

DEAR CUSTOMER,

you purchased one of the most sophisticated electronic speed controls in the world. Due to the use of 'World Champion's Technology' unique performance could be combined with easiest handling.

Your Sprinter Speed Control offers the following unique features:

- Plug In And Drive
- Digital High Frequency for smoothest car control
- Superior power output
- Adjustable Power Control (APC)
- Intelligent Temperature Protection (ITP)

GENERAL INFORMATION

Even though installation and setup of the Sprinter is pretty simple, please follow the instructions carefully step by step. By doing so you will achieve greatest performance. Especially read the topics 'Mounting', 'To avoid danger or damage', 'Installation', 'Receiver Connection' and 'Connection of Wires' to avoid any kind of malfunction or damage.

APPLICATION

This speed control is designed to be used in battery powered RC-Models only.

USE BY CHILDREN

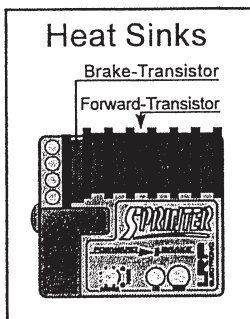
Not recommended for children under 14 years - No toy

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MOUNTING

- Mount controller with double-sided servo tape.
- A little airflow inside the body shell is absolutely necessary, improves performance and increases lifetime of all electronic components.
- Mount speed control in a place where it can't be harmed by a crash.
- The speed control should be mounted in a way allowing easy access to Setup button and current limiter pot (APC).
- Keep some distance (3 cm, 2 inches) between the speed control, all power wires and the receiver. Especially avoid contact between receiver, antenna and any power wire. This could cause radio glitches. In case of radio glitches, put the components to another place inside the car.
- Keep the power wires as short as possible to avoid radio glitches.
- The receiver antenna should go straight up out off the receiver. Avoid contact with carbon fibre or metal parts. If the antenna is too long, cut it to a length of about 35 cm/14 inches but never coil it. (See also instructions of your radio)
- **ATTENTION!** Heat Sinks (No. 8154 are included) Head sinks improve the performance of the speed control and must be mounted in any case. First fit the small heat sink onto the brake transistor next to the power wires. Then fit the large heat sink onto the 3 forward transistors/FETs.

ATTENTION: Both heatsinks should never get in contact with each other - short circuits. Due to production tolerances heat sinks can fit very tight. Should the heat sinks fit too loose, bend the fins very carefully (caution of breakage) or use a drop of super glue.



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TO AVOID DANGER OR DAMAGE

- **Important:** never leave your RC-Model unattended when the battery is plugged in or the speed control is switched on. In case the speed control was damaged before, this could cause fire to your model or worse.
- **Never** get your speed control or other electronic parts in touch with **water**. Avoid racing in the wet. If you have to, the best protection will be given by paper tissues (Kleenex).
- As long as the motor is connected to the speed control, never let it run directly with a separate battery; this causes destruction of the speed control and loss of warranty.
- Never cut off the original connectors - this definitely will cause the loss of any warranty
- **Avoid cross connection, short circuits or reverse polarity** to prevent damage to the speed control. In case you prefer another connector system, use reverse polarity proof connectors with male/female like LRP Hi-Amp (No. 6280) or Reedy Power (No. 652).
- Never put any kind of metal or wire in touch with the transistors (FETs) and heat sinks.
- Never cover your speed control with any kind of material - in contrary, airflow increases performance!
- Always look for good isolation of all wires. Wrong handling or cross connection causes fatal damage of your high tech product.
- Never change the polarity of your receiver plug (see detailed instructions). For Sanwa receivers see your radio's instructions.
Attention: compare the color wires, red is always plus
- Connect the included Schottky diode onto the motor. The Schottky diode increases the performance and reliability of every forward only speed control.

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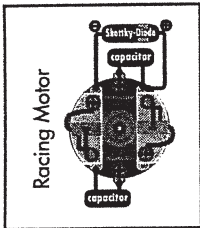
INSTALLATION

Always follow the order of the following steps. Each step is described in full detail on the following pages.

