

RA00123

ORDER NO.:
84110**FORWARD + REVERSE
OVER 14 TURNS**ORDER NO.:
84210**FORWARD + REVERSE
OVER 11 TURNS**ORDER NO.:
84310**FORWARD + REVERSE
OVER 7 TURNS**

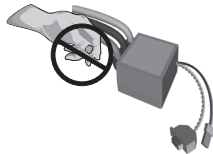
USER GUIDE



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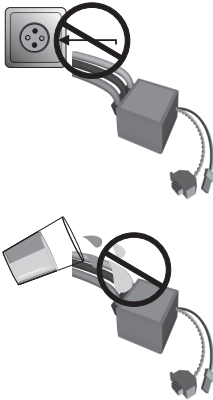
WARNING NOTES

- **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.
- Avoid soldering longer than 5sec per soldering joint when replacing the power wires to prevent possible damage to the speed-control due to overheating of the components!



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 Quantum Reverse 2 speed-control. A Schottky diode will destroy any forward/reverse speed-control.
- 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 speed-control.
- 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 (except on external solder-tabs).
- If you use more than 6 cells in the drive battery, the motor limit rises by 2 turns for each additional cell.



INSTALLATION

- Solder the capacitors to the motor.
- Attach the speed-control to the model.
- Connect the speed-control to the receiver (position: channel 2).
- (QR2 Bullet ONLY!) > Connect the external fet lead, if you are using such a servo.
- Connect the speed-control to the motor. Yellow wire PLUS, Blue wire MINUS.
- Then check all the 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 be set-up (see back page).

SPECIAL FEATURES

RACING MODE, switch off reverse

You have the option of switching off reverse for racing. The speed-control then uses the full reverse range as a brake only.

Switching OFF Reverse

- Switch speed-control Off
- Press and hold the SET-button
- Switch speed-control On while SET-button is pressed

Switching ON Reverse

- Switch speed-control Off
- Press and hold the SET-button
- Switch speed-control On while SET-button is pressed

REVERSE OPERATION

An additional protective function is the 8sec time limit in reverse. If you run your model for longer than 8sec, the speed-control switches to neutral. Move the throttle stick briefly to neutral, and you can then use reverse for a further 8sec. Extensive testing has shown that this limit never gets reached in normal use.

REAL-TIME-BRAKING

In contrast to conventional forward/reverse speed-controls, the QR2 series has a real-time-brake. It works fully proportional in operation until your vehicle comes to a complete stop. The unit then switches to reverse without any annoying delays.

MULTI-PROTECTION-SYSTEM, 3-way protection

This unique monitoring software is the perfect protection for the QR2 series 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 and the LED will flash red/green to indicate the overload, 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.

Dear Customer, thank you for your trust in this LRP product. By purchasing a LRP Quantum Reverse 2 digital series speed-control you have chosen a high-performance product full of new design features, such as:

- Ultra High Performance using SMD Mosfet's
- Extended runtime
- Small in size, super lightweight
- Racing mode, reverse switch off
- Real-Time-Braking
- Plug-in-and-Drive.

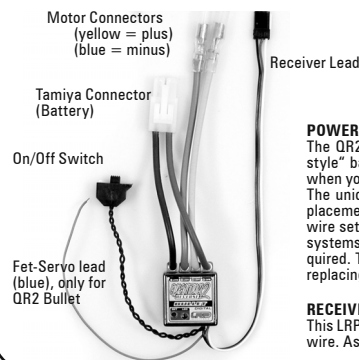
Please read and understand these instructions completely before you use this product!
With operating this product, you accept the LRP warranty terms.*

SPECIFICATION

Product	QR2 Super	QR2 Pro	QR2 Bullet
Order.No.	84110	84210	84310
Forward/Brake/Reverse	yes	yes	yes
Case Size	26.0x26.0x15.7mm	26.0x26.0x15.7mm	26.0x26.0x15.7mm
Weight (excl.wires)	16.5g	17.0g	18.0g
Voltage Input	4-7 cells (4.8-8.4V)	4-7 cells (4.8-8.4V)	4-7 cells (4.8-8.4V)
Typical Voltage Drop@20A*	0.075V	0.060V	0.050V
Rated Current*	50A	65A	75A
Rec. Motor Limit**	Over 14 Turns	Over 11 Turns	Over 7 Turns
B.E.C.	5.0V	5.0V	5.0V
PWM Frequency	yes	yes	yes
Multi-Protection-System	yes	yes	yes
Connectors	Standard Tamiya Style	Standard Tamiya Style	Standard Tamiya Style
Setup Procedure	Single button	Single button	Single button

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

CONNECTIONS



POWER WIRES:

The QR2 series comes pre-wired using common „Tamiya/JST-style“ battery and motor connectors. It's simply „plug & play“ when you intend using a designated motor!
 The unique splitted solder-tabs allow easy and convenient replacement of the power wires, if you plan using a „hardwired“ wire setup with different connectors (use polarised connecting systems only!). Nevertheless, some soldering skills are required. Talk to your local hobbyshop if you are concerned about replacing the wires yourself.

