

Instruction Manual

PowerBox Systems[®]

*World Leaders in RC
Power Supply Systems*

Linear Voltage Regulator





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Dear customer,

The **voltage regulator** is designed to supply a defined, stabilised voltage to your receivers and servos. It is a compact, lightweight device with an excellent performance, and has been developed and manufactured in-house.

This unit enables you to use modern **Lithium-Polymer, NC** or **LiFe** batteries as the power supply in your models.

The device is based on an IC which delivers a regulated linear voltage of **5.3 or 5.9 Volt**; these values are fixed, and cannot be altered.

A constant voltage substantially increases the effective life of all the components of your RC system, but especially of the servos. The totally unvarying voltage provides a substantial increase in the useful life of all components, but especially of servos. Since the regulated voltage is maintained at an absolutely constant level, all servos always operate with equal power and speed - regardless of load.

Any servo feedback currents which may arise are reliably eliminated by an electrolytic capacitor of generous capacity.

Since the voltage regulator weighs just **12.5 grammes** it can be installed in any model without imposing a significant weight increase.

The regulator has proved particularly useful in small to medium-sized fixed-wing model aircraft and helicopters, and for ignition systems. It can also be used to reduce the voltage to individual servos or other RC system components.

The signal wire is looped through the regulator, enabling the unit to be used to power individual servos at a reduced voltage. This arrangement is primarily of interest where the main RC system power supply is designed for HV servos (7.4 V), but where one or two servos are not approved for use at the higher voltage. In this case the non-HV servos can be

plugged into the voltage regulator and used in the normal way. These are often tail rotor servos or electronic components such as lighting units, valves etc., which must be operated at a lower voltage than the other parts of the receiving system. The unit can be connected using a **Uni**, **JR** or **Futaba** connector. Caution! Connecting the battery plug offset to one side will instantly ruin the regulator.

The JR lead attached to the voltage regulator can be plugged directly into the receiver socket.

If you wish to use a switch in the receiving system power supply circuit, we recommend that you fit it between the voltage regulator and the battery.

It is also feasible to use LiPo batteries with our PB 12 switch backer (without integral voltage regulation) if you connect one voltage regulator to the system for each battery.

The regulator can supply 2 to 3 Ampere - according to battery type and cooling efficiency - which is adequate for models fitted with 6 - 8 standard servos or 4 - 5 digital servos.

Since any voltage regulating device generates waste heat (varying according to current drain and input voltage), the regulator should always be installed in an open position in the model, i.e. not enclosed.

The regulator is completely encapsulated using the modern "hot melt" process; this renders it totally impervious to vibration and moisture of all kinds.

Specification:

| | |
|--------------------|--|
| Voltage range: | 4.0 - 9.0 Volt |
| Regulated voltage: | Pre-set 5.3 or 5.9 Volt, according to Order Number |
| Performance: | Regulated 2.0 - 3.0 A, according to cooling measures and input voltage |
| Max. performance: | Peak (brief) 10 A |

| | |
|--------------------|--|
| Regulator losses: | 0.14 Volt |
| Temperature range: | -30°C - +75°C |
| Weight: | 12.5 grammes |
| EMV tested: | EN 55014 - 1 and EN 55014 - 2 |
| CE tested: | 2004/108/EG, certificate dated 10. March 2009 |

Approved only for use with a two-cell Lithium-Polymer or LiFe battery, or five-cell NC battery. **The device must not be used in conjunction with a mains PSU !**

Order No :

5509 Voltage regulator, 5,3 Volt

5510 Voltage regulator, 5,9 Volt

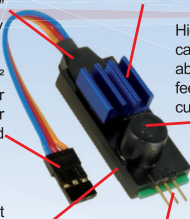
Connecting lead with robust kink guard and strain relief, encapsulated using "hot melt" injection-moulding technology

Silicone cable (0.34 mm² conductors) used for connection to receiver or consumer unit. Gold-plated JR connector contacts

Entire electronic circuit encapsulated using a "hot melt" process: resistant to water and acid, vibration-protected, fracture-proof JR connector contacts

Large-area heat-sink for efficient heat dissipation

High-capacity capacitor to absorb servo feedback currents



contact plugs for connecting the power source: centre contact is positive, do not plug out of phase !

Guarantee conditions

We take the maintenance of the highest quality standards very seriously, and that is why **PowerBox Systems GmbH** is currently the only RC electronics manufacturer which has been awarded certification to the DIN **ISO 9001:2008** industrial norm.

Our stringent quality management, which applies both to development and pro-duction, is the reason why we are able to grant a **36 month** guarantee on our products, valid from the initial date of purchase. The guarantee covers proven material faults, which will be corrected by us at no charge to you.

Any repairs carried out do not extend the original guarantee period. The guarantee does not cover damage due to incorrect usage or operation, e.g. reversed polarity, excessive voltage or damp. The same applies to defects caused by severe wear or excessive vibration. We will not entertain any claims which fall outside these restrictions, e.g. for consequent damages.

Service Address:

PowerBox-Systems GmbH
Ludwig-Auer-Str. 5

D-86609 Donauwörth
Germany

Liability exclusion:

We are not in a position to ensure that you install and operate the **Voltage Regulator** correctly, nor that the entire radio control system has been maintained properly.

Unless otherwise prescribed by binding law, our obligation to pay compensation, regardless of the legal argument employed, is limited to the invoice amount for the products of our manufacture which were actually involved in the event.

For this reason we are unable to accept liability for loss, damages or costs which result from the use of the device, or are connected with its use in any way.

We wish you great success and pleasure with your new **Voltage Regulator** from the **PowerBox Systems** stable.

Donauwörth, December 2011





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PowerBox-Systems GmbH

certificated according to DIN EN ISO 9001:2008

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