Blue Point Engineering

Wizard 7 Motor Control Board

The Wizard 7 board allows the control of one DC motor and up to 2 relays from 3 incoming standard R/C servo signal lines. The board will handle DC motors rated at up to 24V and 10A. The on-board relays will switch up to 2A at 30V DC.

Connections

Motor
The DC motor is connected to the M- and M+ terminals.
The DC supply for the motor is connected to the G and +12V terminals.
A resetting polyfuse is included in the motor power supply line.

Relays
The switched relay outputs are brought out to the C/Nc/No terminals adjacent to the relays

Electronics Power Supply.
The electronics power supply must be separate from the DC motor supply. If you choose to use the same supply, you will experience interference and sporadic behaviour of the control circuitry.
The electronics (including relay switching) requires either 9V or 5V at 1 amp.
If using +5V, then connect this to the G and +5V terminals, if +9V then to the G and +V terminals.
Do not connect to both the +5 and the +V terminals at the same time.

Control Signals
The Wizard 7 board accepts standard 1-2msec pulse RC type control signals. The common ground for the incoming signals should be connected to the G terminal. The DC motor control line should be connected to the M terminal. Terminals 1 and 2 are for relays 1 and 2.
If it is required only to drive the motor, then it is possible to power the electronics and connect the control signal to the small 3-pin header provided on the board.

Trip Led
This led lights whenever the motor current exceeds the maximum allowed current. When this occurs, the drive to the motors is shut down.

Operation

Connect suitable loads and power supplies to the board.
Connect up to 3 suitable RC signals to the inputs.

DC Motor
With an input signal pulse width of 1.5msec, the motor will be energised but stationary. As the pulse width is either increased or decreased, the motor will start to turn either clockwise or anticlockwise with increasing speed. Maximum speed is reached when the pulse width is either 1 or 2 msecs in duration.
The PWM rate for the motor is approximately 15kHz

Relays
The relays will be energised for control signal pulse widths greater then 1.5msecs.

The actions of relay 2 may be linked to relay 1 as follows:
If JP1 is in place, then relay 2 follows relay 1
If JP2 is in place, then relay 2 is the opposite of relay 1.

If either of these facilities is being used, then a separate signal line for relay 2 is not required.

Loss of Signal
If a particular signal line is not present (either interrupted or not used) then the corresponding output will switch to its default state ie motor drive off, relay off.