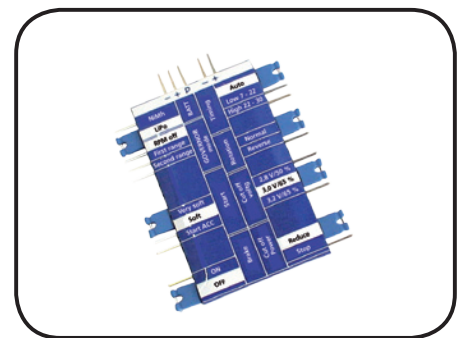
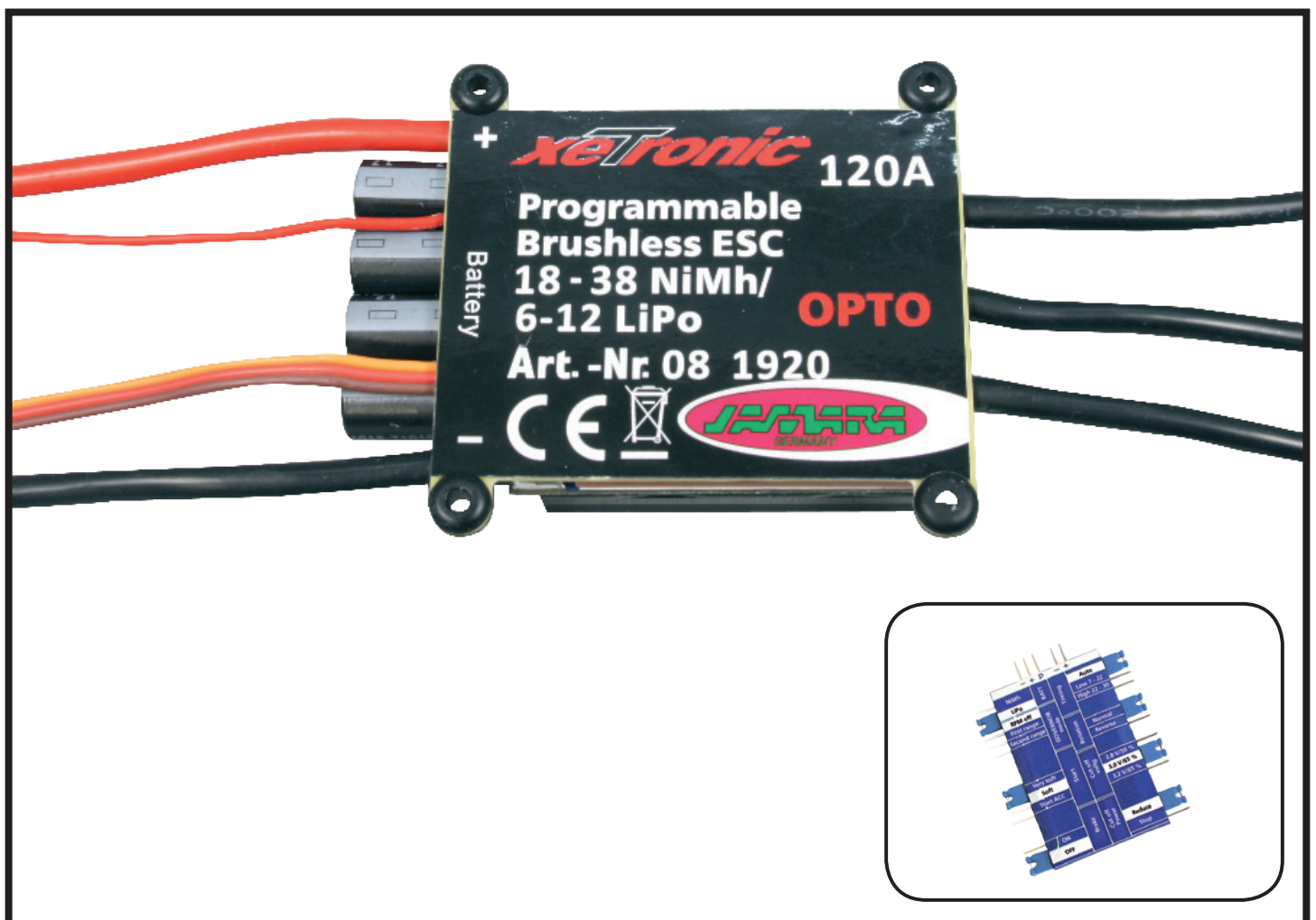




