

ORDER NO.:
85040



27A CONTINUOUS CURRENT
4000 HZ PULSE FREQUENCY

ORDER NO.:
85150



46A CONTINUOUS CURRENT
4000 HZ PULSE FREQUENCY

ORDER NO.:
85260



64A CONTINUOUS CURRENT
4000 HZ PULSE FREQUENCY

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85370



70A CONTINUOUS CURRENT
4000 HZ PULSE FREQUENCY

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85490



96A CONTINUOUS CURRENT
4000 HZ PULSE FREQUENCY

USER GUIDE



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WARNING NOTES

- IMPORTANT:** Never leave your RC model unsupervised when the battery is plugged in. If a defect occurs, it could set fire to the model or the surroundings.
- Never wrap your speed-control in plastic film or metal foil. In fact, make sure it gets enough fresh air.

IMPORTANT: Pay close attention to the following points, as they will **destroy** the speed-control and **void your warranty**:

- Never allow the speed-control or other electronic components to come in contact with water. Do not operate the speed-control in the rain. If you ever have to operate in the rain, protect your speed-control properly to avoid that water reaches the speedo.
- If the speed-control is connected to the motor, never run the motor directly with a separate battery or run-in device.
- Never connect the speed-control incorrectly or with reversed polarity.
- All wires and connections have to be well insulated. Short-circuits will destroy the speed-control. Pay special attention to the receiver- and switch wires.
- Never open the speed control and never solder on the PCB.

INSTALLATION

Before the installation:

- Solder the suppressor capacitors to the motor.
- Remove the propeller.

The installation:

- Mount the speed-control into the model.
- Connect the speed-control with the receiver.
- Connect the speed-control with the motor: The yellow wire is positive, the blue wire is negative.
- Check all connections carefully before you connect the speed-control to a battery. **Caution:** Incorrect connections will destroy your speed-control.
- The speed-control is now ready to be set up.

Installation tips:

- Mount the speed-control into the model using the double-sided foam tape supplied.
- Provide enough cooling air openings in the fuselage. This increases the performance and longevity of all electronic components.
- Mount the speed-control in a well protected location in the model.
- The speed-control should be installed in such a way, that the connectors and set-up button are easily accessible.
- Keep a generous distance (approx. 3 cm) between the speed-control, power cables and receiver or aerial. Avoid direct contact between all "power components" and the receiver or aerial, otherwise you may suffer interference.
- The aerial should be deployed directly away from the receiver. Do not allow it to touch carbon fibre or metal parts.
- Locate the receiver and its aerial as far away as possible from the motor, battery, speed-control and cables carrying high currents. Basically, wherever a heavy current flows, an interference field is generated which can cause direct interference to the receiver.
- Do not use chokes to suppress the motor, as the high pulse frequency of the LRP ELITE AERO speed-controls can excite the chokes to produce interference. Normal suppression measures using capacitors are more than adequate with LRP ELITE AERO speed-controls.

Dear customer,

thank you for your trust in this LRP product. By purchasing a LRP ELITE AERO speed-control, you have chosen one of the most advanced speed-controls of today. Your LRP ELITE AERO speed-control incorporates the latest digital technology in order to achieve the best possible performance and reliability. The following characteristics give your speed-control the crucial advantages over other units:

- 4000 Hz pulse frequency; Almost 100% efficiency, even in the part-load range
- Real Time Intelligent motor management system; Direct, super-fine speed-control characteristics
- Multi-Protection system
- Safety landing warning system

Please read and understand these instructions completely before you use this product!
With operating this product, you accept the LRP warranty terms.

SPECIFICATIONS

	Elite Aero 27A BEC Order No. 85040	Elite Aero 46A BEC Order No. 85150	Elite Aero 64A BEC Order No. 85260	Elite Aero 70A OPTO Order No. 85370	Elite Aero 96A OPTO Order No. 85490
Input voltage range	7.2 - 14.4V 6 - 12 cells	7.2 - 14.4V 6 - 12 cells	7.2 - 14.4V 6 - 12 cells	8.4 - 21.6V 7 - 18 cells	8.4 - 21.6V 7 - 18 cells
Max. load current	60A	100A	140A	160A	200A
Max. cont. load current	27A	46A	64A	70A	96A
Weight	21g	24g	27g	33g	37g
Pulse frequency	4000 Hz	4000 Hz	4000 Hz	4000 Hz	4000 Hz
Brake	EMF	EMF	EMF	EMF	EMF
Protective functions	yes	yes	yes	yes	yes
Size in mm	26x34x7mm	26x41x7mm	26x41x7mm	26x41x7mm	26x41x7mm
Receiver power voltage	5.0V	5.0V	5.0V	--	--
Receiver current	1.5A	1.5A	5.0A	--	--

Specifications subject to change without notice.

