

# YGE 300 FAI

## pylon racing and hot liners F5F & F5B

### Technical data:

- The specified current is the maximum continuous full power current with adequate cooling.
- 3 to 6s LiPo, with under voltage protection by power reduction.
- disconnectable under voltage detection.
- Active free-wheel
- Automatic or 6 step adjustable timing.
- 3 steps adjustable back EMF brake.
- Switching rate: 8 to 16 kHz.
- Speed limit: 240,000 RPM (2-Pole motors).
- Temperature and overload warning.
- Anti sparking circuit: reduces connection sparkles.
- Programming with the YGE programming card.

Type	300 FAI
Overall dimensions in mm	72 x 32 x 19
Weight in g without/with wires	81/114
Cable diameter Battery/Motor	6 <sup>2</sup> / 6 <sup>2</sup>

### Initial setup:

After connecting the battery (red = positiv, black = neg.) you hear 3 descending tones. Subsequently, follows a number of beeps according to the cell number of the connected Lipo battery. In case the transmitter stick is in throttle off, you hear now 3 ascending tones.

You need to connect the motor to hear the beeps, as it is the motor itself which acts as a speaker.

--- The ESC is ready for use. ---

If the motor turns in the wrong direction, exchange simply 2 of the 3 motor wires.

Use only clean and tight gold connectors for motor and battery. Pay attention for the battery connector to choose a polarity safe system. Exchange low-friction or oxidized plugs and sockets. Because only tight sitting contacts will ensure a high current flow, protect the speed controller against dangerous voltage peaks and avoid disturbances. Take 5.5 or 6mm PK gold connectors, because the 3.5 and 4mm connectors are only certified up to 80A. Here the motor wires are usually shortened to the minimum and soldered directly to the motor. With all ESC types, the entire wire length, from the controller to the battery, may not exceed 25cm. If longer wires are necessary, a Low ESR switching capacitor of 680µF/25V should be soldered between pos. and neg. wires every 20cm. You might also consider using our capacitor module YGE Cap's typ 5.

**Note: Inverting the Battery polarity leads to heavy damage and to the loss of warranty!!!**

### General Settings:

The speed controller has a fixed throttle curve setting, so that with all usual transmitters the stop and full power points are linearly connected. With all programmable transmitters, the throttle range should be set to default (±100%), the center

point set to zero and throttle trim enabled. Nevertheless, with some transmitter types the range needs to be adjusted. For that the throttle endpoints have to be set so that one notch before lowest stick position the motor is stopped and that one notch before full power the motor is actually at full power. Full power is indicated by the LED that is completely turned off.

On delivery the Timing is adjusted to 18°, brake is set to mid level, and the under voltage recognition adjusted to Lipo mode 3.1 V.

If during spin up rpm variations (wowing or erratic sound) are experienced, the timing must be increased. If no improvement can be obtained at 30°, then the motor is overloaded. Here a smaller propeller, a one cell smaller battery or a stronger motor will help. If after motor stop you hear 2 beeps repeating, it means that the battery voltage dropped down below the setting value. Eventually try a cutoff voltage of 2.9 or 3.0V per cell. If there is still no improvement, then the battery is discharged or too weak, the wires are too long or too small or a connector is out of order. With an active brake you can hear these warning tones only in windmill position. This is the small range on the throttle stick between brake and motor start. You can reach this position with 2 notches or with a high trim and a short gas start.

If no automatic timing is wished, it can be adjusted according to the following guideline.

Inrunner	0 to 12°
Outrunner	18 to 30°

If your motor manufacturer indicates a timing recommendation, it is of course preferable to use it.

Basic rule: the higher the timing the higher the full power rpm.

The easiest to make these changes is the ProgCard. There is also the possibility to perform the setup with the transmitter; however it will not be explained here. You will find it in the RC-setup manual under [www.yge.de](http://www.yge.de) in the Download area.

Please notice that the complete features set can only be reached through the YGE programming card.

In case you get inadvertently in the programming mode during a normal start-up (throttle stick at full power), simply disconnect the battery, lower the stick to stop, and connect the battery again. Thus you won't modify the adjustments.

#### **Lipo protection / under-voltage protection:**

Because of the tension driven load adjustment it is possible to fly further with low power, since the battery recovers with smaller load. However, if the tension continues to break in, the motor is switched off.

#### **Temperature / overload warning:**

If the speed controller's temperature exceeds its limit, because of overloading or lack of cooling, after landing and/or motor stop, a warning signal is issued (3 Beeps in the interval). But the motor is **not switched off** in flight unless the temperature becomes extremely critical, then the motor switched off.

The partial load operation between half and nearly full power is the most difficult area for an ESC. In addition the running time becomes longer and longer with the Lipo technology. If it should come to repeated temperature warnings, better cooling should be provided or current should be reduced. These warnings are to be regarded as overload warnings and **not as normal operating condition**. Because at high temperature the components are strongly stressed, this leads to a decreased life time.

You achieve a better cooling not only through sufficiently dimensioned air intake, but even more efficiently through a larger air outtake, in order to avoid a heat accumulation.

You achieve smaller currents by using a smaller propeller or a one cell smaller battery.

#### **Attention:**

Basically it is important to make sure that no objects are within the propeller circle when batteries are connected. The use of this speed controller is therefore allowed only in situations where material and personal damage can be excluded. A damaged governor (e.g. broken, damaged by polarity inversion or humidity) should not be reused under any circumstances. Otherwise, malfunctions or failures might occur subsequently.

The ESC should only be powered by batteries, the use of power supplies is not allowed.

#### **Trouble shooting:**

- 2 Beeps/flashes: Under-voltage identification
- 3 Beeps/flashes: Power-part temperature rise warning
- 5 Beeps/flashes: Receiver signals failed
- 6 Beeps/flashes: start up failed

The ESC signals any error that happened during flight acoustically (motor) and optically with a blinking LED code.

Errors 2 and 3 are signaled after motor stop, but aren't stored as long as the ESC didn't cut off completely (low voltage / temperature warning). In case the error led to a complete cut off, then it is not cleared by a tension RESET. The deletion can take place only on purpose by connecting the battery with the stick at full power and/or with 100% throttle pre-selection (throttle curve), and disconnecting it again after the interval beep. Please you leave the stick at full power, while disconnecting, otherwise you activate the RC-Setup.

Likewise the errors can be cleared by activating the ProgCard.

With an activated brake, the error is only signaled after a tension reset or in wind milling position.

#### **Warranty:**

We give 6 months warranty on this speedcontroller. Any other requirements are excluded. That applies in particular to requirements for damage or injuries compensation due to malfunction or failure. For damages to property or personal injuries and their consequences, which developed from our supply or craftsmanship, we do not take any liability, since we have no control on handling and use.

