

Order No.:
8319

F1 REVERSE
DIGITAL

FORWARD + REVERSE
16 - 36 Turns
110 Amps

Order No.:
8324

F1 SUPER REVERSE
DIGITAL

FORWARD + REVERSE
13 - 36 Turns
170 Amps

Order No.:
8336

F1 PRO REVERSE
DIGITAL

FORWARD + REVERSE
No Motorlimit
270 Amps

USER GUIDE

ra00031

LRP
ELECTRONIC

LRP electronic

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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 F1 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:

- EMF brake, Drive Control System
- Fully proportional reverse, zero delay
- Multi-Protection protective functions
- Reverse can be disabled

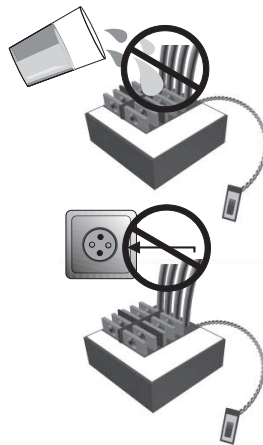
SPECIFICATION

	F1 Reverse	F1 Super Reverse	F1 Pro Reverse		F1 Reverse	F1 Super Reverse	F1 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	0.012 Ω	0.008 Ω	0.0041 Ω	Brake, Drive-Control-System	EMF	EMF	EMF
Momentary load (1 sec)*	110 A	170 A	270 A	Reverse	yes	yes	yes
Brief load (30 sec)	60 A	70 A	100 A	Protective functions	yes	yes	yes
Continuous load (5 min)	30 A	35 A	55 A	Set-up procedure	Digital/push-button	Digital/push-button	Digital/push-button
Recommended motor	16-36 turns	13-36 turns	No limit	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)	1.6 A	1.6 A	1.6 A	Weight	57 g	57 g	59 g
Continuous receiver current (5 min)	0.6 A	0.6 A	0.6 A	Size	40 x 40 x 15 mm	40 x 40 x 15 mm	40 x 40 x 15 mm

* The "Momentary load (1 sec)" figure corresponds to US manufacturers' specifications Continuous current refers to a temperature of 25°C.

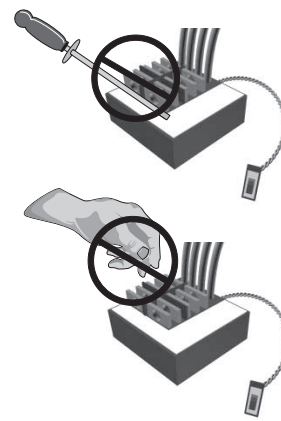
WARNING NOTES

- **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



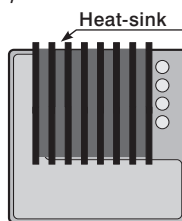
connectors, fit a polarised connector system (plugs / sockets) such as the LRP Hi-Amp (No. 6280); this does not invalidate your guarantee.

- Never allow the output stages (FETs) to touch a metal surface - short-circuit hazard.
- Never wrap your speed control in foil or film; air must always be able to flow round and over the unit.
- All cables and connections should be well insulated. Short-circuits will ruin the unit.
- Never change the polarity of the receiver plug.
- **Never solder a Schottky diode to the motor if you are using one of the LRP F1 Reverse series of speed controllers. Schottky diodes wreck any forward/reverse controller.**

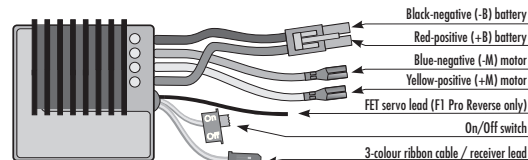


INSTALLATION TIPS

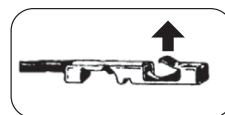
- Mount the speed control in the model using the double-sided foam tape supplied.
- Provide plenty of cooling openings in the bodywork; this increases the performance and extends the life of all electronic components.
- Install the speed control in a location where it is protected from crash damage.
- 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 the performance of your F1 Reverse series speed control and must always be used. Use only genuine LRP heat-sinks.