# Xetronic

Instructions

	<b>Ord. No.</b>		<b>Ord. No.</b>
3 A	08 1904	60 A	08 1960
6 A	08 1906	70 A	08 1970
12 A	08 1912	85 A	08 1985
25 A	08 1925	85 A / 5 A BEC	08 1986
40 A	08 1940	100 A opto	08 1900
50 A	08 1950	120 A opto	08 1920



GB



# Contents

Safety Information	2	Connection Diagram	4
General Information	2	Using Your ESC for the First Time	4/5
Certificate of Conformity	3	Programming Your ESC	5/6
Disposal Instructions	3	Programming options	6
General Description	3	Problem Solving	7/8
Technical Details	3		

## Safety Information

Please be aware that at any time when a power supply (battery) is connected to the ESC that if an electric motor is also connected that it may begin to rotate unexpectedly. This may be due to a technical failure, the lack of a signal if the transmitter is turned off or simply by a Glitch. If the motor begins to spin there will be the danger that injury may result from contact with a propeller or rotor blades.

For this reason it is imperative that everything and everyone be kept well away from anything connected to the motor which may begin to rotate in the event of a failure. High Voltage/Current draw setups will be particularly dangerous. The high Current Draw of which these ESC's are capable may also generate a large amount of heat which could cause a fire or injury.

Xetronic controllers have been exclusively designed for operating with battery packs and should never be connected to an AC/DC Power Supply. Protect the ESC from vibration, dust and moisture as well as ensuring that the unit is not exposed to extreme temperatures. Always observe the battery pack manufactures recommendations and regularly inspect the unit for mechanical damage. Do not modify the unit in any way, this includes the connecting cables which should never be lengthened.

The unit's input cables are not protected against crossed polarity, please observe the wiring diagram in these instructions. If the unit is connected to a power source with the incorrect polarity, it will be irreparably damaged. The connecting cables are colour coded and the red cable must always be connected to the plus pole of the battery pack and the black cable must always be connected to the minus pole. If the engine rotates in the wrong direction, simply change any 2 of the 3 engine connection wires. Brushless engines should never be connected directly to a battery pack. Xetronic ESC's are fitted with a Safe Start system, but this should never be relied upon and care should be taken whenever you operate the unit.

### The following should be observed when operating the ESC:

- \* Never exceed the amount of cells as shown under the section Technical Details.
- \* Always allow the ESC to cool down completely before operating it again.
- \* Remove the battery pack from the model immediately after use.
- \* Always switch the transmitter on first and then the receiver (ESC). Switch off in the opposite order.
- \* Use high quality plugs and sockets to connect battery packs and the motor.
- \* Ensure that the ESC is adequately cooled, never wrap it in foam.
- \* The unit must not be changed or modified in any way. Doing so will invalidate the guarantee.

## General Information

As the company JAMARA e. K. has no influence over the use, maintenance or conditions under which our products will operate, we accept no responsibility for any damage caused by it of a physical, financial or theoretical nature. JAMARA Modelltechnik will accept no claim against it which results directly or indirectly from the operation or use of its products.

Your Statutory Rights apply, any claim made against us will be based solely on the retail price of the product, and limited to the model only. This will not apply if we are proved to be legally responsible or when gross negligence can be proved.

