



XS SPEED CONTROLLER

DATA SHEET AND INSTALLATION INSTRUCTIONS

The RCP 'XS' speed controller uses 8 extremely efficient power mosFET's. The FET's give typically less than 0.0068 volts drop per amp, which in practical terms is equivalent to less than 12 inches of motor hook up wire.

The controller has an inbuilt thermal override which monitors the 2 reverse/brake FET's and inhibits them if they overheat. This condition can occur if the car is stuck and reverse is selected with the motor stalled. Forward motion is unaffected, and the reverse FET's will reactivate when they have cooled sufficiently.

With the car in forward motion, when reverse is selected proportional brake is applied to the motor. A short delay will occur before reverse is activated.

The RCP 'XS' controller has been designed and built to the very highest standards, and all controllers are 'burnt-in' (to eliminate infant mortality) with a modified high performance motor and cycled for several hours by computer before leaving the factory. We have intentionally used translucent blue heatshrink to protect the controller, so that the quality of workmanship to the PCB and related components can be fully appreciated.

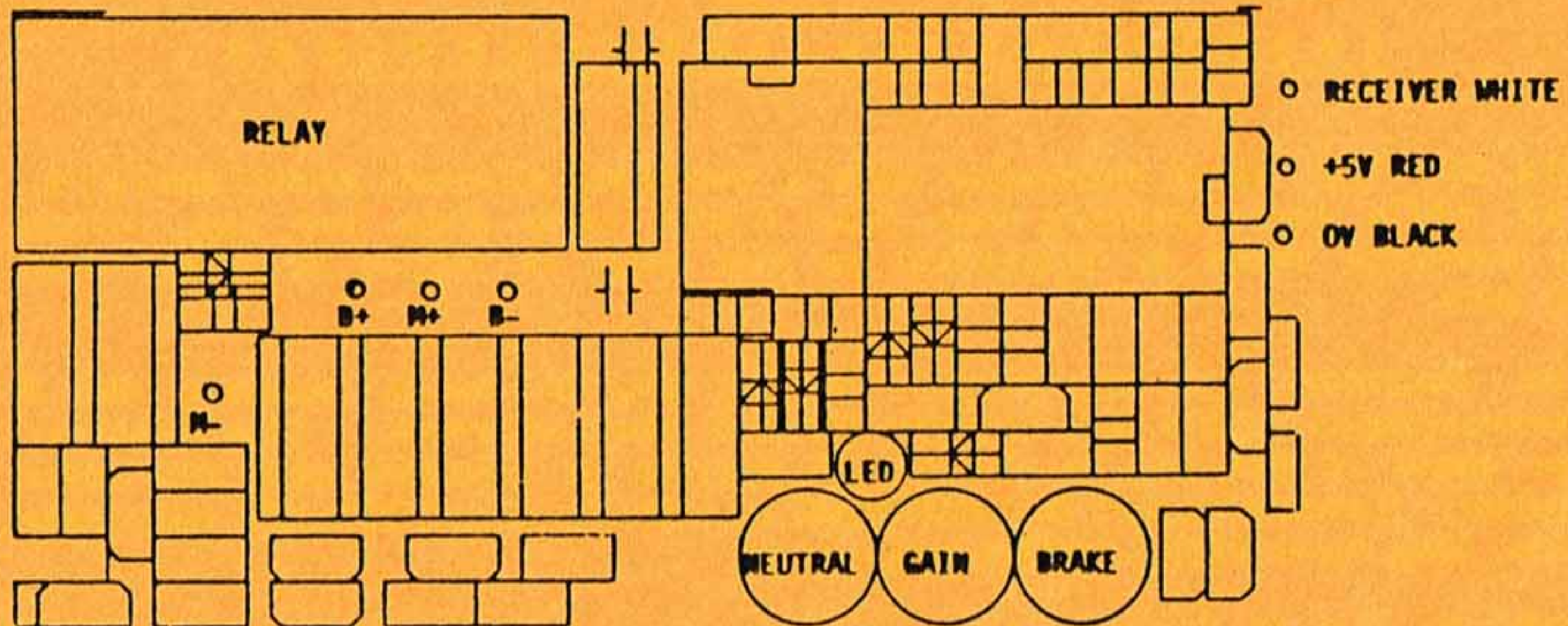
A summary of the main features includes:-

