



CURTIS



# Permanent Magnet Motor Speed Controller

## Model 1212



CE



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## Permanent Magnet Motor Speed Controller

The Curtis Model 1212 Motor Speed Controller provides precise and smooth control of permanent magnet drive motors for battery powered vehicles.

Optimized for use on modern 3 or 4 wheel mobility aid scooters. However, the model 1212's programmable options also allow it to be used on any low power permanent magnet motor application.

### FEATURES

#### Smooth and Secure Control

- ▶ Advanced speed regulation maintains precise speed over varied terrain, obstacles, curbs and ramps.
- ▶ Linear cutback of current ensures smooth control, with no sudden loss of power during under-voltage or over-temperature.
- ▶ Optional speed limit potentiometer input provides direct and linear control over the maximum vehicle speed.
- ▶ Proprietary algorithms help prevent gearbox wear while providing smooth starts and reversals.
- ▶ The vehicle is brought to a complete halt before the electromagnetic brake is applied, ensuring safe and secure stopping under all conditions.
- ▶ Charger inhibit input prevents driving while charger is connected.
- ▶ Emergency Stop Decel function ensures a smooth "brake to stop" when the key is turned off or a fault occurs that requires the vehicle to stop.
- ▶ Anti-roll back/roll-forward function provides smooth and safe vehicle control on hills and ramps.
- ▶ Internal main contactor provides secure power-off.
- ▶ Boost current gives a brief boost of current greatly improving performance with transient loads such as starting on a hill, crossing thresholds, climbing obstacles, etc.

#### Easy Installation and Setup

- ▶ Industry standard footprint, mounting centers and wiring allows drop-in replacement of other controllers.
- ▶ The Model 1212 is easily programmed with Model 1311 handheld or 1314 PC programmers, or can be supplied pre-programmed.
- ▶ Accepts all standard throttle types, including single-ended and center-off (wig-wag and unipolar).
- ▶ Simplified troubleshooting and diagnostics.
- ▶ Standard Mini-Fit Molex Jr. and Faston terminals provide proven, robust wiring connections.

#### Valuable Additional Features

- ▶ Optional Push-Switch input releases the brake and allows the motor to free-wheel.
- ▶ Push-too-Fast feature restricts vehicle speed even with the key off or with batteries disconnected.
- ▶ Automatically compensates for changes in motor condition to ensure optimum drive performance at all times.
- ▶ Multi-mode provides for two distinct and programmable control modes (indoor/outdoor modes).
- ▶ Power Saver function prevents the controller draining the battery when vehicle is inactive.
- ▶ Battery Discharge Indicator output.
- ▶ Optional Speed Inhibit input offers flexibility to reduce speed or prevent drive, e.g. when seat is lifted.
- ▶ Adjustable brake hold voltage reduces heating of the brake coil.
- ▶ Reverse Beeper function alerts bystanders.
- ▶ Electronics sealed to IPX5.



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### FEATURES continued

#### Robust Safety and Reliability

- ▶ High RF immunity prevents speed variation and shutdowns in noisy RF environments.
- ▶ Controller power circuits and microprocessor software are continuously monitored for proper operation.
- ▶ System start-up checks detect a defective throttle, brake, or associated wiring and disables drive.

#### Meets or complies with relevant US and International Regulations

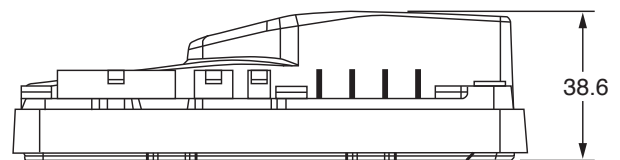
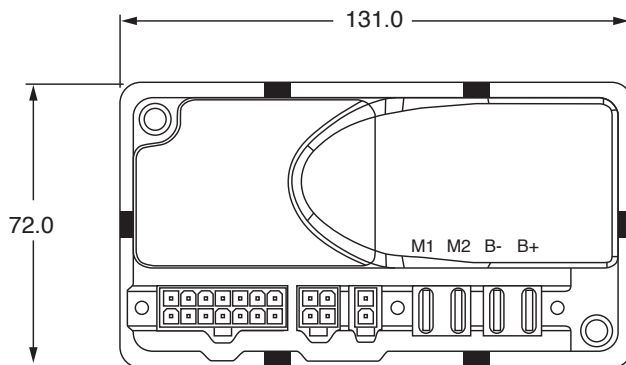
The Curtis Model 1212 motor speed controller is designed to meet:

- ▶ EN 12184
- ▶ EN 55022
- ▶ IEC 61000-4
- ▶ FDA documentation filed
- ▶ TÜV Certification pending
- ▶ ISO7176-14

