

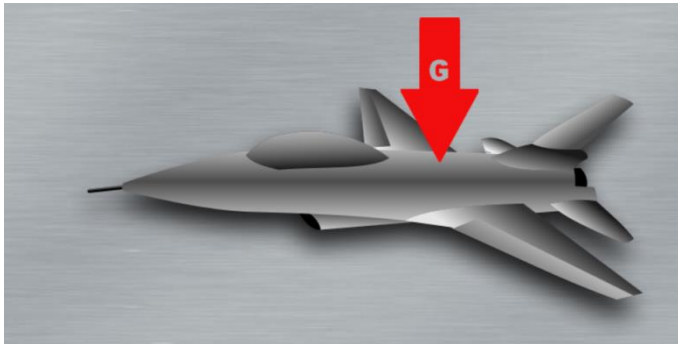
# Smoke-EL (S) Jet G-Force



## Assembly Instructions

Thank you for purchasing our **Smoke-EL** smoke device. With our **Smoke-EL** we present the world's first electrically powered smoke device for RC-model building. The **Smoke-EL** is made in Germany and produced on highly modern CNC machines and the attention to detail we use to manufacture our devices ensures longevity as well as easy handling

The GF-SmokeDriver features a MEMS sensor which measures the g-force perpendicular to the wings.



*Measuring direction of the MEMS-Sensor in the SmokeDriver (G-Force)*

The g-force that is effective on jets in tight curves or in loopings automatically activates the smoke device – and will also automatically deactivate the device as soon as the force is no longer effective. With our new GF-SmokeDriver you can therefore imitate the wake of real jets.

The force that is necessary to activate the smoke device can be configured individually. The sensor can be programmed for a threshold of 2g to 7g (1g is the acceleration by the earth's gravitation on the earth's surface:  $1g=9.81m/s$ ).

Another special feature of our smoke device is its optional magnetic valve. With this valve you can redirect the SmokeOil to the pipes behind the turbines instead of using the original pipes. As with more conventional smoke devices you can now produce smoke via the turbines.

With a central tank and just one SmokePump you thus have two smoke devices in one and you moreover need only one channel to operate them. You can purchase the magnetic valve as extra accessory. Please attach this valve with the connector labeled "valve."

### Hoppertank with sensor:

Since the activation of the smoke begins once a set threshold of the g-force is reached, an oil sensor is obligatory. The sensor will signal air in the hopper to the SmokeDriver. If the alarm goes on for more than 3 seconds, the smoke device will be shut down completely. The sensor should be connected to the "fuel" slot.

The tube connections are approximately 50cm (19.6 inches) long and can be shortened to the desired length. The middle tube uses a t-joint to connect to the pump. The other tube attaches to the pendulum in the main tank.

### The starter set

The starter set includes everything you need (except for the main tank and the battery) to launch your experience with our **Smoke-EL** (the magnetic valve is optional). The device has been designed to be mounted on the wings of the jet (at the tip or below the wing). The necessary Lipo batteries should have a capacity of 2400Ah which should be sufficient for approximately 90-120sec smoke. In this configuration you should plan to have a tank of approximately 250ml (with Center-Smoke approximately 1000ml).

**Smoke-EL** is not a child's toy!

Please read our safety warnings!



**When using the Smoke-EL, internal temperatures can reach 800°C (1472°F)**



### Mounting the Smoke-EL onto your model

The body of the **Smoke-EL** can reach temperatures of more than 100°C. Please be especially vigilant that neither cables nor tubes come into contact with the hot surfaces.

The **Smoke-EL (S) Jet** was designed to be mounted on the wings of the model. Please connect the enclosed **white** tube to the smoke pipe, since it is made of heat-resistant materials.



We recommend using a free-hanging mount with an aluminum profile. You can easily mount it with wire straps and then simply detach the whole device for cleaning purposes. We also offer this mounting set in our accessory shop.



**Please note: the housing of the smoke-tube is connected to the negative pole and therefore not potential-free**

Please install the tube for the RedOil (4mm) and a two-core cable (2-2.5mm) within the wing. The connectors which you will need for the tubes as well as the cable are included in this set. The polarity is embossed on the plugs.

The other components (battery, tank, SmokePump, and SmokeDriver) can be installed inside the hull of your plane. Please mount the tank for the RedOil at or near the gravity center of your model. Please refer to the picture below to assemble the other valves and tubes.