CONNECTIONS



Graupner, MPX/Uni, Futaba, Hitec and Simprop receivers

The LRP ELITE AERO speed-control is fitted with the LRP Multi-Con receiver cable as standard. Therefore it can be directly connected to all the above listed receivers directly.

Sanwa receivers

Remove the black plastic housing from the receiver cable and replace it with the plastic housing marked "AIR" as follows:

Gently press in the metal lug of one plug pin using a ball-point pen up to the point, when the wire can be removed from the plastic housing. Check the polarity in the table below and slide the pins into the new plastic housing until they snap into place.

Note the correct polarity when replacing the connector:

Receiver	Futaba	Graupner	Multiplex	Simprop
Signal wire	white	orange	yellow	orange
Positive wire	red	red	red	red
Negative wire	black	brown	black	brown

MULTI-PROTECTION SYSTEM, PROTECTIVE FUNCTIONS

This unique set of software-monitor functions provides highly effective protection to all LRP ELITE AERO speed-controls against short-circuit (motor), overload and overheating. If your LRP ELITE AERO speed-control is subjected to any of these forms of overload, the power system is switched off or the power is reduced in order to protect the motor circuit. At the same time the model's control functions are fully retained.

If one of the protective functions is triggered, the LED informs you what has happened:

- Short circuit:** Motor off, LED flashes red
- Overload:** No indicator, motor not switched off; current is reduced, controller remains fully operable.
- Overheating:** Motor off, LED flashes red/green simultaneously.

SUPPRESSION

Motors with no capacitors or not enough capacitors may interfere with the speed-control. To avoid this, solder the supplied capacitors to your motor (see picture).

Do not use suppressor chokes!



RADIO / SPEED-CONTROL SET-UP

When set-up mode is selected, your LRP ELITE AERO speed-control will store each step in the programming procedure when you press the set-up button. All settings are stored permanently, even when the speed-control is no longer connected to a battery. Start by setting up the transmitter:

TRANSMITTER SETTINGS

Setup the following basic functions on your transmitter (if available):

Throttle travel	High ATV, EPA	maximum
Throttle exponential	EXP, EXPO	start with 0
Neutral trim	SUB Trim	centre
Trim memory	Trim Memory	0
Servo reverse	Throttle reverse	normal -> Throttle forward (motor off: stick back / full throttle: stick forward)
Servo reverse	Throttle reverse	reverse -> Throttle back (motor off: stick forward / full throttle: stick back)

If your transmitter doesn't offer any of the above functions, it is already in „basic setup“ mode.

- Ensure, that the speed-control is not connected to the battery and is switched off.
- Remove the propeller.
- Switch on the transmitter and set the transmitter throttle stick to neutral.

- Connect the speed-control to the battery. The unit beeps twice to confirm that it is ready to use. All speed-controls are pre-programmed at the factory and can safely be used without further adjustment.
- To optimise the settings, locate the set-up button on the back of the speed-control and hold it pressed for at least 3 seconds.

- Your LRP ELITE AERO now beeps once to confirm that it is ready to be programmed.

- Hold the transmitter stick at the full-throttle position and press the set-up button once to program the full-throttle position.
- The ELITE AERO beeps once to confirm the full-throttle point.
- Hold the transmitter stick at the motor off/brake position and press the set-up button once to program the motor off position.
- The ELITE AERO beeps once to confirm the motor off point.
- The default setting for the start/brake feature is Power Start / Power Brake. If you wait 5 seconds after storing the "motor off" point without confirming the setting with the push-button, the controller automatically stores the default setting.
- However, if you press the button again within this 5-second period you can select and store any of the four programmed modes (see table below). Each successive button press then takes you into the next program of motor start and brake settings.

The colour of the LED changes to indicate your selection:

Press 1-time	LED glows red only > Soft start + Power brake
Press 2-times	LED glows green only > Power start + Soft brake
Press 3-times	LED off completely > Soft start + Soft brake
Press 4-times	LED glows green and red > Power start + Power brake

If you wait longer than 5 seconds without pressing the button, the speed-control stores the setting indicated by the colour of the LED.

- The ELITE AERO confirms the settings by beeping twice. The programming procedure is then complete.
- If you ever wish to alter the motor and brake settings, simply repeat the set-up procedure from the start.
- Don't worry if you made a mistake during the set-up procedure. Just disconnect the battery for at least 10 seconds and start the process again from the beginning.
- At the end of every flight, disconnect the flight battery from the controller first, then switch off the transmitter. Before the next flight, switch on the transmitter first, then connect the flight battery.

LANDING WARNING SYSTEM

LRP ELITE AERO speed-controls are equipped with the unique LRP safety landing warning system. This feature reminds you of the need to land your model before the flight pack is completely flat. It does this by sending three short pulses of power to the motor. When you see or hear this warning, you still have sufficient motor runtime to fly back and land your valuable model safely. The actual time available varies according to motor and battery.