### MODEL CHART

Model	Nominal Voltage (V)	Drive Current (Amps)	Peak Boost Current (Amps)	Max. Boost Duration (Seconds)
1212-22xx	24	45	55	10
1212-24xx	24	70	80	10

### DIMENSIONS mm

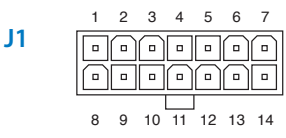
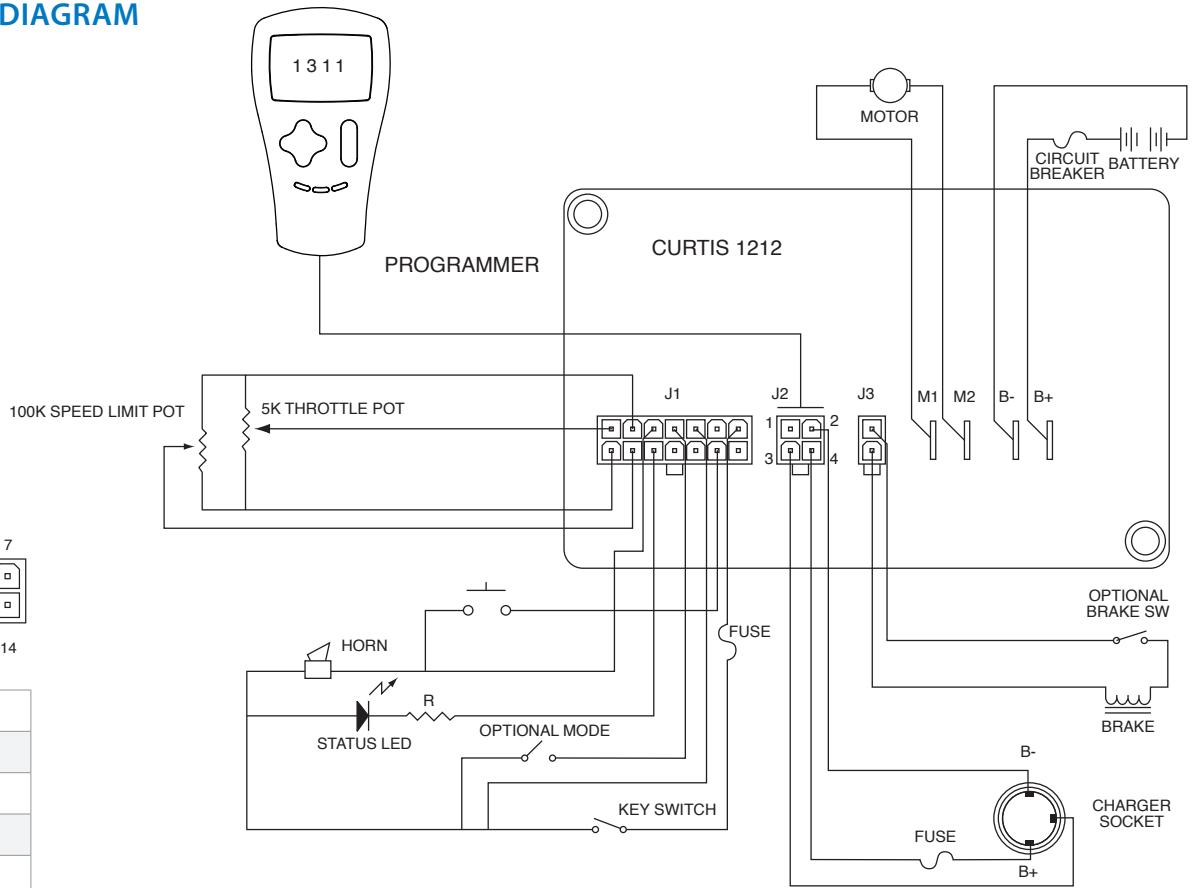


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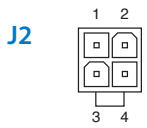
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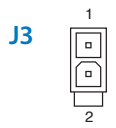
### TYPICAL WIRING DIAGRAM



Pin	Description
1	POT Wiper
2	POT Hi
3	Horn
4	Mode
5	KSI
6	SPD Inhibit
7	Battery +
8	POT Lo
9	Speed POT
10	Status
11	SDI
12	Reverse
13	Battery -
14	Push



Pin	Description
1	Rx
2	Battery
3	Tx/Charge Inhibit
4	Battery+



Pin	Description
1	Brake +
2	Brake -

**WARRANTY** Two year limited warranty from time of delivery.

The Curtis Difference  
 You feel it when you drive it