Since you will have to calibrate the valves once they are operating, make sure that you can reach them easily. Also note the direction of the flow.

The SmokeDriver has to be mounted in a way to ensure appropriate cooling. If your model hull is too small, it might be necessary to add additional air holes so that the airstream can cool down the SmokeDriver. Overheating might damage, and even destroy, the SmokeDriver.

The SmokeDriver will detect its mounting orientation automatically. Mounting the SmokeDriver with its 6JR-connectors pointing up is not permissible.

The connection to the RC-receiver will be achieved through the SmokeDriver cable. You will need only one free channel on the receiver. On the transmitter side, please put the channel on a three-step switch. Additionally, we recommend to mix a caliper to the channel of the three-step switch. The complete electrical cable work is detailed in the picture below (the magnetic valve is optional).



The 5mm status LED should be mounted at a clearly visible point of the model. You will achieve best results if you drill a 5mm hole.

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### Calibration and usage of the smoke device

You can easily calibrate the smoke device in minutes, and without any additional programming devices. Please refer to the attached manual for detailed instructions on how to configure the SmokeDriver.

### Path-alignment at the transmitter

The performance of the pump is regulated through the path-alignment at the transmitter. An alignment of 40-60% is usually sufficient. Please adjust the path-alignment for the used channel on your transmitter (three-step switch) so that you reach -100% in the lowest position, 0% in the middle position, and 40%-60% in the top position.

### Valve adjustment:

Each valve regulates the amount of oil for its corresponding smoke tube. Once the pump is switched on, a steady, thin flow should exit each smoke tube; make sure it is a very thin stream and not just a couple of drops. You will have to test-fly to determine the perfect amount of oil for your model. If a lot of smoke exits the smoke tube right after switching the device on, and then the smoke decreases rapidly, you are using too much oil. Reduce the flow by closing the valve for the relevant tube a little further. If the smoke is steady, but too little, open the valve a little. You have correctly adjusted the flow once a few drops of oil dribble out of the evaporators while the smoke has been on for 3-5sec.

Since soot will deposit in the evaporator while using the **Smoke-EL**, you will have to adjust the valves occasionally. If you have to fully open the valves to produce enough smoke, you should clean the smoke tubes (see cleaning advice). This will happen after using approximately 1 liter RedOil. We recommend cleaning the tubes after 10 flights with smoke.

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### Before every flight – Pre-Flight Check:





After charging the SmokeBattery and filling the oil-tank, you have to conduct a pre-flight check. Connect the SmokeBattery to the SmokeDriver and switch it to receiving. The SmokeDriver will run internal tests (LED red, yellow, and green) and will then be ready.



**Please make sure that the 3-step switch is in the lowest, -100% position – this is the only way the device will be activated.**

Push the switch to the top position to start. The pump starts working and delivers the RedOil to the smoke pipes. Let the pump run until you see a small rivulet of oil running out of the evaporators (if needed, you can regulate the amount of oil with the valves). The device is now aired and you can push the switch back to its lowest position (-100%). The smoke device is now ready for use. When using the **Smoke-EL** for the first time, adjusting the valves can take some time; please disconnect the heater from the SmokeDriver during this time

## Safety Warnings

-  When using the Smoke-EL, internal temperatures can reach 800°C
-  Using other oils than RedOil can destroy the heating elements and cause a fire within the device!
-  Only use our specifically developed RedOil.
-  Do not test the device on the ground. The missing airstream increases the danger of fire!




The housing and the smoke can reach temperature of more than 100°C

If you see any flames, turn the system off immediately!

Connect and disconnect the plugs only when the device is turned off.

Make sure that no cables, tubes, or other elements touch the Smoke-EL.

 **Using the heater without SmokeOil in the evaporators will lead to the destruction of the heating elements.**

## Warranty

The **Smoke-EL** is produced on highly modern machines and we choose our materials in respect to their longevity and precision. If you use the **Smoke-EL** as instructed you will be able to enjoy its smoke for a long time. We grant 12 months guarantee; if there is a problem please send the device to the address at the end of this manual.

### Technical Data Smoke-EL (S) Jet

weight per smoke tube.....	130g
number of evaporators.....	2 pieces
diameter.....	20mm
length.....	180mm
current consumption.....	16-40A
consumption per minute.....	100ml / 1500mAh

### Enjoy **Smoke-EL**

– the world's first electrical smoke-producing device.

Sieverstedt, Februar 2016

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