

Order No.: **83200**



FORWARD + REVERSE
Over 13 Turns Automatic Setup

Order No.: **83250**



FORWARD + REVERSE
Over 10 Turns Automatic Setup

Order No.: **83370**



FORWARD + REVERSE
No Motorlimit Automatic Setup

USER GUIDE



LRP electronic GmbH

Wilhelm-Enssle-Str. 132-134, 73630 Remshalden, Germany

Tel.: int + 49-7181-4098-0, Fax: int + 49-7181-4098-30

WWW.LRP-ELECTRONIC.DE

Dear User,

Thank you for your trust in this LRP product.

By purchasing an LRP Automatic Reverse Digital Speed Control, you have chosen a high-performance speed control full of new design features, such as:

- LRP A.I. Automatic Setup
- Multi-Protection System
- Fail Safe System
- Real-Time-Braking

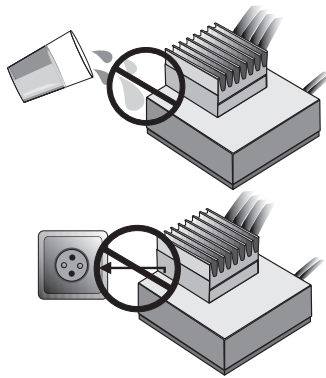
SPECIFICATION

	A.I. Automatic Super Reverse Digital	A.I. Automatic Pro Reverse Digital	A.I. Automatic Bullet Reverse Digital
Forward/Brake/Reverse	yes	yes	yes
Case Size	42.5 x 42.5 mm	42.5 x 42.5 mm	42.5 x 42.5 mm
Weight (excl. wires)	47.5 g	51.0 g	51.0 g
Voltage Input	4-7 cells (4.8-8.4 V)	4-7 cells (4.8-8.4 V)	4-7 cells (4.8-8.4 V)
Typical Voltage Drop @20A*	0.160 V	0.107 V	0.048 V
Rated Current*	120 A	180 A	225 A
Rec. Motor Limit**	Over 13 turns	Over 10 turns	No Motorlimit
B.E.C.	5.0 V	5.0 V	5.0 V
High Frequency	yes	yes	yes
Fail-Safe System	yes	yes	yes
Multi-Protection System	yes	yes	yes
Connectors	Standard Tamiya Style	Standard Tamiya Style	Standard Tamiya Style
Setup Procedure	Automatic	Automatic	Automatic

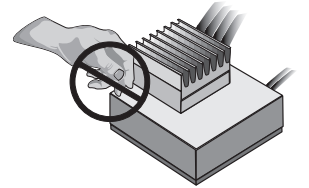
* Transistor rating at 25°C junction temperature. Specifications subject to change without notice.
** @ 6 cells (7.2 V)

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** allow the speed control or other electronic component to come in contact **with water**. Do not operate the speed control in the rain. If you ever have to operate in the rain, paper towels provide the best protection.
- If the speed control is connected to the motor, never run the motor with a separate battery. This will destroy the speed control and you will lose your warranty entitlement.
- Never cut off the original power plug. Otherwise, you will lose your warranty entitlement.
- Avoid damaging the speed control by connecting it incorrectly or reversing the polarity.



- Never allow the output stages (FETs) to come in contact with metal - otherwise, there is the risk of short-circuiting.
- Never wrap your speed control in plastic film or metal foil. In fact, make sure it gets enough fresh air.
- All wires and connections must be well insulated. Short-circuits will destroy the speed control.
- Never change the polarity of the receiver connector.
- **Never solder a Schottky diode to the motor when you are using an LRP A.I. Automatic Reverse digital speed control. A Schottky diode will destroy any forward/reverse speed control.**

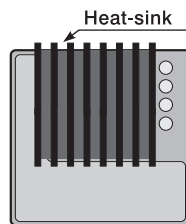


INSTALLATION TIPS

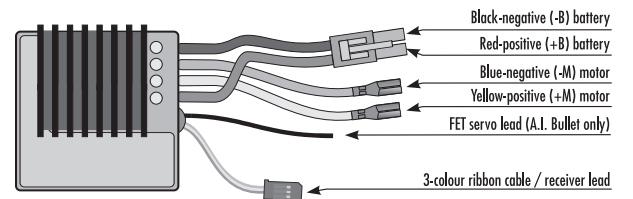
- Affix the speed control using the supplied doubled-sided adhesive tape.
- Make sure there are enough cooling slits in the body. This will increase the performance and life of all the electronic components.
- Position the speed control where it is protected in the event of a crash.
- Install the speed control so that you have easy access to the plugs.
- Make sure there is enough clearance (about 1½ inches) between the speed control, power cable and antenna receiver. Avoid any direct contact between power components, the receiver or the antenna. This can cause interference. If interference occurs, position the components at a difference place in the model.
- The aerial should be run vertically up and away from the receiver. Avoid contact with any parts made of carbon fibre or metal. If the aerial is too long, don't coil up the excess length. It is better to cut it down to a length of about 35 cm. See also the instructions supplied with your radio control system.