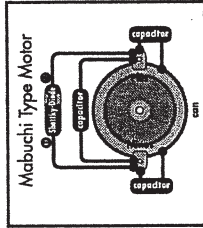
- Solder the included Schottky diode and capacitors to the motor.
- Take off the motor pinion or make sure, that the wheels of your car can move free.
- Connect speed control to motor and receiver (channel 2), watch out for right polarity.
- Finally check all the connections BEFORE connecting the speed control to the battery!

Attention wrong or cross connection will definitely destroy the speed control !!!

SOLDERING OF SCHOTTKY DIODE AND CAPACITORS TO THE MOTOR



Motors with insufficient or without capacitors can damage your speed control. Therefore you definitely should solder the included capacitors to your motor as shown in the picture.



SCHOTTKY-DIODE:

The Schottky Diode improves the efficiency of the motor-speed control system and is an additional protection for the brake transistor (FET). Solder it to the motor as shown in the picture, make sure that the white ring is at plus. Schottky diodes are only to be used with *Forward/ Brake* speed controls like the LRP Sprinter.

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RECEIVER CONNECTION

Standard Receiver Connector: LRP Multi-Con

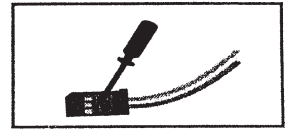
The LRP Multi-Con receiver connector fits for Graupner/JR, KO, Futaba and Acorns.

Connection to KO and Futaba receivers: The original LRP Multi-Con or the included Futaba/KO plug can be used. Pay attention for right polarity (colours)

Connection to Sanwa receivers: Use the included Sanwa plastic plug

Exchange of plugs

Press the metal nose of the plug down with a small screwdriver and pull the connectors carefully out of the plug



Bent the metal nose up again.

Press the connectors into the proper plug.

Watch out for the right polarity:

Function	Futaba	Graupner	Acorns	Sanwa
Signal	white	orange	yellow	blue
Plus	red	red	red	red
Minus	black	brown	black	black

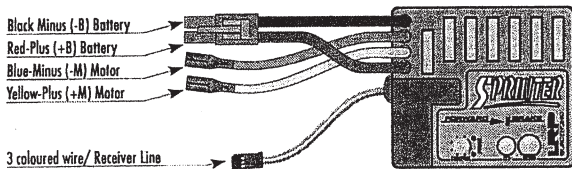
Attention: The functions and wire colors have to fit together.

Example: Orange of a Graupner/JR wire is equal to white of Futaba

For Sanwa radios with the wire colors black-black-red and blue-black-red the receiver line's polarity of plus and minus has to be changed. Always pay attention to your radio's instructions.

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CONNECTION OF WIRES

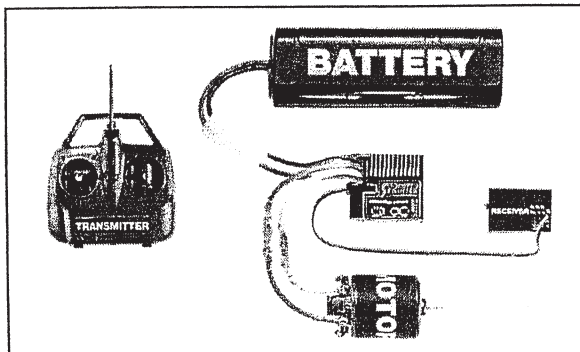


ATTENTION:

Never connect the motor wires (yellow/blue) to the battery, this causes damage.

OTHER CONNECTORS

In case you prefer a different connector system, use reverse polarity proof connectors with male/female like LRP Hi-Amp (No. 6280) or Reedy (No. 652).



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ADJUSTING THE SPEED CONTROL TO YOUR TRANSMITTER NEUTRAL/FULL THROTTLE/BRAKE

The basic adjustment is very simple. Just follow the instructions step by step. There is no time limit for all the adjustments.

If you make an error while setting up, don't worry, switch off your speed control for about 10 seconds and start again.

