

Order No.: 84100

Order No.: 84200

Order No.: 84300



FORWARD + REVERSE  
16 - 36 Turns  
70 Amps

FORWARD + REVERSE  
13 - 36 Turns  
90 Amps

FORWARD + REVERSE  
Over 7 Turns  
120 Amps

## USER GUIDE



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### Dear customer,

Congratulations on choosing one of the world's finest electronic speed controls. We have incorporated the latest digital technology in your Quantum Reverse series speed control in order to provide maximum performance and reliability. The following features give your new speed control the crucial advantage, and are described in full later:

- Ultra High Performance using the latest SMD-MOS FETs
- Adjustable to Racing Mode, reverse switch off
- Short protection and safety of full warranty
- Small in size, fits anywhere + Plug-in and drive
- Extended run-time
- The first with Real-Time-Braking
- Super-light for improved chassis handling

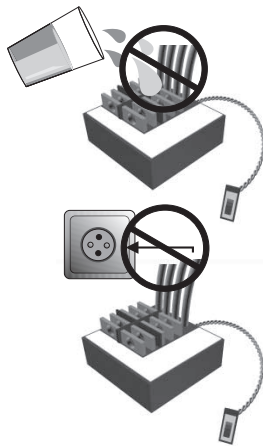
## SPECIFICATION

	Quantum Reverse	Quantum Super Reverse	Quantum Pro Reverse		Quantum Reverse	Quantum Super Reverse	Quantum Pro Reverse
Voltage range / No. of cells	4.8-8.4 V / 4-7	4.8-8.4 V / 4-7	4.8-8.4 V / 4-7	Pulse frequency	2100 Hz	2300 Hz	2500 Hz
Internal resistance	0.0038 Ω	0.0023 Ω	0.00175 Ω	Reverse	yes	yes	yes
Momentary load (1 sec)*	70 A	90 A	120 A	Protective functions	yes	yes	yes
Brief load (30 sec)	45 A	55 A	70 A	Standard connector	yes	yes	yes
Continuous load (5 min)	30 A	35 A	50 A	Set-up procedure	Digital/push-button	Digital/push-button	Digital/push-button
Recommended motor	16-36 turns	13-36 turns	Over 7 turns	Battery recharge during braking	yes	yes	yes
Receiver voltage	5.0 V	5.0 V	5.0 V	Power-on pulse suppression	yes	yes	yes
Max. receiver current (30 sec)	2.0 A	2.0 A	2.0 A	Weight (excl. cables)	17.5 g	17.5 g	17.5 g
Continuous receiver current (5 min)	1.2 A	1.2 A	1.2 A	Case size	26 x 26 x 15.7 mm	26 x 26 x 15.7 mm	26 x 26 x 15.7 mm

\* The "Momentary load (1 sec)" figure corresponds to US manufacturers' specifications: „Continuous current at the temperature of 25°C“.

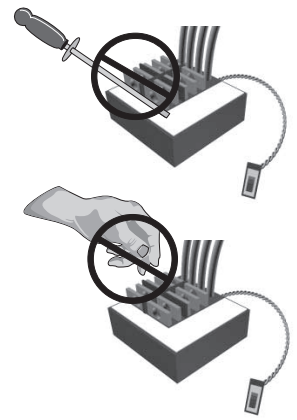
## WARNING NOTES

- **Important:** never leave your RC model unattended when the battery is connected. If a fault should occur the result might be a fire in the model which could destroy anything else in the vicinity.
- The speed control and other electronic components must **never be allowed to contact water**. Avoid operating the unit in rain. If you are obliged to run in wet conditions, domestic paper towels provide the best protection.
- If the motor is connected to the speed control you must not run the motor by connecting a separate battery. This will wreck the unit and invalidate the guarantee.
- Do not cut off the original plug, as this invalidates the guarantee.
- Take care to avoid incorrect connections and reverse polarity as this will also cause damage to the unit. If you prefer different



connectors, fit a polarised connector system (plugs / sockets) such as the LRP Hi-Amp (No. 6280); this does not invalidate your guarantee.