# Certificate of Conformity

Certificate of Conformity and use in accordance with European Directive 'Electromagnetic Compatibility'. JAMARA hereby declare that Xetronic ESC's follow the regulations and requirements as well as any other relevant directives of the EEC directive 2004/108/EG

Please direct any queries that you may have regarding conformity to our service department at:

**Jamara e. K.**  
**Inh. Manuel Natterer**  
**Am Lauerbühl 5**  
**DE-88317 Aichstetten**  
**Tel. +49 (0) 7565/9412-0**  
**Fax +49 (0) 7565/9412-23**  
**www.jamara.com - info@jamara.com**

Further information can also be found at:  
**www.neuershop.jamara.com/Conformity**

# Disposal Instructions



All parts of this model should be disposed of correctly, in particular electronic components may be subject to local restrictions. Your dealer will advise you.

## General Description

By purchasing a Jamara Xetronic ESC you have chosen a High-End Micro Processor driven Controller. These newly developed units are based on the latest technical knowledge. As a result they are of the latest standards and offer highest power outputs at the lowest weight and size.

Xetronic ESC's are fitted with a powerful BEC system which means that even Aerobatic models fitted with high current draw servos can be safely flown. The BEC delivers a constant voltage to the servos, even when several servos are moving at once so they are safe to use with 3D Helicopters.

Over and above this Xetronic ESC's boast the following features:

- \* Extremely low internal resistance
- \* Linear Throttle control
- \* Safe operation monitored by an accurate Temperature Sensor
- \* Engine switch off if the signal is lost
- \* Accidental engine start protection
- \* A wide range of features easily programmable via the well structured Software
- \* Easily programmed via the Programming Card (available separately)

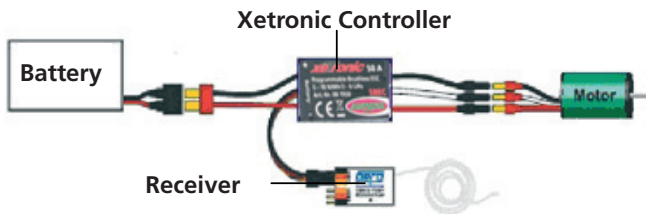
## Technical Details

### Xetronic Electronic Speed Controllers

Type	Ord. No	Nominal Current	Max. Current	Cells NiMH/NiCd	Cells LI-ion/LiPo	Weight g	BEC	Size mm
Xetronic 3 A 1 - 3 S	08 1904	3 A	4 A	2 - 10 NC	1 - 3 LiPo	4	1 A	12 x 17 x 4
Xetronic 6 A	08 1906	6 A	8 A	5 - 10 NC	2 - 3 LiPo	5	800 mAh	13 x 21 x 4
Xetronic 12 A	08 1912	12 A	16 A	5 - 10 NC	2 - 3 LiPo	10	5 V / 1 A	21 x 22 x 4
Xetronic 25 A	08 1925	25 A	35 A	5 - 10 NC	2 - 3 LiPo	20	5 V / 2 A	23 x 33 x 6
Xetronic 40 A	08 1940	40 A	60 A	5 - 18 NC	2 - 6 LiPo	30	5,5 V / 4 A	23 x 52 x 6
Xetronic 50 A	08 1950	50 A	80 A	5 - 18 NC	2 - 6 LiPo	30	5,5 V / 4 A	23 x 52 x 6
Xetronic 60 A	08 1960	60 A	85 A	5 - 18 NC	2 - 6 LiPo	35	5,5 V / 4 A	23 x 52 x 10
Xetronic 70 A	08 1970	70 A	90 A	5 - 18 NC	2 - 6 LiPo	40	5,5 V / 4 A	23 x 52 x 10
Xetronic 85 A	08 1985	85 A	100 A	5 - 18 NC	2 - 6 LiPo	47	5,5 V / 4 A	34 x 52 x 14
Xetronic 85 A SBEC	08 1986	85 A		5 - 18 NC	2 - 6 LiPo	56	5,5 V / 5 A	34 x 62 x 14
Xetronic 100 A opto	08 1900	100 A	120 A	18 - 38 NC	6 - 12 LiPo	75		34 x 52 x 20
Xetronic 120 A opto	08 1920	120 A	150 A	18 - 38 NC	6 - 12 LiPo	125		55 x 70 x 17

