

Perun MOSFET



Manual

Perun MOSFET is an electronic circuit which protects mechanical switches in your replica. When installed, high currents used to accelerate the motor are not directed through contacts, but through a specialized MOSFET transistor. It not only increases reliability but also has a positive effect on the rate of fire, as MOSFETs have much lower resistivity than standard contacts.

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1. Technical data

Recommended power sources

Perun MOSFET works with any power source that provides voltage between 7 and 17 volts and can deliver enough current to ensure smooth cycling of the replica. Li-Po and Li-Ion batteries with nominal voltage of 7.4, 11.1 or 14.8 volts are recommended. It is also advised to use batteries with possibly high „C” parameter and capacity. This is safer for the battery, as it should not be working on the edge of its capability. In this video, we are showing why:

<https://www.youtube.com/watch?v=s8RKcly810A>

Capacity and „C” parameter also influence the rate of fire of the replica:

<https://www.youtube.com/watch?v=5hO25aPvHcU>

Compatibility with high-ROF and high-power builds

Perun MOSFET can work with even the most demanding setups, both regarding rate of fire and muzzle velocity.

Microswitches

It is not recommended to use Perun MOSFET with replicas, which use a microswitch instead of more traditional AEG contacts. That is because Perun MOSFET does not have debouncing feature and prevents the electronics from failing in case severe contact bounce appears, something that is often the case with microswitches. Examples include M249 replicas, or non-standard V2 and V3 gearboxes. In such case Perun AB++ is a recommended option.

Fuse

Never run your replica without a fuse. It protects the battery, motor, as well as the electronics. We recommend using automotive fuses with current range from 25A to 40A, as they are best suited for use in airsoft replicas.

2. Installation

Put wires together according to one of the schemes below. It is important to carefully follow the instructions below. Any deviations may result in permanent damage to the mosfet and warranty loss.

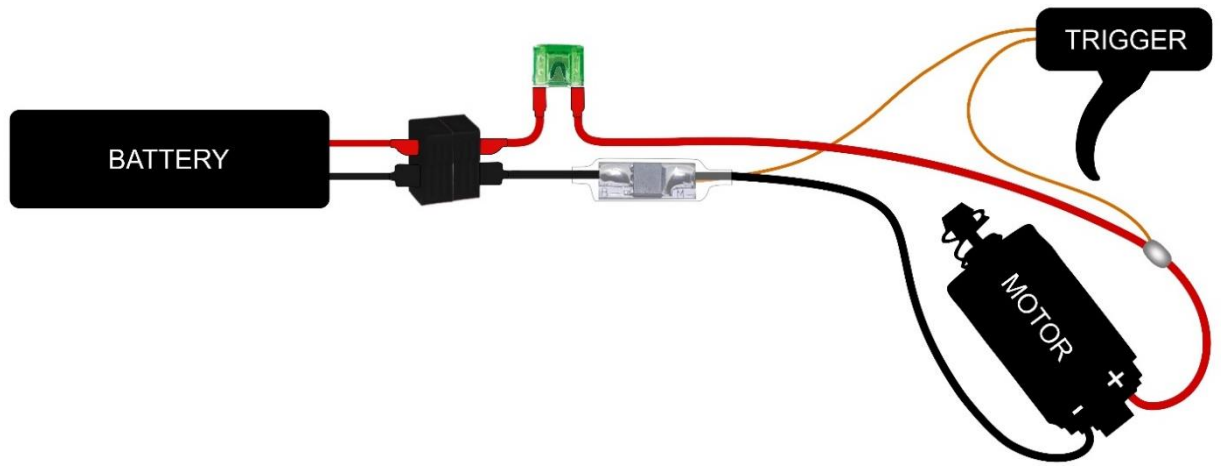
- All the soldering pads that are separate, should remain separate after soldering. Make sure you do not solder together things, that were not on the same pad before soldering.
- Make sure to insulate all exposed electrical elements that move freely or may touch other parts. Some examples of parts that need to be insulated are listed below, but in some cases that list may not be full:
 - Wire-to-wire joints (especially positive motor wire to signal wire)
 - Motor connectors
 - Battery connector soldering pads
 - Fuse connectors
 - The MOSFET itself

In some cases, it is better to also insulate the trigger contacts soldering pads for safety

- For insulation use heatshrink tubes wherever possible or insulation tape in other cases.
- Recommended soldering temperature is around 300° Celsius.
- When soldering trigger contacts, it does not matter which signal wire you connect to which soldering pad of the contacts.

Standard installation

This is the standard installation scheme. If you are using a version 2 gearbox and would like to make it easier, please have a look at the “One signal wire” scheme. Before cutting the wires, make sure you got the lengths right!



One signal wire

When installing Perun MOSFET in version 2 gearboxes, you can get rid of one signal wire and avoid making a wire-to-wire connection, that might be difficult to do properly, if you are not experienced in soldering. The other benefit is, that there is only one wire passing below the motor gear and no stiff joints between the fuse and the contacts.

Follow these steps:

1. Lead the positive motor wire (red, thicker one) from the battery to the contacts.
2. Remove a fragment of the insulation in mid of the positive motor wire (**without cutting it into two pieces**) and solder it to one of the soldering pads on the trigger contacts.
3. Channel the positive motor wire back and further to the motor.