- Never allow the output stages (FETs) to contact any metal object - short-circuit hazard.
- Do not wrap your speed controller in foil; it is important to provide a free flow of cooling air over it.
- All cables and connections should be well insulated; short circuits can easily wreck the controller.
- Never alter the polarity of the receiver plug.
- **Never solder a Schottky diode to the motor if you are using an LRP Quantum Reverse series speed control. A Schottky diode will ruin any forward/reverse controller.**



## INSTALLATION TIPS

- Mount the speed control in the model using the double-sided foam tape supplied.
- Provide plenty of cooling openings in the bodywork; this increases the performance and extends the life of all electronic components.
- Install the speed control in a location where it is protected from crash damage.
- The speed control should be installed in such a way that you have easy access to all connectors and the set-up button.
- Ensure that there is an adequate distance (approx. 3 cm) between the speed control and power cables and the receiver or receiver aerial. Avoid direct contact between any of the power system components and the receiver or aerial, as this can cause interference. If you encounter interference problems, the first step should always be to try re-positioning the components 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.

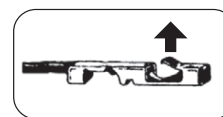
- **IMPORTANT:** The heat-sink improves and safeguards the performance capacity of your Quantum speed control when used close to its specified limits. Use only the genuine LRP Quantum Reverse series heat-sink, Order No. 81123



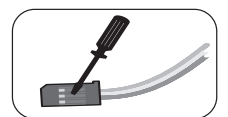
## CONNECTIONS



- **Graupner-, Ko-Propo-, Futaba-, Hitec- und LRP-Phaser-receivers:** The LRP speed control is fitted with an LRP Multi-Con receiver lead which fits any of the above receivers directly.
- **Sanwa receivers:** Remove the black plastic moulding from the receiver cable and replace it with the plastic moulding supplied (inscribed "AIR") as follows:
- **Replacing the plastic plug moulding:** Press in the metal lugs of the connector pins using a ball-point pen to disengage them; the wires can then be withdrawn from the plastic housing. Check the polarity using the table below, and slip the pins into the new plastic moulding until they snap into place.



Bend the metal lugs up again.  
Push the plug into the new plastic moulding.



### Check correct polarity carefully if changing connectors:

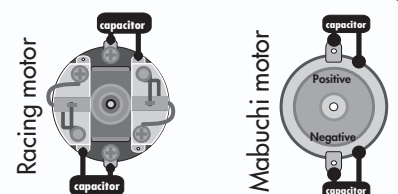
Receiver	Futaba	Graupner	Acoms	Sanwa from Carson
Signal wire	white	orange	yellow	yellow
Positive wire	red	red	red	red
Negative wire	black	brown	black	black

## INSTALLATION

- Solder the suppressor capacitors to the motor.
- Remove the motor pinion, or ensure in some other way that the wheels of the model can rotate freely.

- Install the speed control in the model.
- Connect the speed control to the receiver (channel 2).
- If you are using a servo with an external FET lead, solder this in place now (Quantum Pro Reverse only).
- Connect the speed control to the motor. Note the colour code: yellow wire positive, blue wire negative.
- Check all the wiring and connections before you connect the speed control to a drive battery. Caution: incorrect polarity will wreck your speed control.
- The speed control is now ready to be set-up (see back page).

## MOTOR SUPPRESSION



Motors with no suppressor capacitors, or inadequate suppression, may cause the speed control to malfunction. Always solder the capacitors supplied to your motor, as shown in the illustration.

**Caution:** never use Schottky diodes in conjunction with a forward/reverse speed control such as the Quantum Reverse series.