# Connection Diagram

The three motor connecting cables can either be soldered directly to the motor cables or attached using high quality connectors. In both cases ensure that all soldered joints are sound. The battery pack must always be connected using a plug/socket system, ensure that you use a system that protects against cross polarity and provide a safe and secure connection. The battery connection cables must not exceed 15 cm. Please refer to the diagram below.



- \* Securely solder the engine cables to either the ESC or to high quality connectors
- \* Solder the battery connectors securely onto the battery and ESC
- \* Use Heat Shrink to insulate all joints
- \* Plug the ESC into the receiver, ensure that it is plugged into the throttle output of the receiver
- \* Check again that the battery connectors are correctly poled. The red cable must be connected to the plus (+) pole of the battery and the black cable to the minus (-) pole. Failure to connect the battery will result in the ESC being irreparably damaged, this is not covered by the guarantee. You are responsible for correctly connecting the ESC.

## Using Your ESC for the First Time

Before using the ESC for the first time, check the polarity of the battery connectors once again.

If the unit fails to activate in working mode when you operate it for the first time you will need to calibrate the throttle stick.

If the ESC detects a problem on starting, it will indicate what the problem is by omitting a series of bleeps.

- \*\*\*\*\* A continuous tone will indicate that the throttle stick is not in the 'stop' position.
- \* \* \* \* \* A single bleep followed by a pause of one second indicates that the voltage is outside the limits as listed in the Technical Details.
- \* \* \* \* \* A single bleep followed by a short pause indicates that the receiver is not receiving a clean signal.

Please note that the ESC is fitted with various safety features. One of the features is that if the internal temperature reaches more than 110°C the output power will be reduced to allow the ECS to cool down. Ensure that the ESC is mounted in such a way that it gets plenty of airflow around it. If the receiver receives any form of interference or fails, the ESC will also cut the power to the motor.

### Calibrating the throttle stick

Before use, the ESC must be calibrated to the throttle stick. This will 'teach' the unit the range of the throttle channel and where the end points are and the setting will be stored by the ESC.

To carry out this procedure take the following action:

1. Switch the transmitter on and move the throttle stick to the full throttle position.
2. Connect the battery and wait for approximately 2 seconds until an acoustic signal is heard. Immediately after the tone, move the throttle stick to the 'stop' of low throttle position. A tone will sound again to indicate that the unit has registered the positions and stored them.

### Operating the ESC Normally

To operate the unit normally proceed as follows:

1. Switch on the transmitter and move the throttle stick to the low (off) position.
2. Connect the Flight pack (battery).
3. The Xetronic ESC will indicate that it is correctly connected and has 'armed' itself by omitting 2 sets of acoustic signals.

The first group of signals will indicate how many cells the ESC has detected. Three bleeps (\* \* \*) indicate that a 3 cell pack is connected, four (\* \* \* \*) indicate a 4 cell pack and so on. The second set of signals will tell the operator if the brake is active or not. One bleep (\*) means that the brake is active and two (\* \*) will indicate that the brake is inactive.

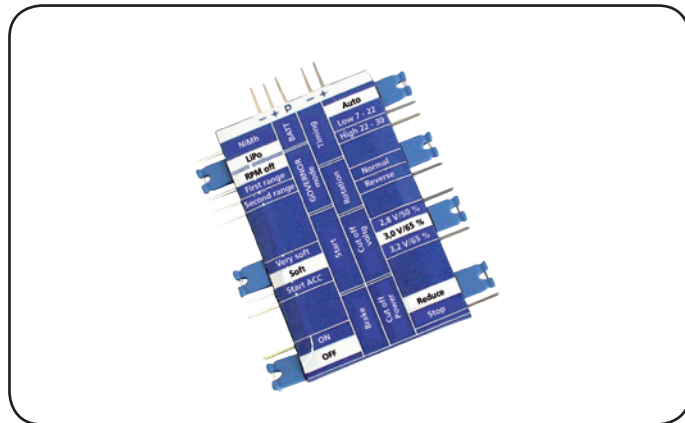
Following these sets of acoustic signals, the ESC is ready for use.