All setup adjustments stay memorized even when no battery is connected.

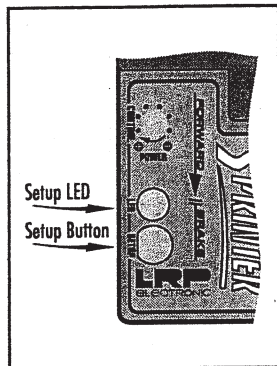
PREPARATIONS TO START SET-UP

- Make sure the speed control is unplugged.
- Take off the motor pinion or make sure, that the wheels of your car can move free
- Turn on the transmitter.
- Adjust your transmitter to the following (if these functions are available):
 - High ATV, EPA - maximum setting
 - Low ATV, EPA, ATL - maximum setting
 - EXP, EXPO - start with zero
 - SUB Trim, Neutral - middle setting
 - TH Trim, Coast Brake - middle setting
 - Throttle Reverse Switch - any way, don't change after speed control setup.
 - Asymmetric throttle throw is possible (2/3 forward 1/3 brake)
- When you change these functions on your transmitter after you completed the set-up, and the speed controls functions are not as good as before, a complete new set-up should be made.

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SETUP

- When a motor is connected, it will not run during the setup procedure.
- Turn on the transmitter.
- Connect the speed control to a fully charged battery.
- Press the setup button for a minimum of 2 seconds by using the included plastic screw driver (thin end). The Transmitter should be in Neutral position. The setup LED will start to flash green to indicate setup mode.
- Pull full throttle forward on the transmitter.
Do not press the setup button now. You can choose any transmitter position as full throttle.
- Push full reverse/brake on the transmitter.
Do not press the setup button now.
- Go back into neutral position of the transmitter throttle.
- Press the setup button to save all settings
- Now the speed control is fully set and you can start to enjoy your LRP Sprinter.



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FUNCTION CHECK

Function		LED status
Neutral		dark green
Forward	partial	light green
Forward	full	out
Brake	partial	light green
Brake	full	out
Temp Protection	activated	flash green

Before running for the first time on the road/track, check all functions. Especially take care, that your speed control reaches full throttle position (green light switches off).

NORMAL OPERATION

after you set up your speed control always operate the following way:

Start Operation

1. Turn on your transmitter
2. Plug in your battery

End Operation

1. Unplug your battery
2. Turn off your transmitter

Important: Never leave your RC-Model unattended when the battery is plugged in. This could cause fire. Always disconnect the battery when not in use.

Attention: After each run battery, let speed control and motor cool down before you race again, especially using very hot tuning motors. Running too often without cooling break could damage motor or activate the temperature protection.

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EMK BRAKE

The Sprinter speed control offers a fully proportional EMK-brake that gives perfect car control even on slippery surfaces.

Due to digital technology, full braking power is always available, even with transmitters that offer only limited throttle throw.

- The Advantages:
- super responsive brake
 - superior brake power

If the braking power is too strong, you can readjust your transmitter's Low ATV, EPA, ATL function.

ITP INTELLIGENT TEMPERATURE PROTECTION

The digital temperature protection and continuous performance control allow using the full potential of the speed control, giving more power and performance.

If the speed control overheats despite that, the motor function is shut off but the steering remains working. The Setup LED flashes red/green. Let the unit cool down some minutes.

If the speed control shuts down too often, the motor being used is too strong or the motor pinion is too large. Use a smaller motor pinion and cut some cooling holes into the body shell.