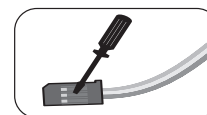
CONNECTIONS



- **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:

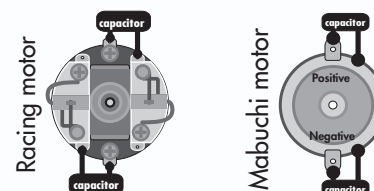
Receiver	Futaba	Graupner	Acoms	Sanwa from Carson
Signal wire	white	orange	yellow	yellow
Positive wire	red	red	red	red
Negative wire	black	brown	black	black

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 (F1 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

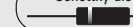


Motors with no suppressor capacitors, or inadequate suppression, may cause the speed control to malfunction. Always solder the capacitors supplied to your motor, as shown in the illustration.



Caution: never use Schottky diodes in conjunction with a forward/reverse speed control such as the F1 Reverse series.

Schottky diode:



SET-UP PROCEDURE

In set-up mode the F1 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 F1 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 green
Brake	full brake	off
Reverse	part-load	dark to light green
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

IBC (INTELLIGENT BRAKE CONTROL)

Unlike conventional forward/reverse speed controls the F1 Reverse series features a fully proportional EMF brake which only switches to reverse when the car comes to a complete halt. The unit then switches to reverse without any disturbing delay.

These functions offer the following advantages:

- More power, as the speed control stays cooler
- Sensitive, super-smooth braking
- Superior braking power
- Extended gearbox life

REVERSE

Time limit on reverse running:

As a protection against overloading, all F1 Reverse series speed controls incorporate an 8 second time limit for reverse running. After this period the speed control switches to neutral. If you wish to run further in reverse, open the throttle briefly in the forward direction and then switch to reverse again.

Disabling reverse:

The F1 Reverse series speed controls feature the option of disabling the reverse facility. In this mode the units work as forward/brake speed controls, which is very important for competition racing.

Switching the program:

(for changing from forward/brake to forward/reverse and vice versa)

Switch speed control off -> press and hold set-up button -> switch speed control on again (with the set-up button pressed in).

MULTI-PROTECTION SYSTEM, PROTECTIVE FUNCTIONS

This unique system of monitoring software provides highly effective protection for your F1 Reverse series speed control against short-circuit (motor), overloading and overheating. If your speed control is subjected to one of these forms of overloading, the unit switches off the motor function for maximum protection, but the steering function is retained in full. The set-up LED flashes bright red/green if this should happen.

Wait a few minutes for the speed control to cool off.

If the unit switches off regularly, your motor is too powerful, the motor pinion is too large or you brake too often using full brake stick travel. You can also improve the situation by cutting additional cooling openings in the bodywork.

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	
	Speed control damp, protective circuit tripped	Switch off immediately, allow speed control to dry out
Vehicle stops when running forward, accelerates strangely	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	Check motor connections (+ is yellow). Transmitter throttle stick direction changed.
No brake function, or no reverse function	Motor connected incorrectly	Simply repeat basic speed control set-up procedure leave stick direction unchanged.
	Transmitter throttle stick direction changed	Repeat basic speed control set-up procedure from start; see also „No motor function“ point.
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
	Speed control faulty	Fit smaller motor pinion
Insufficient top speed	Set-up / basic settings problem	Repeat basic speed control set-up procedure from start; see also „No motor function“ point.
	Transmitter has been adjusted after initial speed control set-up	
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
	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
Motor does not stop; continues running slowly	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
	Speed control faulty	Send unit in for repair
Radio interference	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
	Transmitter battery / cells flat	Replace dry cells, recharge NiCd pack
Transmitter aerial too short	Extend transmitter aerial fully	
Imprecise, non-linear, control characteristics	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.