# Programming the ESC

The ECS can be programmed by taking the following steps:

1. Switch on the transmitter and move the throttle stick to the full throttle position.
2. Connect the flight pack (battery).
3. Wait until you hear two short tones ( \_ \_ \* \* ). this indicates that the ESC is in programming mode.
4. If the throttle stick is moved to the low position within 5 seconds you will hear another tone which will indicate that the throttle stick has been re-calibrated. If the throttle stick is not moved, a series of tones will be emitted after a short period of time. These bleeps indicate the functions which can be programmed, please refer to the section 'Programming Options'.
5. Once the option which you wish to change has been reached move the throttle stick immediately back to the low or off position. That function will then be changed to the option which you have chosen. The ESC will confirm your actions by emitting two bleeps (\* \*).
6. When programming an Xetronik ESC only one function may be altered each time that you access the Programming Mode. If several functions are to be changed the flight pack must be disconnected for at least 5 seconds after making an alteration before you access the Programming Mode again to make the next change.

The easiest way to program a Xetronik ESC is to purchase a Programming Card which is available from your dealer.



The illustration shows the Xetronik Programming Card which can be purchased under the Part No. 08 1905 from your local dealer. Please refer to the instructions included with the Programming Card.

### Important Information:

When programming your ESC it is important that you remove any propellers or rotor blades which may be attached to the engine. This is to prevent the possibility of injury in the event that the engine starts to rotate. This precaution should also be taken the first time that you connect your ESC to a power supply or when calibrating the throttle stick. Please put safety first at all times when operating your ESC and remember that rotating parts could cause injury or damage to you or those around you whenever you operate the unit.

# Programming Options

Xetronik ESC's allow many functions to be altered to allow you to set them up to operate in a manner which best suits you and your models.

The following programming options are open to you:

### 1. Braking:

The brake can be activated or deactivated. We recommend that if you are flying a model with a folding propeller on, for example a Hotliner, that you activate the brake. This means that when the throttle stick is at low or off, the propeller will stop turning and fold back to reduce resistance. If you fly a model with a fixed prop, for example an aerobatic model, that you deactivate the brake as this will allow the prop to spin when the motor is stopped.

The Brake function can be changed when four tones are heard:  
Brake on/off: .. \*\* .. \*\* .. \*\* .. \*\*

### 2. Select Battery Pack type:

The ESC can be used with either NiCad/NiMH or LiPo packs. The amount of cells in a LiPo pack will automatically be detected.

The ESC is factory set with a low-voltage cut off point of 3V per cell for LiPo packs and 65% of the start voltage when NiCad/NiMH packs are selected.

The Pack Cell Type can be selected when four tones are heard:

NiCad/NiMH Packs ~ ~ ~ ~  
LiPo Packs ~ ~ ~ ~

### 3. Setting the Low-Voltage Cut Off point:

It is possible to change the cut off point to a low, medium or high value. The unit will automatically detect the number of cells in a LiPo pack and the ESC will cut off at the following values:

- \*Low (2.8 V per cell)
- \*Medium (3.0 V per cell)
- \*High (3.2 V per cell)

This means that a LiPo pack with 3 cells when set to medium will switch off the engine when the pack voltage drops to 9.0 V

When NiCad/NiMH packs are selected the following values can be selected:

- \*Low (50% of the start voltage)
- \*Medium (65% of the start voltage)
- \*High (65% of the start voltage)

This means that if a fully charged 6 cell NiMH pack is connected and the cut off value is set to medium that the ESC will switch the engine off when the pack voltage drops to 5.61 V (1.44 V/cell x 6 x 65%)

The Low-Voltage Cut Off can be altered when the following acoustic signals are heard:

Low: \*..\* \*..\* \*..\* \*..\*  
Medium: \*...\* \*...\* \*...\* \*...\*  
High: \*....\* \*....\* \*....\* \*....\*

# Programming Your ESC

## 4. Reset to factory settings:

The ESC can be reset to to the factory settings.