Schottky diode:



## SET-UP PROCEDURE

In set-up mode the Quantum Reverse series speed controls automatically store the values you select when you press the set-up button. All the settings are stored in the unit even when the speed control is subsequently disconnected from the battery. Start with the transmitter set-up procedure:

### TRANSMITTER SETTINGS:

Set the basic functions on your transmitter as follows (if present):

High ATV, EPA	(throttle travel)	- maximum
Low ATV, EPA, ATL	(brake travel)	- maximum
EXP, EXPO	(exponential)	- start with 0
SUB trim	(neutral trim)	- centre
TH trim, coast brake		- centre
Throttle reverse	(servo reverse)	- any setting; must not be changed after completion of set-up procedure.

Asymmetrical stick travel is possible (2/3 throttle - 1/3 brake)

If your transmitter does not feature these set-up functions, it is already in "basic set-up" mode.

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

- Connect the speed control to the battery and switch the speed control on.
- Hold the set-up button pressed in for at least 3 seconds using the plastic screwdriver supplied.

- The set-up LED now flashes red/green to confirm that the unit is in set-up mode.

- Leave the throttle stick at neutral and press the set-up button.
- The neutral setting is now stored, and the set-up LED flashes green.
- Move the transmitter stick to full-throttle and press the set-up button with the stick still in this position.
- The full-throttle setting is now stored, and the set-up LED flashes red.
- Move the transmitter stick to full brake and press the set-up button with the stick still in this position.
- The brake setting is now stored, and the set-up LED goes out.
- Your Quantum Reverse series speed control is now completely set-up and ready to run.

- If you make a mistake during the set-up procedure, don't worry: disconnect the battery for about 10 seconds and start again from the first step.
- At the end of each run disconnect the battery, and only then switch off the transmitter. At the start of each run switch on the transmitter first, then connect the drive battery.

### CHECKING THE FUNCTIONS:

You can check the following functions by watching the reaction of the LED as you move the throttle stick:

FUNCTION	STATE	LED GLOWS
Neutral		green/red
Forward	part-load	bright green
Forward	full-throttle	off
Brake	part-load	bright red
Brake	full brake	off
Reverse	part-load	light to dark red
Reverse	full-throttle	off
Temperature protection	active	flashes bright red/green

## 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 in 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.

## DESCRIPTION OF FEATURES

### Ultra High Performance using the latest SMD-MOS FETs

The internal resistance of these new FET transistors is about 2/3 lower.

### Extended run-time

The lower internal resistance extends running times.

### The first with Real-Time-Braking

The Quantum Reverse series is the first to feature a real-time brake. In contrast to conventional forward/reverse speed controls, the brake is fully proportional in operation until your vehicle comes to a complete halt. The unit then switches to reverse immediately, without any annoying delay.

### Adjustable to Racing Mode, reverse switch off

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

**Switching off reverse:**  
> Switch speed control off  
> Press and hold set-up button  
> Switch on speed control with set-up button pressed in

**Switching on reverse:**  
> Switch speed control off  
> Press and hold set-up button  
> Switch on speed control with set-up button pressed in

### Short protection and safety of full warranty

The Quantum speed control's integral Multi-Protection software provides a unique level of protection against short circuit (motor), overload and overheating. If any of these overload situations occurs, the motor function is switched off to protect the circuit, although the steering function is maintained. **The bright red / green LED flashes to indicate an overload situation.**

Allow the speed control to cool down, and the throttle function will be switched on again automatically.

Check for the cause of the overload: is the motor too powerful? Is the motor pinion too large? Is the power train stiff? Are you constantly switching from full power forward to full power in reverse?

### Small in size, fits anywhere + Plug-in and drive

The small size of Quantum speed controls allows them to be installed anywhere in the model. The factory-fitted standard connectors provide an easy means of connecting it to battery and motor.

### Super-light for improved chassis handling

The light weight of the Quantum speed control allows you to lower your model's Centre of Gravity for improved roadholding.

### Reverse time limit

An additional protective function is the 8 second time limit in reverse. If you run the car in reverse for longer than 8 seconds, the speed control switches to neutral. Move the throttle stick briefly to neutral, and you can then use reverse for a further 8 seconds.