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APC (ADJUSTABLE POWER CONTROL) CURRENT LIMITER

Running strong tuning motors or racing on slippery surfaces can be quite difficult. A spinning car is no fun. The Adjustable Power Control is the perfect solution:

- Prevents the car from spinning
- Improves car control and lap times
- Can improve the running time

ADJUSTMENT

- You want full power

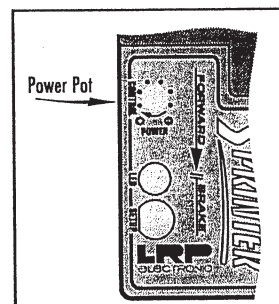
Turn the power pot with the included plastic screw driver full to the right (do not turn the pot beyond its mechanical limit)

- Car spins during acceleration - you need less acceleration power

Turn the power pot so far to the left until the car becomes controllable

- Temperature Protection is activated too soon when using a strong tuning motor

Turn the power pot about 1/3 to the left



The Adjustable Power Control has no negative influence on the top speed !! It is worth while experimenting with the Adjustable Power Control. By doing so, operate step by step.

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MOTOR LIMIT

There is no technical motor limit. Even too strong tuning motors will not destroy the Sprinter Speed Control.

RECOMMENDED MOTOR

Motors between 16-36 Turns will give the best results with the Sprinter Speed Control because it was specially designed for this application.

Using motors with less than 16 turns will cause the temperature protection to be activated quicker (with no harm to the Sprinter). The activation of the temperature protection can be delayed by using a smaller motor pinion.

MOTOR PINION

When using tuning motors, a motor pinion 2-5 teeth smaller than the original is recommended to avoid over heating.

With a 7 cell battery, you always have to choose a softer motor and a smaller motor pinion. Make sure that your motor is suitable for 7 cells.

RULE OF THUMB

Less turns give more power but are also harder on the speed control and the batteries (less running time).

Baukastenmotor	●
Mabuchi 540	●
Graupner VZ	●
LRP Truck Puller No 5736	●
LRP Runner 2 No 5826	●
Tamiya Sport Tuned	●
LRP VB Superprop No 5825	●
LRP VX Turbo No 5725	●
LRP Rallye 23x2 No 5823	●
LRP Rallye 21x2 No 5821	●
LRP Rallye 19x2 No 5819	●
LRP Rallye 17x2 No 5817	●
LRP DTM Special No 5718	●
LRP F1 23x2 No 5723	●
LRP F1 17x2 No 5717	●
LRP F1 15x2 No 5715	●
LRP F1 13x2 No 5713	●
Tamiya Acto Power Black	●
Tamiya Acto Power Blue	●
Tamiya Acto Power Pink	●
yellow E No 5117	●
red SE No 5114	●
green E No 5116	●
red E No 5115	●
brown E No 5411	●
silver X No 5312	●
white X No 5217	●
gold X No 5313	●
orange X No 5219	●
Truck Torque No 5512	●
blue SX No 5216	●
Diablo No 5212	●
pink X No 5231	●
Bee D No 5241	●
Viper No 5243	●
Truck Speed No 5514	●
Magic No 5224	●
Killer X No 5227	●
Truck Stadium No 5516	●
Big C No 5225	●
Super 400 G No 5681	●
Super 400 E No 5692	●
Super 400 S No 5690	●
LRP Marine No 5685	●

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TECHNICAL DATA

Voltage Input BEC	4.8 - 8 cells (4.8 - 9.6 V)
BEC Output Voltage	5.0 V
max. BEC Current	30 sec. 1.6 A
Dauer BEC Current	5 min. 0.6 A

POWER DATA

Rated Current 1 sec.	1.00 A
max. Current 30 sek.	50 A
cont. Current 5 min.	2.5 A
Switch-On Impulse Suppression	yes
Temperature Protection (TP)	yes
EMK Brake	yes
Regenerative Brake	yes
APC Adjustable Power Control	yes
RPM Frequency	1250 Hz
Weight with wires	45 g
Size in mm	41x36x19 mm

* transistors rating at 25°C junction temperature

RECEIVER BATTERY

A receiver battery is normally not necessary due to the integrated BEC. For some very special applications (2 servos+7 cells) you might have to connect a receiver battery to the 'BAT' slot of the receiver. In that case, please disconnect the red plus from the receiver wire.

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REPAIR PROCEDURES/WARRANTY

In case of problems first check the trouble shooting guide or contact your hobby shop or LRP-importer. In case of damage, repair fees are normally far below the recommended retail price of a new unit. Hobby shops are not authorized to replace speed controls thought to be defective.

