

Permanent Magnet Motor Speed Controller

Model 1212



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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

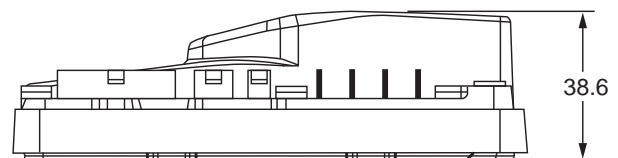
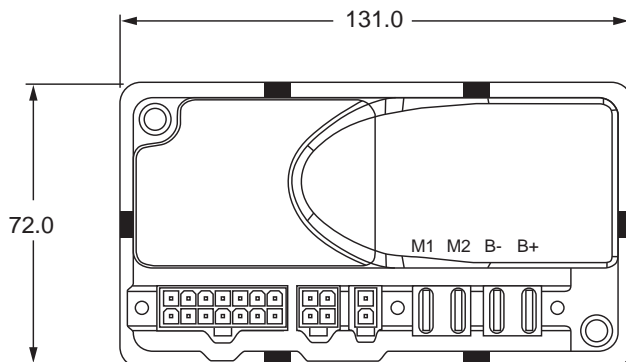
The Curtis Model 1212 motor speed controller is designed to meet:

- ▶ 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

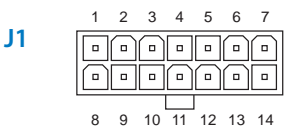
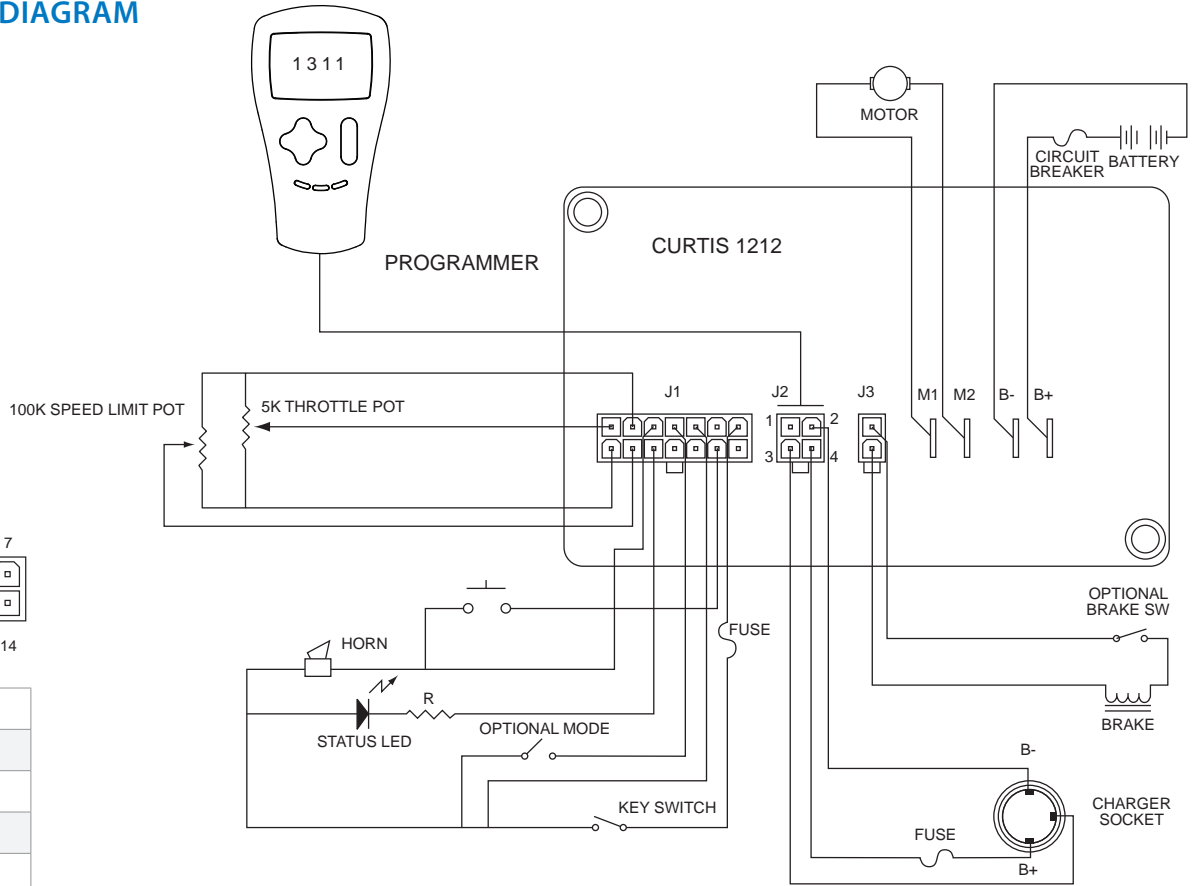


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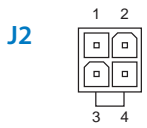
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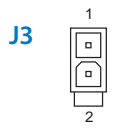
TYPICAL WIRING DIAGRAM



| 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