

UBEC
25A / MAX 50A

02 Introduction

The UBEC is an external switching-mode DC-DC regulator chip. It draws the DC voltage from a 3-18S LiPo battery and drops the voltage to a level suitable for receivers and other electronic devices and keeps providing the stable current output of up to 25Amp. The UBEC has such a powerful output capability, so it is particularly applicable for the large helicopters or fixed-wing aircraft which use several servos.

03 Features

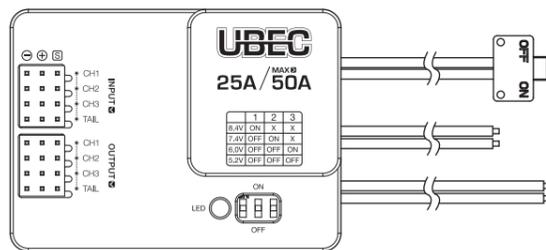
- High efficiency DC-DC regulator chip for transfer efficiency of over 90%.
- Adjustable output voltage (5.2V/6.0V/7.4V/8.4V) applicable for servos with different voltages.
- 8-channel parallel outputs for greater current endurance.
- BEC shoot-through protection prevents the input voltage of the main power supply from directly flowing to the output end of the UBEC and damaging the electronic devices connecting to the output end when the UBEC is accidentally damaged.
- Multiple protections including over-current, (output end) short circuit, overheat, and low-voltage cutoff.
- Backup power supply connecting function allows the connected electronic devices to directly get power from the backup power supply to keep the normal operation when the main power supply connecting to the UBEC is damaged or the UBEC fails.
- External switch allows to turn on/off the UBEC easily.
- Metal housing for quick heat dissipation and less electromagnetic interference.
- LED indicator for indicating the work status of the UBEC and the connecting status of the backup power supply.

04 Specifications

Model	UBEC 25A HV
Main Input Voltage	3-18S LiPo
Backup Input Voltage	1-2S LiPo
Output Voltage	5.2V /6.0V /7.4V /8.4V
Output Amperage	Continuous Current: 25A, Peak Current: 50A
Weight	74g
Size	55x40.2x17.6mm

05 User Guide

1 Introduction about the UBEC



- The external switch is only for switching on/off the output of the UBEC, it cannot disconnect the connected the backup power supply.
- The output end of the UBEC can output the voltage of the backup power supply when only the backup power supply is connected to the unit or the external switch is slid to the "OFF" position.

- "-/+/S": "-" represents "GND wire", "+" represents "Voltage Output", and "S" represents "Signal Input & Output".
- Signals are input through the S pins in the IN group and output through the S pins in the OUT group, they are only transferred for bridging inside the BEC.
- Signal input pins must correspond to signal output pins. That's "CH1 IN" to "CH1 OUT", "CH2 IN" to "CH2 OUT", and "CH3 IN" to "CH3 OUT".
- When only connecting to the "-/+" pins, all the 8 channels can function as the BEC output.
- The LED indicator indicates the work status (Red) of the UBEC and the connecting status (Green) of the backup power supply. No matter if the main power supply is connected to the unit or the backup power supply, the LED will turn on solid Red only if the UBEC functions normally. The LED turns on solid Green when the backup power supply is connected to the unit and works normally.
- The external switch is used for turning on/off the UBEC.

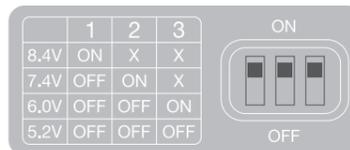


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01 Warnings

- Read through the manuals of all power devices and aircraft and ensure the power configuration is rational before using this unit, as improper power configuration will overload the motor and damage the unit.
- When installing the unit, relevant operations like soldering, connecting will be needed, so please ensure all wires and connections are well insulated before connecting the unit to related devices, as short circuit will damage the unit. When soldering relevant wires of the unit, please use a soldering iron with sufficient power to do the soldering, as poor connection may cause the unit to function abnormally or other unpredictable issues like damage to the device.
- Always keep your aircraft away from unsafe elements like obstacles, crowd, high-voltage power lines. Please fly your aircraft in the working environment as regulated in this manual. Although there are some protections, improper use may still cause permanent damage to the unit.
- Always disconnect and remove the battery after use. As long-time contact will cause the battery to completely discharge and result in damage to the battery or the unit. This will not be covered under warranty.

2 Change the Output Voltage



You can change the BEC output voltage to 5.2V/6.0V/7.4V/ 8.4V via the 3-in-1 DIP switch on the UBEC (as shown below):
If you want to set the voltage to 5.2V, please slide all the switches (#1, #2 & #3) to OFF.
If you want to set the voltage to 6.0V, please slide the switches (#1 & #2) to OFF, switch #3 to ON.
If you want to set the voltage to 7.4V, please slide the switch #1 to OFF, switch #2 to ON, and switch #3 to ON or OFF (it doesn't matter).
If you want to set the voltage to 8.4V, please slide the switch #1 to ON, the switches #2 & #3 to On or OFF (it doesn't matter).



From left to right (as shown in the picture), they are switch #1, switch #2, and switch #3.