- * 8 HIGH SPEC FETS GIVING A POWER OUTPUT OF 180 AMPS CONTINUOUS OR 480 AMPS INSTANTANEOUS
- * HIGH QUALITY PRINTED CIRCUIT BOARD (PCB) WITH PROTECTIVE COATING
- * FULLY PROPORTIONAL FORWARD, BRAKE AND REVERSE
- * CORRECT NEUTRAL SETTING ASSISTED BY RED LED ON PCB
- * FET BRAKE AND REVERSE
- * VOLTAGE TRIPLING CIRCUITRY FOR INCREASED FET EFFICIENCY
- * INDEPENDENT RATE ADJUSTMENT FOR BOTH FORWARD/REVERSE AND BRAKE
- * ELECTRICAL INTERLOCK CIRCUITRY FOR FET PROTECTION UNDER FAULT CONDITIONS
- * THERMAL OVERRIDE ON BRAKE/REVERSE
- * BUILT-IN BATTERY ELIMINATOR CIRCUITRY
- * SUPPRESSOR CAPACITOR ACROSS MOTOR 'ON BOARD PCB'
- * COMPATIBLE WITH 7.2v AND 8.4v NICAD PACKS
- * SIZE: 73 x 34 x 27mm
- * WEIGHT: ONLY 65 gms (approx.)

RETAIL PRICE: £64.95

INSTALLATION INSTRUCTIONS

Before any work is undertaken on your new 'XS' controller, it is important that you familiarise yourself with the layout of the controls and lead wires located on the PCB of the controller. The following diagram of the 'XS' controller identifies all the main components.



There are four power leads coming from the controller - 2 red and 2 black. It is essential that these are connected correctly. Reversal of the nicad wiring will result in permanent damage to the controller. The four power leads are labelled B+, B-, M+ and M-. (B = Battery, M = Motor).

It is recommended that different plugs are used for the battery and motor leads, as this will ensure that in 'the heat of the moment', no wrong connections are made. If you are using the RCP 15 amp pin/socket connectors (see 'Electrical Accessories' - RCP Catalogue) for both motor and battery connections, it is recommended that these be fitted as described below to ensure that no cross connections are made:-

- Red Motor Lead (M+) - Socket
- Black Motor Lead (M-) - Pin
- Red Battery Lead (B+) - Pin
- Black Battery Lead (B-) - Socket

When installing the RCP 'XS' controller in your car, it is recommended that it be fixed in place using 'Velcro' tape. A small piece of 'Velcro' supplied with controller - further supplies available from RCP (see 'Nuts 'n Bolts Etc' - RCP Catalogue).

Having familiarised yourself with the layout of the 'XS' controller, you should commence installation as follows:-

1. If your 'XS' controller is not already fitted with a servo plug, strip about 3mm of insulation off the servo plug leads and tin each lead with solder. Slip about 10mm of 2.4mm heatshrink (see 'Electrical Accessories' - RCP Catalogue) up the insulation of one lead. With the tinned leads overlapping and in contact with each other, touch them with a soldering iron. Allow the joint to cool and slide the heatshrink sleeve over the joint. Apply gentle heat to shrink the sleeve. Repeat this operation for all three wires and then check that you have connected red to red and black to black. The third wire of the servo plug may be a different colour from the white wire of the controller - however, this doesn't matter. Now plug the controller into the speed control servo socket in the receiver.

IMPORTANT WARNING:

Built into the 'XS' controller is a battery eliminator circuit. This regulates the voltage to the receiver and eliminates the need for either a 4.8v receiver supply or a BEC circuit. i.e. The battery socket on your receiver is NOT used.

2. Now you should fit suitable connectors for the motor lead wires, but do not connect the motor to the controller at this time.
3. Next you should complete the installation of suitable connectors to the battery lead wires - but do not connect the battery to the controller just yet.
4. First switch on the transmitter.
5. Now connect the nicad to the controller.
6. Before connecting the motor, it will be necessary to adjust the neutral pot (potentiometer - a variable resistor) on your controller. Gently turn the pot adjuster with a small jewellers screwdriver of appropriate size until the RED LED on the PCB just lights up. This indicates that the forward FET's are being driven.

N.B. Pots will only turn 180° - DO NOT FORCE - TURN GENTLY.

7. Now that you have set the neutral point, you should connect the motor to the controller - connect the red lead (M+) to the positive terminal of the motor and the black lead (M-) to the negative terminal. If the motor is running forward, make the fine adjustment necessary to stop the motor running using the trim setting on your transmitter.
8. The next step is to check that the motor is running forward when the transmitter stick is in forward position. When the transmitter stick is pushed forward, the RED LED should be alight. If this is not the case, then you should operate the servo reverse switch on your transmitter. If your transmitter does not have a servo reversal switch, then you should disconnect your nicad and proceed as follows. Carefully remove the forward/reverse lever from your transmitter, and rotate this 180°, so that with your stick in the forward position your car runs forward.
9. All that now remains is to adjust the gain and brake pots on the controller. Remember pots will only turn 180° - turn gently.

Turning the 'gain' pot clockwise reduces the amount of stick movement necessary to get full power from the motor.

Turning the 'brake' pot clockwise increases the amount of brake available.

Your 'XS' controller is now ready for action, and it should give you trouble free service. The controller is guaranteed against faulty parts and workmanship for a period of three months from the date of purchase, and in the unlikely event that your controller should fail, please return to RCP together with your original purchase invoice.

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