The following values will be set:

Brake: Off  
Low Voltage Cut Off: 3.0 V/65%  
Timing: Automatic  
Soft Start: Medium  
Governor Mode: Off  
Tact Frequency: 8 kHz  
Throttle Down/Stop: Throttle Down

Factory Settings can be restored when following acoustic tones are heard:

— — — —

## 5. Setting the Timing:

The Timing for various types of motors can be selected, one of three different timing angles can be set.

- \* Automatic: The ESC will automatically set the best timing.
- \* Low: The timing will be set to 7-22 degrees. This setting works best for 2 pole motors.
- \* High: The timing will be set to 22-30 degrees. This setting works best for motors with more than 2 poles.

For the majority of applications the optimal setting is Automatic. The other settings should only be selected if the maximum output is required from a 2 pole inrunner (Low) or a multi poled out-runner (high). Please observe you engine manufactures recommendations and always test the set up on the ground before flying the model.

The Timing can be set when the following acoustic signals are heard:

Automatic: — — — —  
Low: — — — —  
High: — — — —

## 6. Soft Start value:

There are 3 different Soft Start setting which can be set:

- \* Very Soft Start: With this setting the ESC will take app. 1,5 sec. until the engine is running at full RPM. Ideal for Helicopters and geared set-ups.
- \* Soft Start: With this setting the ESC will take app. 1 sec. until the engine is running at full RPM. Ideal for Helicopters and geared set-ups.
- \* Hard Start: With this setting the ESC will immediately follow the throttle stick giving full power to the engine. This setting is recommended for competition models with a robust direct drive set-up.

Soft Start can be set when the following acoustic signals are heard:

Very Soft Start: W W W W  
Soft Start: V V V V  
Hard Start: VVV VVV VVV VVV

## 7. Configuring the Governor Mode:

This mode offers 3 different settings:

- \* Governor Off: The motor RPM follows the throttle stick movement.
- \* Step 1: The selected RPM will be reached after app. 5 sec. If the motor is than switched off, it will then revert to normal mode.
- \* Step 2: The selected RPM will be reached after app. 15 sec. If the motor is than switched off, it will then revert to normal mode.

Note:

Selecting Governor mode will affect the Brake and Low voltage Cut Off settings.

Governor Mode can be selected when the following acoustic tones are heard:

Governor Off: -\*\_ -\*\_ -\*\_ -\*\_  
Step 1: -\*\*\_ -\*\*\_ -\*\*\_ -\*\*\_  
Step 2: -\*\*\*\_ -\*\*\*\_ -\*\*\*\_ -\*\*\*\_

## 8. Changing the Direction of Rotation:

The direction in which the motor rotates can be changed by either swapping any 2 of the 3 motor connecting wires or by using the ESC's software.

The Rotation can be changed when the following acoustic tones are heard:

Clockwise/Anticlockwise: W W W W

## 9. Setting the Tact Frequency:

It is possible to choose between 2 Tact Frequencies:

8 KHz: Suitable for 2 Pole in-runners  
16 KHz: Suitable for multi pole out-runners

The unit is factory set to 8 KHz as this will make the motor run quietly and smoothly. The frequency can be changed when the following acoustic signal is heard:

8 KHz: // // // //  
16 KHz: \\ \\ \\ \\

## 10. Throttle Down:

When the pack voltage drops to the level set as the Low Voltage Cut Off point the unit can be programmed to either switch the motor off or to reduce power. The Throttle Down mode can be set when the following acoustic signal is heard:

Throttle Down: \_ - \_ - \_ - \_ -  
Switch Off: - \_ - \_ - \_ -

# Trouble Shooting

Despite the wide ranging safety features which we have equipped our Xetronic ESC's with, it is possible that problems may from time to time arise. The table below lists the most common faults, their probable cause and the solution. In the unlikely event that your ESC fails to function, please refer to the list below and try any solutions offered. In most case this will in most cases enable you to get your unit working again without having to send it back to us for repair.

