

Entwicklung von Modellbauelektronik

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Remote Engine Kill Switch 3 v2

RC Switch for Electronic Ignitions

Description and Operating Manual

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1. Introduction

The Ignition Switch 3 has been developed for switching electronic ignitions in gas engines on or off using your RC radio system. It is suitable for all gas engines that have a battery-powered ignition.

The Ignition Switch 3 is the optimal replacement for mechanical switches.

- No wear or tear common in mechanical switches.
- Easy and safe switching on or off of the motor using your RC radio system.
- Increased safety using the fail-safe function of the RC Radio where in the event of transmission failures the engine is safely switched off and no longer pose a hazard.
- The Ignition Switch 3 can also be used for switching and operating other modules such as lights and relays.

The Ignition Switch 3 is controlled by a microcontroller and has an optocoupler to separate the electrical circuits between the receiver and ignition.

The Ignition Switch 3 can be operated in parallel to the throttle servo and therefore does not need an additional receiver channel. For this purpose, the throttle channel on the Ignition Switch 3 is connected with a servo Y cable directly to the receiver.

By comparing the switching point and switching direction, you can set the ignition switch off position when the throttle trim is decreased while idling or by switching the throttle channel with an additional mixer.

The circuit has various fail-safe options which ensure that the ignition is safely switched off in emergencies. For example, the ignition is switched off if no valid receiver signal has been received for three seconds.

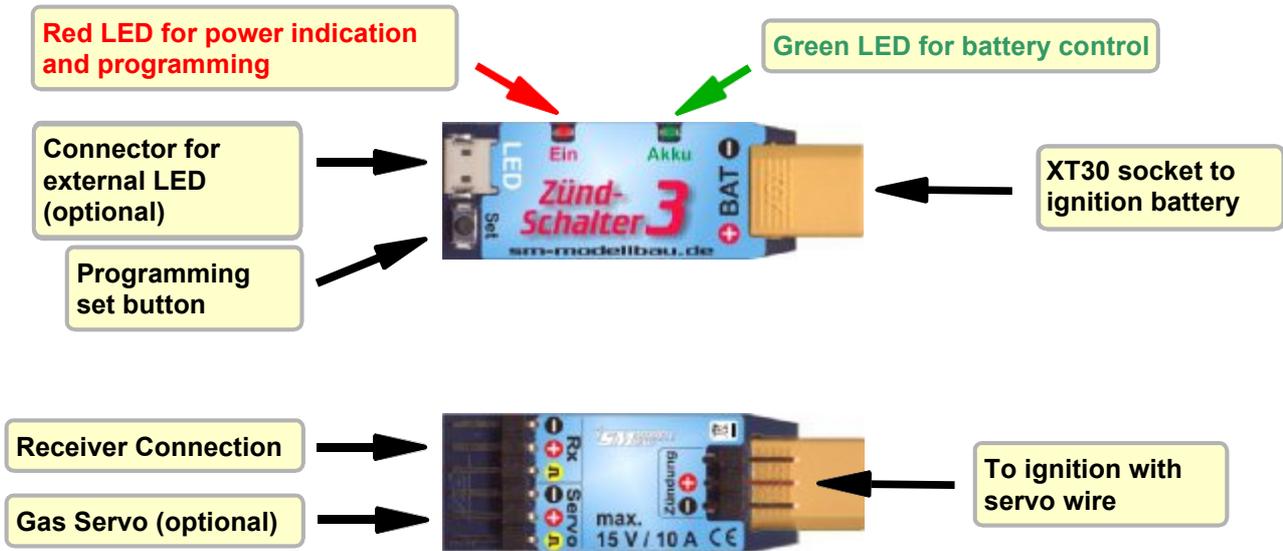
If the ignition is switched off, the Ignition Switch 3 does not draw any current from the ignition battery. The plug connection to the ignition battery only needs to be disconnected for charging.

The ignition battery can remain connected to the ignition switch 3 during charging if it is charged via a separate charging cable.

