

# PERMANENT MAGNET MOTOR SPEED CONTROLLER

MODEL 1212



## DESCRIPTION

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

## APPLICATION

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.

# MODEL 1212

## FEATURES *continued*

### 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.

### 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

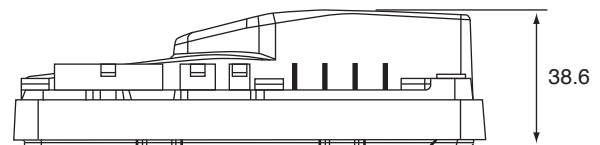
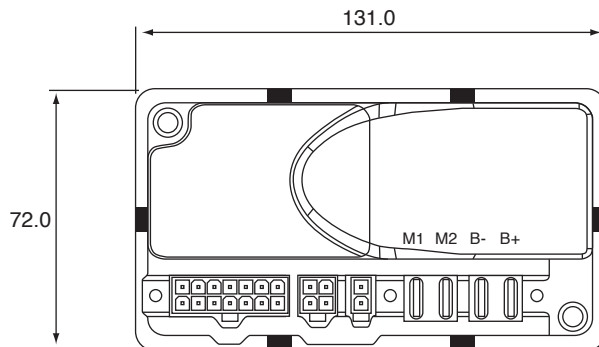
The Curtis Model 1212 motor speed controller is designed to meet:

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

## MODEL CHART

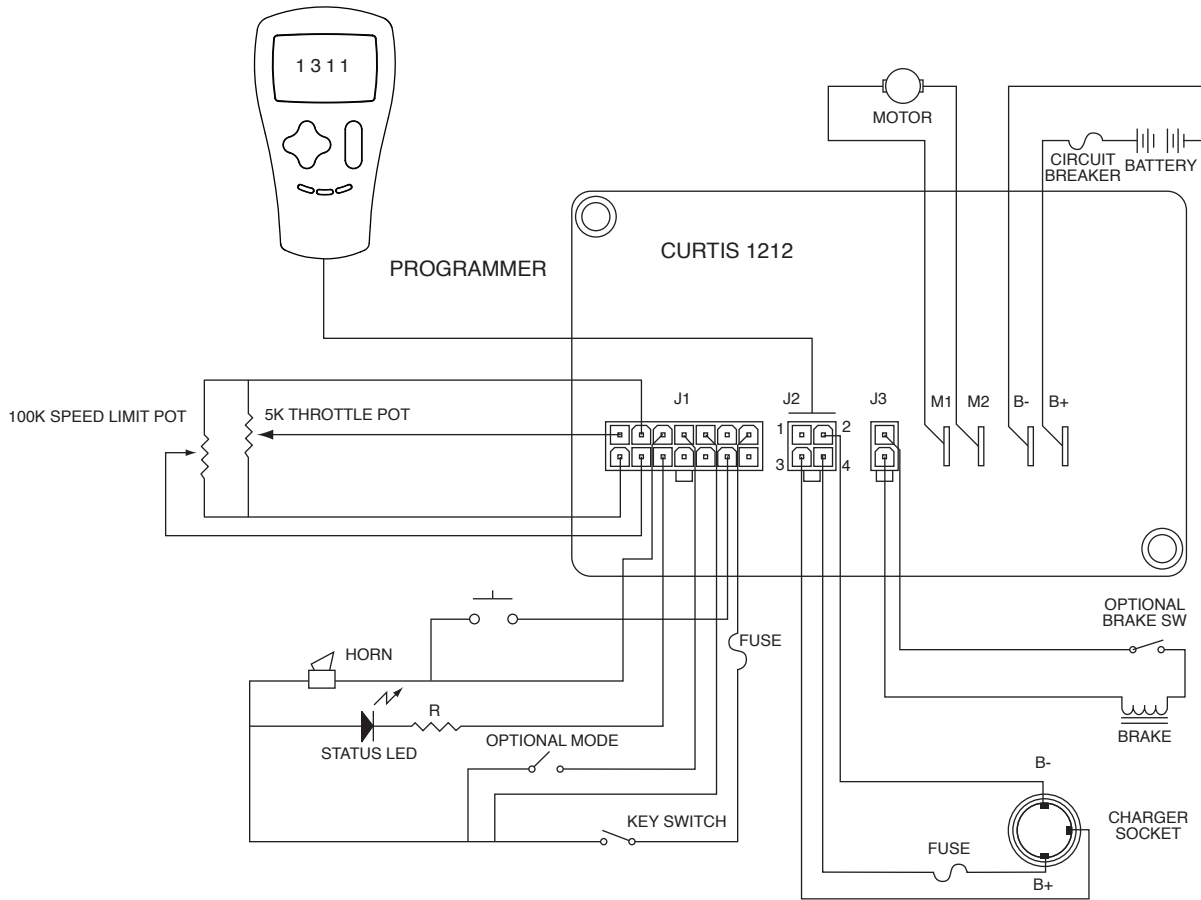
Model	Nominal Voltage (V)	Drive Current (Amps)	Peak Boost Current (Amps)	Max. Boost Duration (Seconds)
1212-22xx	24	45	55	10
1212-24xx	24	70	80	10

## DIMENSIONS mm

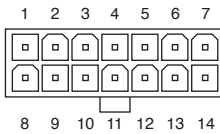


# MODEL 1212

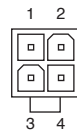
## TYPICAL WIRING DIAGRAM



**J1**



**J2**



**J3**



**J1**

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:	BDI
12:	REVERSE
13:	BATTERY -
14:	PUSH

**J2**

PIN	DESCRIPTION
1:	Rx
2:	BATTERY -
3:	Tx/CHARGE INHIBIT
4:	BATTERY +

**J3**

PIN	DESCRIPTION
1:	BRAKE +
2:	BRAKE -

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