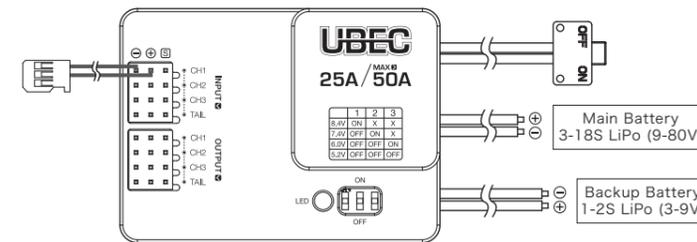
- all the "X" in the picture indicate that you can slide the corresponding switches to ON or OFF and it doesn't matter.
- when the main power supply and the backup power supply are connected to the unit, please do not set the UBEC voltage much lower than the voltage of the backup power supply (i.e. setting the UBEC voltage to 5V, but connecting a 2S LiPo battery with the voltage of over 5V as the backup power supply). Otherwise, the voltage of the backup power supply may damage the connected electronic device when the main power supply is broken.

06 Wiring

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When functioning purely as an UBEC for one-channel output:

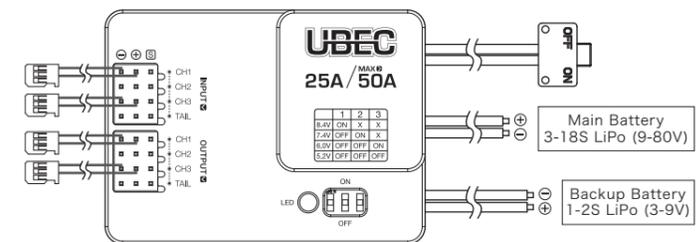
The Red/Black JR connector can be connected to relevant devices like receiver, FC for providing voltage output & current output.



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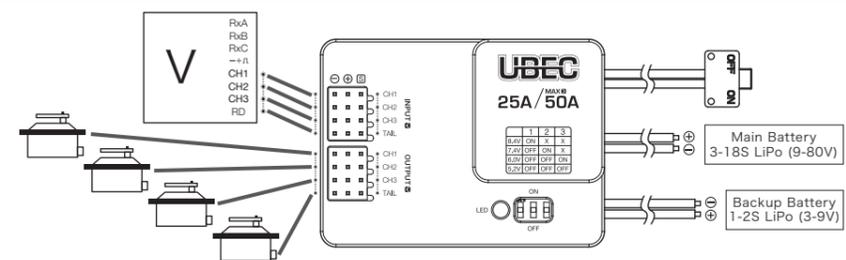
When functioning purely as an UBEC for multi-channel parallel output:

The Red/Black JR connectors can be connected to relevant devices like receiver, FC for providing (up to) 8-channel parallel voltage output & current output.



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When the unit is used for connecting the gyro and servos on a helicopter:



07 Other Information

- When the voltage of the main power supply goes below 9V, the unit will activate the low-voltage cutoff protection and stop functioning and then switch to the output of the backup power supply (on condition that the backup power supply is connected to the UBEC, the unit will keep the output until the power (of the backup power supply) is used up. If you don't want to consume the power of the backup power supply, then you either disconnect it or re-connect a fully charged battery to the UBEC to work as the main power supply.
- When your brushless ESC has no built-in BEC, then there is no need to make any change to the ESC, you only need to connect the input end of the UBEC to the battery pack in parallel and plug the output end (of the UBEC) into any unoccupied channel on the receiver.
- When your brushless ESC has a built-in BEC, then you need to disconnect the BEC output of the brushless ESC. That's removing the Red wire from the cable (as shown below) which is used for connecting the brushless ESC to the receiver, and then connect the input end of the main power supply of the UBEC to the battery pack in parallel and plug the output end (of the main power supply of the UBEC) into any unoccupied channel on the receiver.
- Adjust the BEC output voltage: you can change the output voltage via the 3-in-1 DIP switch as mentioned before. For detailed information, please refer to the part of "Change the Output Voltage".
- Turn on/off the output: if you slide the external switch of the UBEC to the "ON" position, then the output will be available; if slide to the "OFF" position, then the output will be turned off or only the output of the backup power supply will be available. In case you want to turn off the output completely, then you also need to disconnect the backup power supply from the \ UBEC (besides sliding the external switch to the "OFF" position).
- LED Indicator:
 - 1) The Red LED is used for indicating the work status of the UBEC. If the Red LED turns on, then it means that the UBEC outputs its voltage normally; if the Red LED doesn't come on, then please check if the input wires of the main power supply are well connected to the unit. (The Red LED will turn on no matter if the main power supply or the backup power supply is connected to the unit.)
 - 2) The Green LED is used for indicating that if the backup power supply is connected to the unit. If the Green LED turns on, then it means that the backup power supply is connected to the unit; if the Green LED doesn't come on, then please check if the input wires of the backup power supply are well connected to the unit or the backup power supply has power.
- The switch-mode voltage-regulating UBEC may produce some electromagnetic interference during the operation and affect the performance of some poor quality receivers (especially \ old-fashioned AM & FM receivers). For ensuring the normal operation of the receiver, please mount the UBEC over 5cm away from the receiver.

Tips:

You can use a sharp screwdriver to take the pin (with red wire) out from the control cable plug (JR male connector) of the ESC, and then insulate it with a bit of electrical tape for further use. By this method, you needn't cut the red wire in the control cable.



Take the pin with red wire out