2. Technical Information

Operating Voltage:	3 - 9 Volt, also suitable for receivers with LiPo power supply
Switching Voltage:	3 - 15 Volt (3 - 10 NiCd or NiMh Cells, 1 - 3 LiPo Cells)
max. Switch Current:	5 Ampere
Power Consumption	12 mA / 2 mA from the RX Battery when switched on 6 mA / 0 mA from RX Battery when switched off
Switching Treshold:	Can be set as required. Default is 1.5ms
Switching Direction:	Can be set as required. Default is < 1.5ms)
Connections:	1 x XT30 Connector to main battery 1 1 x Patchkabel to ignition 1 x Patchkabel to receiver 1 x Servo wire to engine servo 1 x Connector for external LED
Indicators:	Green and red LED, button for teaching switching threshold and switching direction
Dimensions:	47 mm x 16 mm x 8 mm
Weight:	15 grams with all supplied cables

3. Installation



Connection to the ignition is done via the servo wire next to the XT30 connector. Many ignitions have a corresponding servo socket and can be easily connected directly.

Connection to the ignition battery is made with a XT30 connector. A corresponding XT30 connector for the battery is included. Polarity markings are imprinted on the connectors.

Connection to the receiver is made with the servo wire connected to the desired receiver channel. If the Ignition Switch 3 is operated in parallel with the throttle servo, then it is connected to the throttle channel of the receiver and the throttle servo in turn to the Ignition Switch 3.

The **external LED** can be installed in the fuselage and used as a visual indicator.

Due to the small size and weight of the Ignition Switch 3 there are no special requirements for installation. Attaching with self-adhesive Velcro tape works well. The button and the LEDs should remain visible.

4. Setup and Operation

The Ignition Switch 3 operates like a servo. It is standard delivered with a 1.5 ms pulse length which is roughly the middle position for all current remote controls. The selected receiver channel only needs to be controlled with a free channel that switches from end position to end position. It is best to leave the servo travel and neutral position in the selected channel at the default position, for example, from -100% to + 100%.

The Ignition Switch 3 has a switching hysteresis which ensures that it is always clearly switched on or off, even if the switching point is not completely reached.

Two built-in LEDs and the optional external LED, are used for function monitoring:

- ⇒ When the Ignition Switch 3 - is switched on, the red LED and the external LED flash.
- ⇒ To check that the ignition battery voltage is switched on, the green LED is switched on

4.1. Setup of Switching Point and Switching Direction

When operating the Ignition Switch 3 in parallel with the throttle servo, the switching direction should setup.

1. First, setup your throttle servo on your radio as usual.
2. Check the switching direction. The ignition must be on at full throttle and off at idle.
3. If the switching direction is correct, proceed to step 5. If this is not the case, the switching direction of the Ignition Switch 3 needs to be reversed.
4. **Reversing the switching direction:** Switch radio on, receiver off, press the set button and switch on the receiver. Release the Set button after the red LED turns on:
→ **Another lighting up of the red LED shows the successful reversal of the switching direction.**
5. **Setting the Switching Point:** Switch radio on and position the throttle and throttle trim to where the ignition needs to be switched off. (typical, throttle stick all the way back and trim in center position), Press the set button and switch the receiver on. **Keep the set button pressed:**
→ **The red LED will briefly flash four times indicating that the switching position has been recorded.**

Switching point and switching direction can be changed again at any time.

Instead of using the trim, the ignition can also be controlled using a separate switch on the radio without using an extra channel. To do this, the throttle channel (to which the Ignition Switch 3 and the throttle servo are connected) is controlled with a mix where the throttle position is set in the mix to the desired idle position. The switching point of the Ignition Switch 3 is also set to this position. The ignition can now be switched off at any position of the throttle stick by switching on the mixer with the switch without having to adjust the trim. Caution: this of course also means that the throttle servo goes to the limit so be mindful of any servo binding.



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