

YGE 200 HV FAI

Speed controller for Pylon and Hotliner

Technical data:

- The max. Full throttle current is 200A for 30 seconds
- 4 to 10s LiPo, with low voltage detection.
- Low voltage detection can be switched off.
- Opto-couplers: Operation with receiver battery. (3 ... 9V)
- Programmable soft start.
- The part-load ability meets the requirements for Hotliner. (100A for 5 sec)
- Automatic timing, or adjustable in 6 steps.
- EMK brake adjustable in 3 steps. (smooth 0.3s, middle 0.2s, hard 0.1s)
- Clock frequency: 8 to 16 kHz
- Speed limit: 240,000 RPM (2-pole)
- Over temperature / over-load warning
- Built-in anti-flash: Reduces connection sparking.
- Dimensions in mm overall: 74 x 32 x 18
- Weight in grams without / with cable: 77 / 119
- Cable cross section: 6² / 6²
- Programming with the ProgCard II

Start-up:

When connecting the battery you will hear 3 descending tones, with the connected motor acting as a signal transducer.

With 4 to 6s Lipo a number of tones follows according to the number of cells. With higher cell count packs (7 to 10s Lipo) 2 higher and 2 lower tones follow. Then follow 3 ascending tones indicating the correct stop position of the transmitter, and the controller is ready.

If the motor rotation is wrong, it is simply reversed by swapping two motor wires.

Use only tight-fitting and clean gold connectors on the battery-and motor side. The 5.5 mm or 6mm systems have been very successful. Make sure the battery is connected by polarized plugs and sockets. Replace worn or oxidized plugs and sockets because only and tight contacts ensure a high current flow, protect the regulator from dangerous voltage spikes, and avoid interference.

In the FAI types the cables to the motor are usually cut to a minimum and directly soldered. On the other side the total line length, from the controller to the battery, for all types should not exceed 20 cm. If long cables cannot be avoided, every 20 cm a 330µF / 50V Low ESR capacitor should be soldered into the line, or add our Capacitor Module YGE Cap's Type 7, Similarly the motor cables can be extended. In this case twist or braid the 3 wires to minimise radiation of interference.

Caution: incorrect battery polarity leads to serious damage and voids your warranty!

General Settings

The controller has a fixed throttle curve so that the stop and full throttle points of all major systems connect simply. The servo way for throttle range should be at the default value ($\pm 100\%$), the centre point to neutral, and throttle trim active on all programmable systems. With some transmitter types, this may need to be adjusted. The channel for the throttle should be set so the motor is ready one notch before stick position Stop, and the motor is running at full throttle one notch before stick position Full Throttle. As a check the LED is completely off at full power.

As delivered, the timing is set to 18 °, the average brake is engaged, and the under voltage detection on Lipo mode set to 3.1V.

If during running speed fluctuations are noticed (pumping or squeaking) the timing needs to be increased. If no improvement can be obtained by 30 ° the motor is overloaded. Here a smaller propeller, one cell smaller battery or a more powerful motor may help. However 2 repeating tones after the motor stops, indicates the battery voltage is on the set value. You may choose to set the under-voltage detection to 3.0 or 2.9 volts per cell. If there is no further improvement, the battery may be empty or too weak, the cables are too long or too thin, or a connector not in good condition. With active brake, you can hear these alert sounds only in the windmilling position. This is on the throttle channel the small area between the brake and engine start. You get there by giving about 2 notches on the stick or set the trim high and briefly give gas.

Timing can be set according to the following policy if automatic timing is not desired.
Inrunner 0 to 12 °
Outrunner 18 to 30 °

If your motor manufacturer has timing recommendations, it is preferable to use it. Basically, the higher the timing the higher is the full throttle rpm. If changes are desired, you make these with the ProgCard II.

There is the possibility of doing the setup with the transmitter throttle stick, however, this is not further explained here. The manual for this is available at www.yge.de under the download section. Please note that the full functionality is only possible using ProgCard II.

If during a normal start you accidentally go into the programming mode (turned on with the stick at full throttle), simply disconnect the battery, move the transmitter to Stop, and plug the battery back on. Thus you will adjust nothing.

Lipo protection / undervoltage protection:

By constant load voltage adjustment it is possible to fly further with less gas because the battery recovers at a lower load. However, if the voltage continues to fall, the motor is switched off.

Over temperature / over-load warning:

If the speed controller reaches a high temperature during operation, due to overloading or lack of cooling, after landing or motor stop a warning signal is output. (3 tones repeating). The motor is not turned off in the air for now! Only when the temperature reaches a critical threshold is shut off reached.

The part-load operation between half and almost full power is the difficult area for a controller. Then there is the exposure to increasingly long flight times with Lipos. If you get repeated temperature warning you need to provide better cooling and/or a lower current. This display is to be regarded as an overload warning and **not as normal operating condition**. At high temperatures the components are highly stressed, leading to a reduction the life span.

You get a better cooling not only by sizeable air intake, but most important is a slightly larger outlet to avoid heat storage. Lower current can be achieved by a smaller propeller or 1 cell less in the battery.

Opto-coupler:

The control input has a voltage range from 3v to 9v and thus is compatible with 2s Lipo.

When using an extra BEC the galvanic separation of the opto-coupler is bypassed, so any interference is passed to the receiver again. Here we suggest use of our 'core ring' for subsequent filtering.

Caution:

Basically, make sure that no objects are in the rotating arc of the propeller while the battery is connected. The operation of this controller is therefore allowed only in situations in which property and personal injury are excluded. A damaged speed controller (for example, by breakage, reverse polarity, or moisture) must not be used under any circumstances. Otherwise, it can malfunction at a later date or with subsequent errors.

The speed controller must be powered from batteries; operation from power supply devices is not permitted.

Trouble shooting:

2 tones / flashes: under voltage detection

3 tones / flashes: temperature Warning

5 tones / flashes: receiver signal

6 tones / flashes: start up failed

The controller provides indication of an error that occurred in operation both acoustically via the motor and visually via a flashing sequence of the LED. The errors 2 and 3 are indicated after the motor stops, however they are not stored as long as the controller did not completely shut down (Under-voltage threshold reached / Temperature warning). When an error caused shutdown, this is not deleted even after a power reset.

The deletion can only be made deliberately by connecting the battery with the (throttle) stick at full power and, after an interval following a tone, disconnecting again. Please keep the stick on full throttle, otherwise you get into the RC setup. Similarly, an error can be deleted with the activation of the ProgCard.

With Brake activated the deletion of an error takes place only after a power reset or in windmill - position.

Warranty:

YGE give 24 months warranty on this speed controller. All other requirements are ruled out. This is especially true for non-life damages caused by the failure or malfunction. For property damage, personal injury, and their consequences arising from our supply or delivery, we assume no liability since we have no possible control over the handling and use.