RECEIVER CONNECTING WIRE:

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

INSTALLATION TIPS

- Affix the speed-control using the supplied doublesided 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 and the SET-button.
- Make sure there is enough clearance (about 3cm) 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 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.

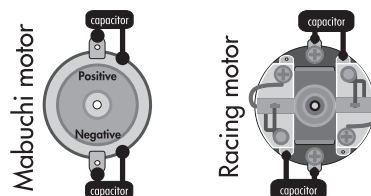
IMPORTANT:

The supplied heatsink improves and safeguards the performance capacity of your QR2 speed-control when used close to it's specified limits.
 Use only the genuine QR2 series heatsink (#81123) and attach it using the supplied heat-transferring double-sided tape (thin/clear). Do not use any other tape to attach the heatsink!



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).



CAUTION: Never use schottky diodes in conjunction with a forward/reverse speed-control such as the QR2 series speed-controls.

RADIO / SPEED-CONTROL SET-UP

In setup mode, the QR2 stores every step when you press the SET button. All the settings will be stored in the speed-controls memory even if the speed-control will be disconnected from the battery.

TRANSMITTER SETTINGS

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

Throttle travel	High ATV, EPA	maximum
Brake travel	Low ATV, EPA, ATL	maximum
Throttle exponential	EXP, EXPO	start with 0
Neutral-/throttle-trim	SUB Trim	centre
Servo Reverse	Gas Reverse	any setting, don't change after set-up procedure!

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

- Ensure, that the speed-control is not connected to the drive battery and is switched off.
- Remove motor pinion or ensure that the wheels of the model are free to rotate.
- Switch the transmitter on and set the transmitter throttle stick to neutral.

- Connect the speed-control to the battery and switch the unit on.
- Hold the SET button pressed for at least 3sec using the supplied plastic screwdriver.

- The SET LED flashes green/red and indicates that you entered setup mode.

- Leave the throttle stick at neutral and press the SET button once.
-> Neutral setting is now stored, the LED flashes green and the motor beeps.
- Hold the transmitter stick at full throttle and press the SET button once.
-> The full-throttle setting is now stored, the LED flashes red and the motor stops beeping.
- Hold the transmitter stick at full reverse and press the SET button once.
-> The reverse setting is now stored. The LED is off.

- This completes the setup procedure and your QR2 is ready to use.
- If you make a mistake during the setup procedure, don't worry: Disconnect the battery for about 10sec and start again from the first step.
- At the end of each run, disconnect the drive battery and then switch off the transmitter. At the start of each run, switch on the transmitter first, then connect the drive battery.

CHECKING THE FUNCTIONS:

If you run through the following functions with the throttle stick, you can check on the LED's that everything is setup correctly.

FUNCTION	STATUS	LED
Neutral		green/red
Forward	Partial Throttle	bright green
Forward	Full Throttle	off
Brake	Partial Brake	bright red
Brake	Full brake	off
Reverse	Partial Reverse	dull to bright red
Reverse	Full Reverse	off
Overload Protection	Active	flashes green/red

TROUBLE-SHOOTING GUIDE

SYMPTOM	CAUSE	REMEDY
Servo is working, no motor function.	Set-Up problem	Repeat set-up procedure
	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 moto
	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 set-up 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
	Transmitter settings were 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.	No heatsink installed	Install heatsink
	Reduced cooling efficiency	Cut cooling holes in body
	Motor stronger than motorlimit or input voltage too high	Use only motors and batteries which are within the specifications of the speed-control
	Motor pinion or gear ratio too big	Use smaller motor pinion
	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
	Transmitter settings were changed after set-up	Repeat set-up procedure
Motor never stops, runs at constant slow speed	Humidity/water in speed-control	Immediately unplug and dry speed-control
	Speed-control defective	Send in product for repair
	Motor suppressors not sufficient	Solder capacitors to motor
Radio interference	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

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
- Humidity/Water inside the speed control
- 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 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.