Problem	Cause	Solution
The motor fails to turn although the signal indicating the number of cells is heard on connecting	The Xetronic ESC is not calibrated	Calibrate the unit so that it stores the end points and travel of the throttle stick
The motor fails to turn and no acoustic signal is heard. Furthermore, the servos fail to operate	Poor or no contact with the Flight pack	Check the connection to the flight pack
	Discharged or faulty flight pack	Fit a freshly charged pack
	Damaged or incorrectly connected cables	Check the flight pack connecting cables
	Receiver cable damaged or incorrectly inserted	Check the receiver plug, connecting cable and polarity
	Damaged ESC	Exchange the ESC
The motor fails to turn and the acoustic signal to indicate the number of cells is not heard. The servos operate	Poor connection between the ESC and the motor	Check the connection between the ESC and the motor
	Damaged Motor	Exchange the motor
The motor fails to turn and a warning tone consisting of 2 bleeps followed by a short pause is heard (** ** * * * * * **)	Poor soldered joints between the ESC and the motor	Check the soldered joints between the motor and the ESC
	Flight pack has too many or too few cells	Select a battery pack within the range shown in the Technical Specifications
The motor fails to turn and a warning tone, 1 bleep followed by a short pause, will be heard (* * * * *)	The receiver is not receiving a clean signal	Check the receiver cable, the receiver and the throttle function of the sender. Test the throttle function by fitting a working servo
The motor fails to turn and a warning tone, a continuous tone, will be heard (***** **)	The throttle stick is not in the low (off) position	Move the throttle stick to the off (low) position
The motor fails to turn and a warning tone, two long bleeps followed by two sort bleeps, will be heard (- - * *)	The throttle channel is reversed	Use the servo reverse function on your transmitter to reverse the channel  Note: Futaba transmitters will have to have the throttle channel reversed
The motor turns in the wrong direction	Incorrect motor polarity	Swap any 2 of the 3 motor connecting cables or use the software to change the rotation
The motor cuts out in the air	No signal to the receiver	Test the complete system, including the transmitter, the receiver, the connecting cable and also ensure that no one else is on your channel. Fit a Ferrite ring to the receiver cable
	Flight pack is discharged	Land immediately and fit a fresh battery
	Poor conections	Check all cables and connections

# Trouble Shooting

All rights reserved.  
Copyright JAMARA e. K. 2014  
Copying or reproduction in whole or part,  
only with the expressed permission of JAMARA e. K.

Problem	Cause	Solution
Motor fails to turn after the ESC has switched off after over heating	Ensure that your channel is not in use	Test the model on the ground. If your channel is free and the interference persists move to another flying site
	Your ESC not sufficiently cooled	Improve your ESC's cooling
	Your servos draw too much current and are overloading the BEC system	Test that all servos and linkages move freely. Check that the servos do not draw more current than the ESC can supply. If all of this fails, use a separate receiver battery, if you do this the red (+) cable must be removed from the ESC and insulated
	The propeller is too large and is overloading the ESC	Only use propellers that do not draw more current than the ESC can supply as shown in the Technical Details

JAMARA e.K.  
Inh. Manuel Natterer  
Am Lauerbühl 5 - DE-88317 Aichstetten  
Tel. +49 (0) 75 65/94 12-0 - Fax +49 (0) 75 65/94 12-23

[info@jamara.com](mailto:info@jamara.com) [www.jamara.com](http://www.jamara.com)