## TROUBLE-SHOOTING GUIDE

Symptom	Cause	Remedy
Servo works; no throttle function	Set-up / basic settings problem	Repeat basic speed control set-up procedure from start. Note also that all transmitter functions must be set as described in the instructions.
	Speed control connected to wrong receiver channel	Speed control must be connected to Ch. 2; check polarity of receiver lead
	Motor defective	Fit new motor
	Motor brushes stuck	Check that brushes are free to move
	Overload protection tripped	Allow speed control to cool down
	Wiring problem	Check cables and connectors
	Speed control defective	Send unit in for repair
No servo or motor function	Receiver plug incorrectly wired	Check polarity of receiver plug
	Crystal faulty	Replace components one by one to locate fault
	Receiver faulty	
	Transmitter faulty	
Vehicle stops when running forward, accelerates strangely	Speed control damp, protective circuit tripped	Switch off immediately, allow speed control to dry out
	Receiver power supply circuit faulty	Check BEC output voltage, or send unit in for repair
	Motor connected incorrectly, speed control set-up incorrectly. You are using reverse function for forward running.	Connect motor correctly Repeat complete speed control set-up procedure from start
Motor runs in reverse when you open the throttle	Motor connected incorrectly	Check motor connections (+ is yellow)
	Transmitter throttle stick direction changed	Simply repeat basic speed control set-up procedure leave stick direction unchanged
No brake function, or no reverse function	Set-up / basic settings problem	Repeat basic speed control set-up procedure from start; see also „No motor function“ point.
	Speed control faulty	Send unit in for repair
Insufficient brake power	Set-up / basic settings problem	Repeat basic speed control set-up procedure (see above), or reset Low ATV, EPA, ATL on transmitter to maximum
	Gear ratio far too long	Fit smaller motor pinion
	Motor too powerful, or input voltage too high	Use less powerful motor, or battery with lower voltage / fewer cells
Insufficient top speed	Motor too powerful, or input voltage too high	Use less powerful motor, or battery with lower voltage / fewer cells
	Gear ratio far too long	Fit smaller motor pinion
	Car drive / bearing system problem	Check or replace components
	Model run too often without cooling period	Allow speed control to cool off after each full run
Speed control overheats or switches off	Inadequate cooling	Cut cooling openings in bodywork
	Motor too powerful, or input voltage too high	Use less powerful motor, or battery with lower voltage / fewer cells
	Gear ratio far too long	Fit smaller motor pinion
Motor does not stop; continues running slowly	Motor connected incorrectly, speed control set-up incorrectly	Repeat basic speed control set-up procedure from start; see also „No motor function“ point.
	Damp in speed control	Disconnect battery immediately. Dry speed control with heat-gun, try again after 2 days
	Set-up / basic settings problem	Repeat basic speed control set-up procedure
Radio interference	Speed control faulty	Send unit in for repair
	Motor inadequately suppressed	Solder capacitors to motor
	Receiver or aerial too close to power cables, motor, drive battery or speed control.	See „Installation“
	Receiver aerial too long or too short	
	Receiver faulty, too sensitive	Replace components one by one to locate fault
	Transmitter faulty	Use original crystals only
	Transmitter output power too low	
	Servo problem	
	KO-FET servo without choke	Solder choke (supplied with servo) in place
	Poor battery connection	Check connectors
Imprecise, non-linear, control characteristics	Transmitter battery / cells flat	Replace dry cells, recharge NiCd pack
	Transmitter aerial too short	Extend transmitter aerial fully
	Transmitter battery / cells flat	Check transmitter battery regularly
	Transmitter or transmitter „car program“ has been changed	Repeat basic speed control set-up procedure

## WHAT SHALL I DO?

- Package your Speed-Control carefully.

- Send parcel to your national distributor.

- Distributor repairs/replaces the Speed Control.

- Shipment back to you usually by COD (/cash on delivery), but is subject to your distributors general policy.