If your battery gets discharged even further with the model still in flight, the low-voltage detection circuit switches off the motor in order to maintain sufficient voltage to ensure that the speed-control and receiver / servos continue to operate with 100% reliability. However, if it gets really necessary to switch the motor on in order to bring your model back to the flying site, you can override the speed-control two times. Just move the throttle stick back to the motor off position once and push it forward again to power up the motor.

If you have a very powerful motor (current draw more than 40A), we recommend to switch off the low voltage warning system.

How to switch the landing warning system off and on:

1. Hold the set-up button pressed while connecting the flight battery.
2. The landing warning system is now switched off. Even when you disconnect the battery and plug in a different flight pack, the programmed setting is stored permanently.
3. To switch on the landing warning system again, repeat step 1.
4. The number of beeps when connecting the battery (BEC controller) or switching on the receiver (opto controller) indicates the programmed state of the speed-control:

- > Landing warning system on (default setting): 2 audible beeps
- > Landing warning system off: 4 audible beeps

TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
Servo is working, no motor function	Speed-control plugged in incorrectly	Speed-control has to be connected to the correct receiver slot.
	Set-up / basic settings problem	Repeat basic speed-control setup
	Overload protection activated	Allow speed-control to cool down
	Wiring problem	Check wires and plugs
	Motor defective	Replace motor
	Motor brushes stuck	Check that brushes are moving freely
	Speed-control defective	Send in product for repair
No servo and no motor function	Speed-control plugged in incorrectly	Plug speed-control in with correct polarity
	Crystal defective	Replace components one by one.
	Receiver defective	
	Transmitter defective	
	Humidity/water in speed-control	Immediately unplug and dry speed-control
	Speed-control defective	Send in product for repair
Motor runs in reverse when accelerating forward on the transmitter	Motor connected incorrectly	Connect motor correctly
Insufficient performance	Propeller too big	Use smaller propeller
	Transmitter settings changed after set-up	Repeat set-up procedure
	Motor worn out	Maintain motor
	Motor defective	Replace motor
	Speed-control defective.	Send in product for repair
Speed-control overheats or switches off frequently	Propeller too big	Use smaller propeller
	Motor stronger than motorlimit or input voltage too high	Use only motors and batteries which are within the specifications of the speed-control
	Insufficient cooling	Cut cooling slots in fuselage
	Extreme conditions	Use additional cooling fan
Motor never stops, runs at constant slow speed	Transmitter settings changed after set-up	Repeat set-up procedure
	Humidity/water in speed-control	Immediately unplug and dry speed-control
	Speed-control defective	Send in product for repair
Radio interference	Motor suppressors not sufficient	Solder capacitors to motor
	Receiver or antenna too close to power wires, motor, battery or speed-control. Receiver aerial too short or coiled up	See „Installation Tips“ and „Installation“
	Receiver defective, too sensitive; Transmitter defective, transmitter output power too low, servo problem	Replace components one by one Only use original manufacturers crystals
	Poor battery connection	Check plugs and connecting wires
	Transmitter batteries empty	Replace / recharge transmitter batteries
	Transmitter antenna too short	Pull out antenna to full length

REPAIR PROCEDURES / LIMITED WARRANTY

All products from LRP electronic (hereinafter called "LRP") are manufactured according to the highest quality standards. LRP guarantees this product to be free from defects in materials or workmanship for 90 days from the original date of purchase verified by sales receipt. This limited warranty doesn't cover defects, which are a result of normal wear, misuse or improper maintenance. This applies among other things on:

- Cut off original power plug or not using reverse polarity protected plugs
- Receiver wire and/or switch wire damaged
- Mechanical damage of the case/shrink wrap
- Humidity/Water inside the speed control
- Mechanical damage of electronic components/PCB
- Soldered on the PCB
- Connected speed-control with reversed polarity

To eliminate all other possibilities or improper handling, first check all other components and the trouble shooting guide before you send in this product for repair or warranty. Products sent in for repair, that operate perfect have to be charged with a service fee.

By sending in this product, you assign LRP to repair the product, if it is no warranty or Limited Lifetime Warranty case. The original sales receipt including date of purchase needs to be included. Otherwise, no warranty can be granted. For quick repair- and return service, add your address and detailed description of the malfunction.

Our limited warranty liability shall be limited to repairing the unit to our original specifications. In no case shall our liability exceed the original cost of this unit. Because we don't have control over the installation or use of this product, we can't accept any liability for any damages resulting from using this product. By installing or operating this product, the user accepts all resulting liability.

The specifications like weight, size and others should be seen as guide values. Due to ongoing technical improvements, which are done in the interest of the product, LRP does not take any responsibility for the accuracy of these specs.

LRP-Distributor-Service:

- Package your product carefully and include sales receipt and detailed description of malfunction.
- Send parcel to your national LRP distributor.
- Distributor repairs or exchanges the product.
- Shipment back to you usually by COD (cash on delivery), but this is subject to your national LRP distributor's general policy.