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VR Pro Duo

High-End Linear Regulated Power Supply Module
双路高端线性稳压电源模块

DUALSKY®
ADVANCED POWER SYSTEMS

Instructions Manual 使用说明书 No.46746



Design features

- Miniaturization design, input & output port using horizontal row;
- Dual battery input design, automatic switching and balancing between batteries;
- 4 current outputs, support 4 channel servos direct connection;
- Plug and play. No need to weld the connectors;
- Internal dual input voltage monitor for low voltage with memory function;
- Support HV servos (7.4V), output voltage is switchable;
- Includes FSS-3, the failure safety switch with status indicator (#46813), VR Pro Duo also supports FSS-4 lightweight switch(#46814);
- Equipped with heat sink and external cooling fan (#46816);
- Support up to 10pcs of 30kg digital servo;
- Can be used on the largest 13KG model aircraft, eg.120CC Gasoline Powered Aircraft.

Electrical Features

- Linear regulator, no interference, low ripple;
- The input power uses simulated diode dual redundancy power supply;
- Double MosFET output, independent linear control IC, high output current capability;
- Low dropout design makes fully use of the cell's capacity, especially on HV mode;
- Large heat sink, good heat dissipation and high overload capacity;
- Built-in MCU precisely controls FSS-3 and internal voltage;
- Fail safe design, ensuring Non-stop work;
- SMT process, ensuring the quality;
- Input & output port all use high quality tantalum capacitors;
- Dualsky Shanghai factory assembled, fully tested before dispatch.

Specification

Input voltage:	DC5.3V -8.4V, MAX10V (2S LiPo)
Output voltage:	5V, 6V, 7.4V (Switchable, Tolerance + 3%)
Output current:	DC 0 -15A (Vin-Vout =1V)
Minimum differential voltage:	< 0.3V
Power effect:	%0.3
Voltage effect:	%0.3
Output ripple:	< 2mV
Size:	63mmX32mmX18mm
Weight:	62g (including duo input wires)

How to use

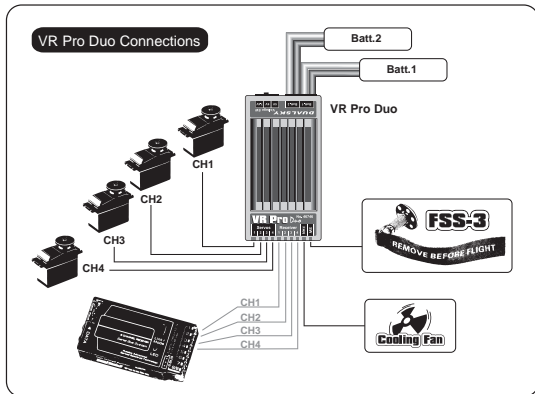
VR Pro adopts a horizontal row as input and output,(see the right picture).

According to the label instructions, the four sockets on the left are for servos.

The four sockets on the middle are connect to the receiver with the output wire (#46815). The four sockets on the left correspond one to one to the four sockets on the middle. This design has the advantage of plugging the largest power consumption servos in VR Pro Duo to reduce the receiver burden. Also solve the 4 output wires taking too many receiver channels problem.Two sockets on the right side are respectively for fan and control switch.

VR Pro Duo has two battery input wires on the opposite side. It can be connected with two batteries for power supply. VR Pro Duo can also connect 1 piece of battery for work.(We suggest to use Dualsky 20C series 2S li-po battery for VR Pro Duo) When these wires are connected correctly, please remove the FSS-3 plug pin to work.





During working, the built-in two monitors display the two batteries voltage respectively. the built in tri-color monitors display battery voltage: over 7.4V with green light, 7.4V to 7V with yellow light, lower than 7V with the red light. When the red light on, the user should stop using as soon as possible. The red light warning has memory function, it indicates that the battery has fault (low voltage, poor contact or system overload). Close the switch and re-open it can reset the memory. When one battery fails, the system will switch to another battery to work automatically. This enhances the safety of power supply greatly.

In normal operation, FSS-3 power indicator always lights, if any power failure (low battery, overload or bad connection), it will enter the alarm mode, the lights will flicker, this mode also has memory function. Power off and eliminate the malfunction. Power on again to restore the normal status.

FSS-3 power switch, FSS-4 power switch (optional), the voltage display circuit and output voltage select switch are all using the "fail safe" design. Any fault will not take the initiative to turnout VR Pro Duo power output. When the voltage select switch fails, the output voltage will be set to 5V.

Safety attentions

(Failure to follow these instructions can be damage your product, and cause serious bodily injury or death.)

- Not suitable for children under 14 years old without adult guidance;
- Do not use it in the high temperature or humid environment;
- When using this product in strong vibration environment, vibration mitigation measures should be used;
- Please remove the packing material before use VR Pro Duo;
- Since the output current is large, please use 4 output wires to connect the receiver;
- This product supports switching voltage. Please select the voltage according to the supply voltage of your receiver, servo or other equipments!;
- Do not change the output voltage while VR Pro is working;
- Output port short circuit will damage VR Pro;
- In order to ensure the VR Pro Duo working properly, please obey the following formula to limit the thermal power in a safe range:
 - (1) $(\text{input voltage} - \text{output voltage}) \times \text{output current} \leq 15\text{W}$;
 - (2) Please pay special attention to that, if the VR Pro current is over 15W for a long time, the temperature will rise quickly, it will damage the regulator;
 - (3) When the cooling fan is mounted (#46816, optional), the thermal power can be increased to 20W;
 - (4) VR Pro will not stop working when the input current is too large. But the internal limit working temperature is 120 degrees. When the temperature is more than this limit, it will damage the control IC.
- The two input batteries should be in the same specification and same charge cycle;
- The voltage indication and alarm is preset according to the lithium polymer battery;
- Notes: If you don't use the regulator in 24 hours, you'd better disconnect it from the battery because it remains a 3mA quiescent current.