PowerBox Systems

World Leaders in RC
Power Supply Systems

Digi-Switch

Operating Instructions

Dear customer,

Congratulations on your decision to purchase the **Digi-Switch** from our range.

This innovative product is the world's first multi-function switch system, developed and produced by **PowerBox Systems** (Modellbau-Deutsch). Designed specifically for use with modern, lightweight Lithium-Polymer cells, the unit incorporates an ultra-reliable electronic switch which provides a substantial improvement in switch security.

The robust switch housing accommodates the modern electronic switch itself, a high-performance linear IC-controlled voltage stabilization circuit and a four-stage voltage monitor (LED: green, orange, red, flashing red) designed for use with a two-cell (7.4 V) LiPo battery.

The dual connecting leads have a conductor cross-section of 0.34 mm², and are both soldered **directly** (i.e. in a straight line) to extra-wide solder pads, where they are encased in a special support adhesive for additional protection from possible vibration damage.

We recommend the **Digi-Switch** for the following applications and types of model:

- Small to medium-sized model aircraft with up to five standard-sized servos
- F3A models - for which it is the perfect solution
- Gliders with up to seven or more servos, according to servo size, model size and type of flying (thermal flying or aerobatics)
- Helicopters, electric or glow-powered, with a rotor diameter of up to 1.0 m and max. five standard servos
- RC cars - electric or glow-powered (1 : 10 to 1 : 8)
- Model boats
- Ignition systems for petrol engines designed to be operated on the voltage of a four-cell NC battery (DA, ZDZ and many others)

Operation:
The only control on the **Digi-Switch** is the push-button, which makes it extremely easy to use. All this button does is pass the switch signal to the electronic switch; the button itself has nothing to do with the actual switching of the current.

Connect a two-cell (7.40 V) Lithium-Polymer battery to the battery lead, which is fitted with a Universal connector. Take care to connect the pack **with correct polarity**.

Caution: connecting a battery with reversed polarity will destroy the switch's integral regulator IC.

When you connect the battery, the LED immediately glows green (safety circuit).
You can now connect the consumer system (receiver, ignition unit etc.) to the second connecting lead.
To switch the circuit off, hold the sensor button pressed in for about 0.5 seconds. The LED now glows orange. Immediately press the button a second time briefly. The LED goes out, and the **Digi-Switch** is switched off.
To switch the circuit on, hold the sensor button pressed in until the LED glows orange (0.5 sec.). Immediately press the button a second time briefly. The LED now glows green, and the circuit is switched on.

The process of pressing the button twice, with a precisely defined interval, eliminates the possibility of the switch being turned off accidentally, e.g. by vibration.
If the LED glows orange or red instead of green when you switch the circuit on, this indicates that the battery connected to it is not fully charged, or is even discharged. If this should occur we recommend that you recharge the LiPo pack with a suitable battery charger before using it again.

The current handling capacity of the **Digi-Switch** stated in the Specification (2 - 3A) does not relate to the switching capacity of the **Digi-Switch**, but to the capacity of the regulator when cooled with good efficiency. To ensure that the unit is cooled effectively, and is therefore able to provide its full performance, we have attached a heat-sink to the outside of the **Digi-Switch**. The switch is normally installed in the outside wall of the model, and the heat-sink is therefore constantly subjected to a flow of air when the model is in flight. The silver-colored internal heat-sink is soldered to the regulator circuit board for maximum heat transfer. The heat-sink is mounted in a recess in the housing which ensures that it is not covered completely even if the switch is installed imperfectly. In electronic terms, the **Digi-Switch** regulator and associated components are designed for up to 12 A (according to manufacturers' specifications).

If the heat-sink of the **Digi-Switch** should become very hot in use (above 60°C), you can assume that the servos installed in the model are consuming a disproportionate amount of energy. The first remedy should be to install the **Digi-Switch** in a different position in the model (fuselage side, not concealed inside the fuselage), where it is subject to a better cooling airflow. If this is not sufficient, you should consider installing our **PowerBox Sensor**, which is designed to cope with higher currents.

If the maximum regulator capacity is inadequate for your system, or if the battery voltage falls below the regulator voltage, the **Digi-Switch will not switch on!**

If you leave the **Digi-Switch** connected to the LiPo battery when it is switched off, then the unit goes into "**stand-by**" mode. The idle current in this state is around 5.0 µA, which is lower than the battery's natural rate of self-discharge. Even so, we recommend that you disconnect the LiPo battery from the switch if you know the model will not be used for a long period.

Please don't just throw away the inner packaging, as it is designed to be used as a template for marking the switch aperture on the model. Cut the opening using a knife or saw, working **slightly outside the marked line** (see photo).

Even though our product is very well protected from the effects of vibration, the **Digi-Switch** should always be mounted in a part of the model where vibration levels are relatively low.

Please note the following point:
The GRP fuselage sides of a large power model are not suitable for mounting the **Digi-Switch** - nor any other type of switch - as they are always subject to considerable vibration. You can remedy the situation by cutting a ply plate (2.5 - 3 mm thick) about 2 - 3 cm larger than the switch aperture, and gluing it over the inside of the opening.

The plate damps the vibration, and at the same time provides plenty of “meat” for the switch retaining screws to bite into.

For your receiving system power supplies we particularly recommend our own make of batteries: the **PowerBox Battery 2800** or **PowerBox Battery 1500**. These packs feature an integral electronic monitor / security circuit and charger (for 12 Volts and 110 / 220 Volts) to ensure reliable charging. They feature low-voltage monitoring, are protected in a robust case, and are supplied complete with a practical mounting frame.

During the in-house production process (these units are Made in Germany) each **Digi-Switch** undergoes a series of tests. We take the maintenance of high quality standards very seriously, and this includes bought-in items. That is why we are able to grant a **24 month guarantee** on all our battery backer and switch systems. The guarantee covers proven material faults, which will be corrected by us at no charge to you.
Misuse and maltreatment, such as reversed polarity connections, excessive voltage, damp, external mechanical influences or damage (crash damage) or inappropriate mounting (serious vibration) invalidate the guarantee.
The guarantee does not cover any additional claims, such as consequent damage. We do not accept liability for damage which is caused by the unit or its use, because we are unable to ensure that it is installed and operated in accordance with our instructions.

Specification :

Voltage range :	Two-cell LiPo battery, max. 8.40 Volt
Output voltage:	5.50 Volts (corresponding to a charged four-cell NC battery)
Regulator capacity:	2 - 3 Amps, according to cooling efficiency
Weight:	15 grammes, including cables
Temperature range :	- 10° C to + 75° C

Accessories:

- Retaining screws
- Installation template

Order No.: 6410

We wish you every success using your new **Digi-Switch**, and hope you have loads of fun with it.

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