Warranty can only be accepted if it is claimed by the customer on the warranty sheet and the control sheet and the original sales receipt are included.

For quick repair and return we definitely need your address, detailed description of the malfunction and the original sales receipt. Repair may be refused without sales receipt.

To guarantee a proper repair, cut off or worn receiver plugs, wires and switches will be replaced and charged if any case. Any speed control treated severely with silicone or anything similar inside, might not be repairable.

Speed controls sent in for repair that operate perfect normally will be charged with a service fee. Therefore first check with the trouble shooting guide.

LRP guarantees this speed control to be free from defects in materials or workmanship for 90 days from the original date of purchase verified by sales receipt.

This warranty doesn't cover: suitability for specific operation, incorrect installation, components worn by use, application of reverse or improper voltage, shipping, tampering, misuse like any soldering inside the unit, poor installation, replacing of wires on the board, connection to electrical components not mentioned in the instructions, mechanical damage, immersion of water and cutting off the original wires, plugs, connectors and switches.

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

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TROUBLE SHOOTING GUIDE

Symptom	Cause	Action
Servo Works Throttle dead	Set-up problem	Re-run complete set-up, make sure that you pull and hold full throttle on the transmitter when you press the set-up button to freeze the function. Don't forget to put all transmitter settings according to the instructions
	Speed Control plugged wrong into receiver	Plug into channel 2, check polarity of connector
	Motor broken	Change motor
	Motor brush sticking	Check if brush can move
	Temperature protection active	Let speedo cool down
	Wiring interrupted	Check wires and connectors
	Speed control broken	Send in for repair
Servo + Motor dead	Receiver plug wrong	Check polarity of receiver plug
	Crystal defect	Change/check component step by step
	Receiver defect	
	Transmitter defect	
Motor runs backward	Unit is wet, water protection activated	Unplug the battery, let speed control dry out
	BEC defect	Check BEC output voltage or send in for repair
No brakes	Motor wrong connected	Connect motor proper
	Incorrect set-up	Re-run complete set-up, see 'Servo works - Throttle dead'
Insufficient brakes	Internal damage	Send in for repair
	Incorrect set-up	Set Low ATV, EPA, ATL of the transmitter to maximum or re-run complete set-up procedure. Don't forget to put all transmitter settings according to the instructions
Insufficient top speed	Gear ratio far too long	Use smaller motor pinion
	Incorrect set-up, Transmitter was readjusted after set-up was completed	Re-run complete set-up procedure. Don't forget to put all transmitter settings according to the instructions
Insufficient acceleration	Power pot set too far left	Turn power pot to the right
	Insufficient cooling	Cut some holes into the body shell
Speed Control gets too hot Shuts off too often	Motor too strong or too high input voltage	Use a softer motor or a battery with less volts/cells
	Gear ratio too long	Use a smaller motor pinion
	Drive train or bearing problem	Check or change components
	Model run too often without cooling break	Let speed control and motor cool down after each run
Motor won't stop, runs at low speed	Moisture in speed control	Disconnect immediately, let speed control dry completely and by again.
	Speed control set-up	Re-run complete set-up procedure. Don't forget to put all transmitter settings according to the instructions
	Speed control broken	Send in for repair
Radio Glitches	No capacitors on the motor	Put capacitors to the motor
	Receiver or antenna too near to power wires, motor, battery or speed control	See 'Installation'
	Receiver broken, too sensitive	Change components step by step
	Transistor out of tune	Use original crystals only
	Transmitter output too low	
	Servo problem	
	FET-Servo like KO 1001 without choke	Use choke that is included to the servo
Speed control feels strange, unlinear	Battery connector bad	Check connectors
	Transmitter batteries flat	Recharge or change batteries
	Transmitter antenna too short	Put out antenna to full length
	Transmitter batteries start to dump	Check transmitter battery from time to time
You changed transmitter or car programs of the transmitter	Re-run complete set-up procedure	

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