

# USER GUIDE

RA00168

# 93010



over 18Turns  
60Amps

hawk  
REVERSE

# 93060



over 15Turns  
75Amps

hawk  
POWER REVERSE



for distributor address see packaging

www.nosram.com



## 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 solder a Schottky diode to the motor when you are using a Nosram Hawk/Hawk-Power Reverse speed-control. A Schottky diode will destroy any forward/reverse speed-control.
  - Never allow the output stages (FETs) to touch a metal surface - short-circuit hazard.
  - Never cut off the original power plug.
  - 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 change the polarity of the receiver connector.
  - Never open the speed-control and never solder on the PCB.

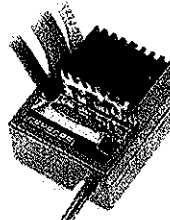


## INSTALLATION TIPS

- 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 3cm) between the speed-control, power cable and antenna or 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 different 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 supplied heatsink is important and improves the performance of your speed-control when used close to its specified limits. Use only genuine Nosram Hawk series heatsinks. Never allow the Fets tabs to touch other Fets, short circuit would occur!



## INSTALLATION

- Solder the capacitors to the motor.
- Attach the speed-control to the model.
- Connect the speed-control to the receiver (Position: channel 2).
- Connect the speed-control to the motor, using the blue (-) and yellow (+) wires.
- 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.

Dear Customer,

thank you for your trust in this Nosram product. By purchasing a Nosram Hawk/Hawk-Power Reverse digital speed-control, you have chosen a high-performance speed-control full of new design features, such as:

- Fully waterproof and shock-resistant
- 100% Automatic Setup
- 3-way protection system
- Fail Safe System

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

## TECHNICAL DATA

Product	Hawk	Hawk Power
Order No.	93010	93060
Forward/Brake/Reverse	yes	yes
Case Size	26x26x16mm	26x26x16mm
Weight (excl. wires)	19.0g	19.0g
Voltage Input	4-6 cells (4.8-7.2V)	4-6 cells (4.8-7.2V)
Typical Voltage Drop @20A*	0.320V	0.144V
Rated Current*	60A	75A
Rec. Motor Limit	Over 18Turn**	Over 15Turn**
B.E.C.	5.0V	5.0V
High Frequency	yes	yes
Fail-Safe-System	yes	yes
3-way Protection System	yes	yes
Connectors	Standard Tamiya Style	Standard Tamiya Style
Setup Procedure	Automatic	Automatic

\* Transistors rating at 25°C junction temperature. Specifications subject to change without notice.

\*\* @6cells (7.2V), using single motor.

## CONNECTIONS

Motor Connector  
(yellow = plus) (blue = minus)

Battery Connector  
(Tamiya/JST)

Receiver Lead

### RECEIVER CONNECTING WIRE:

This Nosram speed-control is equipped with a Nosram Multicon receiver wire. As supplied, it will easily fit in all ordinary receivers.

## WATERPROOF

- Due to latest production technologies and use of HighTech materials, it was possible to make these speed-controls fully waterproof! This material also makes the speed-control more shock resistant than other similar products.
- It's no longer needed to seal your speed-control when you are driving in the rain/snow! But please make sure you still seal your other electronic components (receiver and servo) since these are normally not waterproof.

## 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 picture).

Mabuchi motor



Racing motor



**CAUTION:** Never use Schottky diodes in conjunction with a forward/reverse speed-control, e.g. the Nosram Hawk/Hawk-Plus Reverse digital.

## SET-UP PROCEDURE

After wiring up the speed-control, it 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

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.

## SPECIAL FEATURES

### AUTOMATIC SETUP

Due to the Nosram exclusive 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 unprecise setups are a thing of the past with the Nosram Hawk series 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.

Nosram'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.

### REVERSE OPERATION

No reverse time limit!

The Nosram Hawk series speed-controls have no reverse time limit.

### 3-WAY PROTECTION SYSTEM

This unique monitoring software is the perfect protection for the Nosram Hawk series speed-control 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.

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 slots in the body.

## TROUBLESHOOTING

SYMPTOM	CAUSE	REMEDY
Servo is working, no motor function.	Speed-control plugged in incorrectly	Plug speed-control in Ch 2
	Overload protection activated	Allow speed-control to cool down
	Wiring problem	Check wires and plugs
	Motor defective	Replace motor
	Motor brushes jammed.	Check whether 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	
	Speed-control defective	Send in product for repair
Motor runs in reverse when accelerating forward on the transmitter.	Throttle stick polarity at transmitter changed while driving	Repeat startup procedure
	Motor connected incorrectly	Connect motor correctly
Insufficient performance. E.g. poor brake power, reverse power, topspeed or acceleration...	Motor pinion or gear ratio too long.	Use smaller motor pinion or shorter gear ratio
	Transmitter settings were changed after startup.	Repeat startup procedure
	Motor worn out	Maintain motor
	Speed-control defective.	Send in product for repair
Speed-control overheats or switches off frequently.	Reduced cooling efficiency	Cut cooling holes in body
	Motor stronger than motorlimit or input voltage higher too high	Use only motors within motorlimit and use batteries according to the specifications of 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	Transmitter settings were changed after startup	Repeat startup procedure
	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 at regular intervals
	Transmitter antenna too short	Pull out antenna to full length

## REPAIR PROCEDURES / LIMITED WARRANTY

All products from NOSRAM are manufactured according to the highest quality standards. NOSRAM 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
- Mechanical damage of electronic components/PCB
- Soldered on the PCB (except on external solder-tabs)
- Connected speed-control with reversed polarity

With Limited Lifetime Warranty products, the warranty terms on the Limited Lifetime Warranty card do also apply.

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 NOSRAM 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, NOSRAM does not take any responsibility for the accuracy of these specs.

### NOSRAM-DISTRIBUTOR-SERVICE:

- Package your product carefully and include sales receipt and detailed description of malfunction.
- Send parcel to your national NOSRAM distributor (see [www.nosram.com](http://www.nosram.com)).
- Distributor repairs or exchanges the product.
- Shipment back to you usually by CDD (cash on delivery), but this is subject to your national NOSRAM distributor's general policy.