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VR Pro

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

DUALSKY[®]
ADVANCED POWER SYSTEMS

Instructions Manual 使用说明书

No.46745



Design Features

- Miniaturization design, input & output port using horizontal row, plug-and-play;
- Built-in tri-color input voltage monitor, low voltage memory function;
- Support HV servos (7.4V), output voltage is switchable;
- Includes FSS-4 lightweight switch(#46814), VR Pro also supports FSS-3, the failure safety switch with status indicator (#46813);
- Equipped with heat sink, external cooling fan (#46816) can be connected as an option;
- Support up to 6pcs of 30kg digital servo;
- Can be used on the largest 8kg model aircraft, eg. 50cc Gasoline Powered Aircraft.

Electrical Features

- Linear regulator, no interference, low ripple;
- Double MosFET output, independent linear control IC, high output current capability;
- 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;
- Low dropout design makes fully use of the cell's capacity, especially on HV mode;
- 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 -10A (Vin-Vout =1V)
Minimum differential voltage:	< 0.2V

Power effect:	%0.3
Voltage effect:	%0.3
Output ripple:	< 2mV
Size:	53mm X32mm X18mm
Weight:	30g (excluding accessories)
How to use	

VR Pro adopts a horizontal row as input and output port, (see the right picture). According to the label instructions, two sockets on the left are for battery input. The battery can be connected to VR Pro by the input adaptor. The middle two sockets are for stabilizing output. VR Pro is



connected to the receiver by the output wire (#46815). Two sockets on the right side are respectively for fan and control switch. There is a three gear switch on the opposite side, which can select the output voltage from 5V / 6V / 7.4V. (We suggest to use Dualsky 20C series 2S li-po battery for VR Pro) When these wires are correctly connected, please put FSS-4 to the "ON" position to work.

During working, the built-in tri-color monitor displays 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.

FSS-4 switch, the voltage display circuit and the output voltage select switch are all using the "fail safe" design. Any fault will not take the initiative to turnoff VR Pro 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;
- Do not cover VR Pro in use;
- Since the output current is large, please use 2 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 working properly, please obey the following formula to limit the thermal power in a safe range:
 - (1) (input voltage - output voltage) x output current \leq 10W;
 - (2) Please pay special attention to that, if the VR Pro current is over 10W 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 15W;
 - (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 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 2mA quiescent current.

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产品特点

- 小型化设计，输入、输出采用水平排针，即插即用；
- 内置3色输入电压监视器，对低电压有记忆功能；
- 支持HV伺服系统（7.4V），可开关切换；
- 标配FSS-4（#46814）轻量开关，支持带状态指示的FSS-3（#46813）失效安全开关；
- 配备散热器，并可外接散热风扇（#46816）；
- 支持6颗30kg级别数码舵机同时工作；
- 可在最大8KG模型飞机使用，例如：50CC汽油动力飞机。

电气特点

- 线性稳压，无干扰、低纹波；
- 采用双MosFET输出，独立线性控制IC，大电流输出能力强；
- 大面积散热器，具有良好的散热、抗过载能力；
- 内置MCU，精确控制FSS-3和内置电压监视器工作；
- 整个系统采用Fail safe设计，确保不间断工作（Non-stop）；
- 低压差的设计，充分利用电池容量，HV模式下效果明显；
- 主板采用SMT贴片工艺生产，保证质量；
- 输入，输出端均采用高品质钽电容；
- 双天上海工厂组装，全检出厂。

主要技术参数

- 输入电压：DC 5.3V - 8.4V, MAX 10V (2S LiPo)
输出电压：5V、6V、7.4V (Switchable, Tolerance $\pm 3\%$)
输出电流：DC 0 - 10A ($V_{in}-V_{out} \leq 1V$)
最小压差： $\leq 0.2V$

电源效应: %0.3

电压效应: %0.3

输出纹波: $\leq 2\text{mV}$

外形尺寸: 53mm X 32mm X 18mm

主机重量: 30g (不含配件)

使用说明:

VR Pro采用水平排针作为输入输出, 如右图。按稳压器标签指示, 左边两路排针为电池输入插口, 电池通过输入转接线 (Input adapter) 接入VR Pro。中间两路为稳压输出插口, VR Pro 通过输出线 (#46815) 与接收机相连。右边分别为风扇和控制开关插口, 只要对应连接即可。通过另一侧的3档开关可以选择输出电压, 分别是5V/6V/7.4V。我们建议采用双天20C系列2S锂聚合物电池为VR Pro供电。上述连接确认无误后, 将FSS-4拨动到“ON”即可工作。

工作中, 内置3色监视器显示电池电压: 7.4V以上, 绿灯亮, 7.4V-7V, 黄灯亮, 如果电压低于7V, 红灯亮, 此时应尽快停止使用。红灯警告有记忆功能, 表示电池曾经故障 (电量低、接触不良或系统过载), 关闭开关后重开可以消除记忆。

FSS-4电源开关、电压显示电路和输出电压选择开关均采用Fail safe“失效安全”设计。任何故障不会主动关断VR Pro的电力输出。当电压选择开关失效后, 输出电压被设定在5V。



注意事项:

- 本品不是玩具, 14岁以下儿童使用需要有成人监护;
- 请勿在高温、潮湿的环境下使用;
- 在强烈振动环境使用本产品时, 应做好缓振措施;
- 请勿将VR Pro整个包裹后使用;
- 由于输出电流较大, 请采用2根输出线连接至接收机;
- 本产品支持电压切换, 使用此电压时, 请确认你的接收机、舵机或其他设备支持该电压;
- 不要在稳压器工作时切换输出电压;
- 输出端绝不可以短路;
- 为确保VR Pro正常工作, 请遵守下面的公式, 将发热功率限制在安全范围内:
 - (1) (输入电压 - 输出电压) x 输出电流 $\leq 10\text{W}$;
 - (2) 如果长时间大于10W, 温度会快速上升, 可能会损坏稳压器, 请特别注意;
 - (3) 安装冷却风扇 (#46816, 选配件), 热功率可以提升至15W;
 - (4) VR Pro不会因为输入电流过大而停止工作, 但内部极限工作温度为120度, 超过控制IC将损坏。
- 该产品电压指示和报警按照锂聚合物电池预设;
- 如果你长时间 (24小时内) 不使用VR Pro, 请断开和电池的连接, 因为待机状态下也会有2mA耗电。