

Manual for Kill-Switch (Emergency off)



Cord is not included

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Description and Connection



The Kill Switch comes in two parts: a magnetically activated switch with electrical connectors and a strong magnet.

The switch contact closes when a sufficiently strong magnet resides close to the switch and opens when the magnet is removed.

If the magnet is fixed to the driver with an emergency rip cord the magnetic switch can be used as an emergency switch off.

To do so, the switch has to be inserted in series into the electrical circuit that switches the relay for the motor current.

Normally this is the ignition circuit, where the magnetic switch is connected in series to the main switch (usually the ignition key switch).

As an example the EVO1 series from Quantya® is already equipped with a thermal motor protection which is connected in series to the ignition key switch. The magnetic kill switch may be inserted where the thermal switch is connected to the cable harness. This place usually can be found underneath the tank cover of a Quantya® EVO1 series bike.



Cord is not included

WARNING!

- Take care that the motor protection circuit keeps connected properly and works reliably
- Maximum switching power of the kill switch of 10 watts must not exceeded

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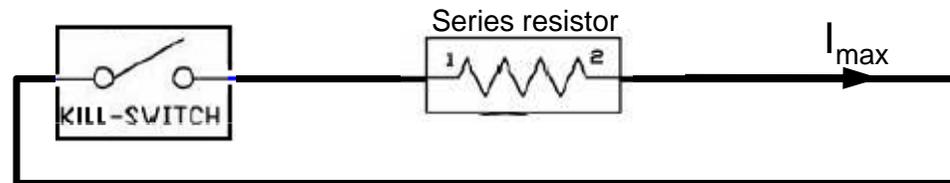
Important: Limitation of switching power



The maximum switching power of the kill switch is

$$P_{\max} = 10 \text{ W} = U_{\max, \text{ at opened switch}} * I_{\max, \text{ at closed switch}}$$

→ The maximum possible current I_{\max} has to be limited by a series resistor to prevent the kill switch from being damaged and to ensure the emergency off functionality.



Shown below are the required series resistors for typical batterie types:

Battery - Type	Maximum voltage	Maximum current I_{\max}	Serie resistor
48 V	60 V	167 mA	360 Ohm / 10 Watt *)
72 V	90 V	111 mA	810 Ohm / 10 Watt *)
96 V	120 V	83 mA	1,44 kOhm / 10 Watt *)

*) Depending on the internal resistance of connected devices (e.g. Relais, Solenoid, ...) the required current I_{\max} is smaller than listed in the table and thus series resistors with smaller power values can be used .

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Mounting Instructions



The magnetic switch is fixed to the handle bar with two cable straps. For good performance find a place close to the clamps of the armatures.

The **position of the switch** has to be chosen such that the contact **closes reliably** when the magnet is in place at its anchor point and **opens reliably** when the magnet is pulled off.

The anchor point for the magnet may be an armature part made of iron, e.g. a small plate, an armature clamp or a screw head of sufficient size.

The magnet is fixed to the wrist of the driver with a flexible joint (cord or spiral cable) and is placed on the anchor point to make the vehicle ready to go

If the magnet is pulled off the anchor point, e.g. during an accident, the magnetic switch contact opens and the motor is switched off immediately.



WARNING! The iron parts of the anchor point may themselves become magnetic after some time and as a consequence obstruct that the magnetic switch opens when pulling off the magnet. In this case the magnetic switch has to be repositioned as described above so that it opens reliably.

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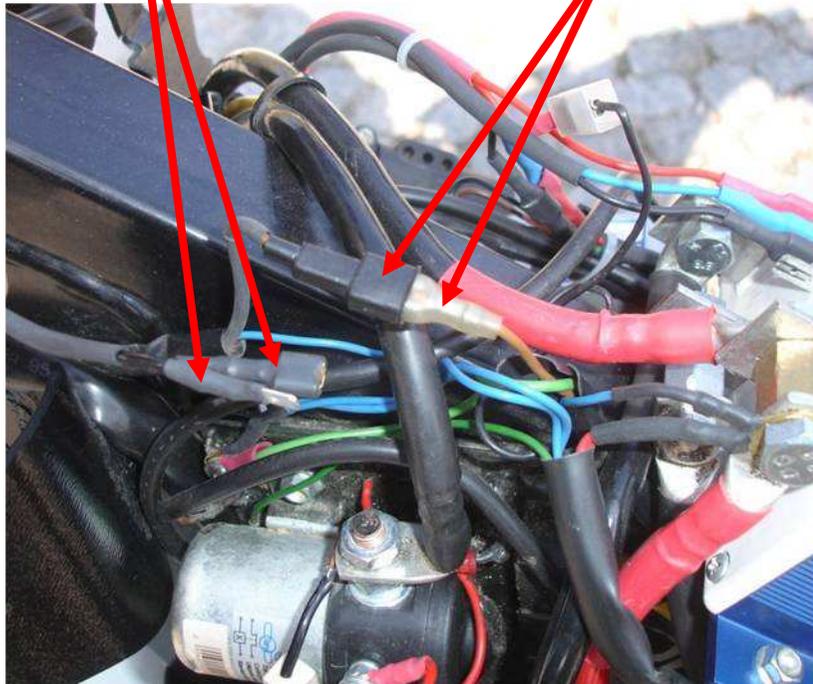
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Connecting to Quantya® EVO1



Connectors of the kill switch



Connection of the motor protection switch of the Quantya® EVO1-series. The cable of the thermal switch is connected to the key switch connector.

Open the connection and insert the magnetic switch.



WARNING! Take care that the motor protection circuit keeps connected properly and works reliably.

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Safety Instructions



- When using the magnetic switch as emergency switch off function, make sure that it is connected in series into the electrical circuit that switches the relay for the motor current.
Take care that the maximum switching power won't be exceeded. If necessary a series resistor is required to limit the current and power.
- Check each time before using the vehicle, if the switch reliably opens when pulling the magnet off the anchor point. This is important to ensure reliably switching off the motor in case of emergency
- The iron parts of the anchor point may themselves become magnetic after some time and as a consequence obstruct that the magnetic switch opens when pulling off the magnet. In this case the magnetic switch has to be repositioned so that it opens reliably.
- It has to be provided securely that the emergency rip cord can not get entangled in the vehicle and thus inhibits a pulling off of the magnet. The emergency switch off function will be inhibited and there is additional danger of injury to hand, wrist or arm.

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