in the event of faulty workmanship or parts for a period of one year from the date of purchase.

Panel meters are for indication only.



Recommend storage for Cables

Warranty

Limited warranty and limitation of liability (Including limitation of consequential damages)

- (a) LPA Connection System (Seller) warrants that the goods are free from defects in seller's materials and workmanship
- (b) The warranty set forth in (a) above (the "Warranty") shall apply only in favour of the buyer and shall expire on the last day of a period of One Year commencing on the date of delivery of the goods from seller to buyer
- (c) The Warranty is expressly made subject to the following provisions:
 - 1. The Warranty shall not apply to any goods which have been repaired or altered or opened by anyone other than the seller, or *his assigns*, in any way so as, in the seller's judgement, to affect stability, reliability or performance nor to any goods which have been subjected to unreasonable use, negligence or accident, nor specifically to the capacity of batteries save where this relates to defect in seller's materials or workmanship, nor to any goods which have not been used in accordance with seller's printed instructions, nor to any goods which have been damaged because of their use or the use of any other materials or equipment.
 - 2. The extent of the seller's liability for any breach of the Warranty shall be limited to repairing or replacing (whichever of the two, seller, in his own discretion, shall elect) any defects in goods attributable to seller's workmanship or materials, by the seller, at the risk and expense of the buyer. provided that the Warranty shall not be effective unless the seller receives a written claim therefor within 30 days after the discovery of the defect. Seller shall have no obligation whatsoever to accept goods unless the provisions set forth in sub paragraph (1) have been complied with in full. Any goods that are returned to the seller shall be returned expressly, to the factory door of the seller, at the expense of the buyer. Any goods that are returned or replaced by the seller shall be warranted for the remaining term of this Warranty. The aforesaid remedy is expressly agreed to be the sole and exclusive remedy for breach of the Warranty, accordingly without limitation to the generality of the foregoing. Seller shall not be obligated in any way in the event of breach of the said Warranty to return any part of the purchase price of the goods or to give credit for any payments received.
 - 3. The foregoing Warranty is in lieu of all other warranties (except of title) express, implied (including without limitation the warranties of merchantability and fitness for any particular purpose) or statutory and all other liabilities (contract, tort or otherwise, including without limitation negligence), seller makes no warranty whatsoever express, implied or statutory to any person or entity other than buyer. In no event whatsoever shall seller be liable for loss of profits or any other incidental, consequential or special damages resulting from any defects in the goods or any breach of the Warranty.



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