IMPORTANT:

The heat sink mounted on the A.I. Automatic Reverse digital speed control enhances the speed control's performance. The heat sink is a fixed part of the speed control and **must therefore be used**.



CONNECTIONS



RECEIVER CONNECTING WIRE:

This LRP speed control is equipped with an LRP Multicon receiver wire. As supplied, it should therefore fit easily in all customary receivers.

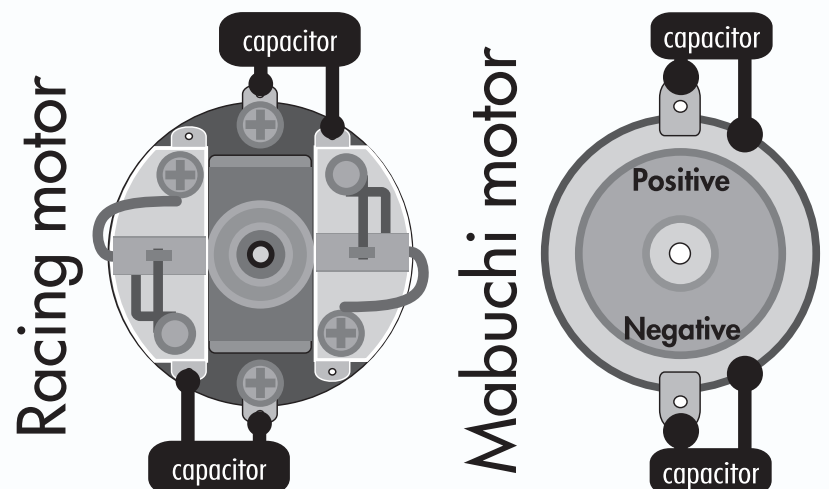
INSTALLATION

- Solder the capacitors to the motor.



- Attach the speed control to the model.
 - Connect the speed control to the receiver (Position: channel 2).
 - If you have a servo with an external FET connecting wire, solder it to the speed control now (A.I. Automatic Bullet Reverse digital only).
 - Connect the speed control to the motor. Please note: The yellow wire is positive, the blue wire is negative.
 - Then check all connections before connecting the speed control to a battery.
- Caution: If a connection is incorrect, it will destroy the speed control.**
- The speed control is now ready to start.

MOTOR 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 Figure).



Caution: Never use Schottky diodes in conjunction with a forward/reverse speed control, e.g. the A.I. Automatic Reverse digital line.

Schottky diode:



SET-UP PROCEDURE

After wiring up the speed control, the A.I. Automatic is ready to operate. No setup is required. The speed control „learns“ the neutral, full-speed forward and full-speed reverse points while the car is running. Please note: Before you plug in the drive battery, set the transmitter to neutral position and then start the model in the forward direction.

SWITCH ON THE TRANSMITTER



CONNECT THE SPEED CONTROL TO THE BATTERY PACK



AND GO!

- If you have made a mistake so far, don't worry: Unplug the battery for about 10 seconds and start over again.
- After the run, first unplug the battery and then switch off the transmitter. When you start again, first switch on the transmitter and then plug in the battery.

FUNCTION TEST:

The LED will indicate as follows when you move the throttle stick to the following functions.

FUNCTION	STATE	LED COLOUR
Neutral		Green Dark
Forward	Partial Throttle	Green Bright
Forward	Full Throttle	Off
Brake	Active	Green Bright
Reverse	Partial Throttle	Green Bright
Reverse	Full Throttle	Off
Temperature protection	Active	Flashing Bright green

