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**Connection
Systems**



**RED BOX
AVIATION**

RBSC100 PLUS MANUAL

LPA Connection Systems

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Switchable 14.4 or 28.5 Volt 100 Amp DC Power Supply System

Index

	Page
Specifications	1
AC Input Wiring	2
Health and Safety Information	2
Power Supply Layout	3
Operational Procedure	4
Battery Charging	4
Maintenance & Troubleshooting	5
Warrantee	6
Contact Details	7

Specifications

Input Voltage	95 to 264 Volt AC 50/60Hz
Input Rating	3200 VA
Power Factor	0.98
Output Voltage	14.4 or 28.8 \pm 0.2 Volts DC – User Selectable in Standard Mode Voltages Programmable in Pro Mode
Output Current	100 Amp (Maximum) Above 180 VAC – other Voltage see Page 4
Operating Temp.	0 to 50° C
Cooling	Temperature Controlled Fans
IP Rating	55*
Protection	Input - RCD, Output – Short Circuit, Over Voltage, Over Current

AC Input Wiring

BROWN is Positive **BLUE** is Negative **GREEN / YELLOW** is Earth

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 IP55 rated for use on standard flat ground for outdoor use – it is not suitable for use in driving rain, snow or use upside down.
3. **Never** block / obstruct the vents on either end of the unit. The fans will only operate when necessary.
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.

OUTPUT
CURRENT/VOLTAGE
INFORMATION



BACK LIGHT
FOR DISPLAY

14 / 28V
SELECTOR
SWITCH

PUSH TO TEST

INPUT RCD

DC OUTPUT



MODE SELECT
Not in use

MAINS INPUT
CONNECTION



Operational Procedure in Standard Mode

1. Ensure the unit is Switched Off.
2. Connect the input to a suitable AC Supply.
3. Switch on the RCD and press the Test Button to ensure its operation – Reset the RCD.
4. The display will show “REDBOX” and after a short period display “14.4 V” output voltage and the LED illuminate “Red” – This is 12 Volt Mode.
5. Push the illuminated button to select “28.8 V” this is 24 Volt Mode the LED will change to “Green”
The unit will now stay in 24 Volt Mode – to reset to 12 Volt Mode power the unit Off and reset.
6. Connect the Aircraft lead to the power supply.
7. Connect the Aircraft plug to the Aircraft.
8. If no load is applied, then the Digital Display will show 13.8 or 27.6 volts showing it is in standby mode and ready for use. These Voltage would also be suitable for “Float” battery conditions.
9. As soon as a load is applied the voltage will rise to 14.4 or 28.8 volts and the current draw up to 100 Amps will be indicated.

The units Display is fitted with a “Backlight”– this defaults to “On” If the ambient lighting condition require it can be toggled On / OFF with the righthand button “BL” The other buttons have no fuction in Standard Mode on this unit.

Note – The current is limited to 100 Amps Output, but if the load is further increased this will lower the output voltage. The unit will supply 14.4 or 28.8 volts up to the full rated current.

Output Current

This power supply uses the latest Digital Switchmode Power Supply. This provides clean power with an Extremely high power factor (PF).

When above a supply voltage of 180 VAC the unit will supply the full 100 Amps. Below this supply voltage the unit will auto current limit (at 115 VAC this will be around 55 Amps)

The top section of the current bargraph on the righthand side will show "CURRENT LIMITED" and the center of the display "AC-IN LOW MODE" moving the supply to a higher voltage will automatically restore to the full 100 Amps.



Battery Charging

To recharge Redbox portable power packs – Such as RB50A / RB75A.

1. Ensure the unit is Switched Off.
2. Connect the input to a suitable AC Supply.
3. Switch on the RCD and press the Test Button to ensure its operation – Reset the RCD.
4. Connect the output to the charging input on the Red Box power pack. *1
5. The display will show "REDBOX" and after a short period "14.....28".
6. Push the appropriate button to select the desired output voltage.
7. Switch on the unit – the power pack will start to charge.
8. The power pack can be left connected to the RBSC100. When the power pack is fully charged the RBSC100 will automatically go into float mode and supply a trickle charge.

*1 If an interconnecting lead is required, please contact LPA.

The RBSC100 unit is capable of multistage battery charging of Redbox portable power packs. It is capable of charging some other 12 or 24 Volt battery systems, but the battery manufacturers data must be checked first. Failure to do so could result in damage to the power supply, the battery and injury to the operator.

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.

The RCD Device must be tested every time the unit is used.

If an error or fault occurs the details or error code will appear on the digital display – Please contact Red Box 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.

The internal fans are thermostatically controlled and will operate as required.

Warranty

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

- (a) LPA Industries Ltd (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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