

Basic data about FES operation!

1. Insert fully charged batteries into fuselage, connect red + wire to + terminal of 1st batterie and black – wire to – terminal of 2nd batterie.
Be careful to avoid any short circuit, between batteries terminals. Always use protection covers for terminals.
Use **only insulated nr 13 key** for tightening of brass nuts. Tight nuts with care and not too high moment!
2. Insert fiberglass fixture over batterie boxes and tight them down with screws.
3. Before flight insert power fuse between free + and – terminals.
Use **only insulated nr 13 key** for tightening of brass nuts. Tight nuts with care and not too high moment!

(At connection of power fuse Green light on DC/DC converter should light ON after 2 seconds. If voltage on 12V batterie drop bellow 12,3V DC/DC converter, will charge it to preset voltage (12.3-12.4V). If voltage of main batteries is bellow 75V DC/DC converter will stop operating.)

Before flight is recommended to do short test run of motor operation. Be sure that no one is around propeller zone, in front of glider or in line of propeller.

There is safety switch which prevent running motor with open canopy

Caution! Always stop motor completely before opening canopy. At opening or closing of canopy, propeller must be always in nearly horizontal position, otherwise you might broken propeller blades of canopy glass.

Caution! During motor run ventilation must be fully opened, (ventilation lever pushed fully forward - which is just opposite to what you might be used to) otherwise motor will quickly reached high temperature, and warning for high motor temperature will occur on display together with acoustic warning - buzzer.

Operation in flight:

Do not use motor in flight below 150m above ground level.

Before motor operation **open ventilation** fully. (Ventilation lever must be pushed fully forward)

1. Turn on Switch 1 to power on FCU instrument.

2. Turn on Power switch (under red safety cover)

This will give high power supply to controller for its operation, and simultaneously main contactor (12V) will connect main batteries with controller.

Colling ventilators for controller will also start running.

Check Voltage of Batteries on LCD color display. With fully charged batteries voltage should be slightly above:

For 12 cells (12S) battery pack: 100V. (4.17V per cell x 24=100,08V) LAK

For 14 cells (14S) battery pack: 116V. (4.17V per cell x 28=116,76V) Silent 2

Do not run engine if Voltage is equal or lower than:

75V (3,2 x 24=76,8V) – **valid for 12S**

90V (3,2 x 28=89,6V) – **valid for 14S**

3. Check if there is green LED ON. Proceed with nr. 4
(If there is no green LED or red LED is blinking engine will not run.)

4. Rotate Throttle button in clockwise direction gently. Motor should start rotating
Airspeed should be around 90-100km/h.
Use about 4kW of power (about 40A of current at 100V) for horizontal flight, and more for climbing. Max climb rate is around 1,6 m/s with fully charged batteries, at 160A continuously. More than 160A is allowed only for short time (max current is around 230A) maximum for 1 minute!

Do not use high power settings at lower voltages; this means below
12S-80V
14S-95V

Try to fly as much as possible on lower power settings as this will provide you most efficient operation. Maximum motor running time will be then around 1 hour, at 95km/h which gives you range of about 100km.
If you are using higher power settings, then motor running time could be only 10-15 minutes. Maximum altitude gain is then around 1100m, depending on weight of sailplane.

Reduce power in weak thermal, and use more power in downdrafts.

5. To stop propeller reduce RPM and rotate Throttle button counter clockwise. Motor will start braking (using regeneration braking), until propeller is stopped and folded back to fuselage contour. Ideal position is so that blades are not visible through canopy. However if one blade is visible run engine shortly and stop it again until blades are not visible. Sometimes motor will stop in perfect position in first try, sometimes you will need to run motor again and stop it until propeller is in suitable position.
It is recommended before landing propeller should not be visible, as then you are certain that blades will not be damaged in case of too high braking on ground, belly landing or similar.

6. Turn off Power switch (under red safety cover). FCU can be turned on during all flight.

7. After landing: If motor was used during flight, and batteries were discharged, take batteries out for recharging.

Important!

- Always turn off FCU instrument and all other instruments (Flight computer, Radio, -- Transponder, PDA...), before removing Power fuse.
- Always remove Power fuse before removing + or – supply cable!
- Immediately put safety covers on battery terminals to avoid potential short circuit.
- Check voltage of each cell with Digital V-meter, on balancer connector.

If there is big difference in Voltage level between one or more cells

8. For charging of batteries use only supplied charger (KOP1001 BMS version), together with supplied BMS balancer.

Read carefully instruction manual for charger and BMS before use!

Warning!

Never use any other charges or ballancers, to charge your batteries, as this could be extremely danger, and could damage you and your batteries. Always charge batteries outside of your sailplane!

Valid for FCU instrument version V 1.01 and V 2.01, produced by LX NAV d.o.o. company, Kidriceva 24a 3000 Celje Slovenia, www.lxnav.com

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