TROUBLESHOOTING GUIDE

Symptom	Cause	Remedy
Servo is working, no motor function.	Speed control plugged in incorrectly.	Plug speed control in Ch 2.
	Motor defective.	Replace motor.
	Motor brushes jammed.	Check whether brushes are moving freely.
	Overload protection activated.	Allow speed control to cool down
	Wiring problem.	Check wires and plugs.
	Speed control defective.	Return product to LRP for repair.
No servo and no motor function.	Receiver plug wrong.	Check polarity of receiver plug.
	Crystal defective.	Replace components one by one.
	Receiver defective.	
	Transmitter defective.	
	Speed control wet, protective circuit activated.	Unplug battery immediately and let dry out the speed control.
Motor turns in reverse when accelerating forward on the transmitter.	BEC defective.	Check the BEC output voltage or return product to your LRP Distributor for repair.
	Motor connected incorrectly.	Connect motor correctly.
Insufficient brake power or insufficient reverse power.	Throttle stick polarity at transmitter changed while driving.	Repeat startup procedure.
	Speed control defective.	Return product to LRP for repair.
	Motor pinion or gear ratio too big.	Use smaller motor pinion or shorter gear ratio.
Insufficient top speed.	Transmitter settings were changed after startup.	Repeat startup procedure.
	Reduced cooling efficiency.	Repeat startup procedure.
Speed control overheats or switches off frequently.	Reduced cooling efficiency.	Cut cooling holes in body.
	Motor stronger than the recommended motor/limit or input voltage higher than permitted.	Use only motors according to the recommended motor/limit of the speed control or use batteries according to the specifications to the speed control.
	Motor pinion or gear ratio too big.	Use smaller motor pinion or shorter gear ratio.
	Drive train or bearing problems.	Check or replace components.
	Model used too often without cool-down periods.	Let speed control cool down after every run.
Motor never stops, runs at constant slow speed	Humidity in speed control.	Immediately unplug battery, dry speed control with hairdryer.
	Transmitter settings were changed after startup.	Repeat startup procedure.
	Speed control defective.	Return product to LRP 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.	See "Installation Tips" and "Installation".
	Receiver aerial too short or coiled up.	
	Receiver defective, too sensitive; transmitter defective, transmitter output power too low, servo problem.	Replace components one by one. Only use original manufacturers crystals.
	KO-FET servos used without no choke.	Solder on choke supplied with servo.
	Poor battery connection.	Check plug / connecting wire.
	Transmitter batteries discharged.	Replace / recharge transmitter batteries at regular intervals.
	Transmitter antenna too short.	Pull out antenna to full length.
Speed control response imprecise, nonlinear.	Transmitter batteries discharged.	Replace / recharge transmitter batteries at regular intervals.

SPECIAL FEATURES

AUTOMATIC SETUP

Due to the LRP exclusive A.I. Automatic Technology there is no need for a manual setup of the speed control by pushbuttons or potentiometers. All you need to do is simply plug in the speed control, and you're ready to go. The speed control "learns" the neutral, full-speed forward and full-speed reverse point of the radio system while the car is running. This way, the speed control has the optimized setup for every run - automatically. Incorrect or unperfect setups are a thing of the past with LRP A.I. Automatic Reverse speed controls.

FAIL-SAFE SYSTEM

What is Fail Safe ?

Digital protection against radio interference, "The guardian angel". The safety electronic can detect reception of a "false" or incomplete radio signal, e.g. due to a low transmitter battery or environmental radio interference which reach the model, or if the model is out of the transmitter range. For protection against damage, the speed control switches to the neutral position, and the model comes to a stop.

LRP's tip: The model will remain in a standstill, even if you connect the drive battery to the speed control first and then switch on the transmitter! Provides perfect protection against mistakes commonly made by beginners.

REAL-TIME-BRAKING

In contrast to conventional forward/reverse speed controls, the A.I. Automatic Reverse digital line has a fully proportional Real-Time-Brake which will only change from brake to reverse when the car comes to a standstill. The speed control then changes to reverse immediately, without any annoying delay.

These functions offer you the following benefits:

- More power due to a cooler speed control.
- Super-proportional brake.
- Excellent brake power.
- Longer transmission life.

REVERSE OPERATION

No reverse time limit

All A.I. Automatic reverse digital speed controls have no reverse time limit.

MULTI-PROTECTION SYSTEM, 3-WAY PROTECTION

This unique monitoring software is the perfect protection for the A.I. Automatic Reverse digital speed controls against short-circuits (motor), overload and overheating. If your speed control is ever faced with overload, the motor function is switched off for protection, although the steering function is maintained. The setup LED then flashes.

Wait a few minutes to allow the speed control to cool down.

If the speed control switches off frequently, either the motor used is too strong, the motor pinion is too big or you are using full brake too often. You can improve this if you make additional cooling holes slots in the body.

LRP SERVICE

LRP Customer Service:

- Package your product carefully. Include sale receipt.



- Send parcel to your national LRP distributor.



- Distributor repairs the product.



- Shipment back to you usually by COD (cash on delivery), but is subject to your national LRP distributor's general policy.