

# PERMANENT MAGNET MOTOR SPEED CONTROLLER

## MODEL 1212P



### DESCRIPTION

The Curtis Model 1212P Motor Speed Controller provides efficient, optimal control of permanent magnet drive motors for battery powered industrial vehicles.

### APPLICATION

Optimized for use on light-duty Class III pallet trucks and similar electric industrial vehicles. The 1212P's programmability allows it to be applied on any low power PM motor application.

### FEATURES

#### Easy Installation and Setup

- Industry standard footprint, mounting centers and wiring allows drop-in replacement of other controllers.
- The Model 1212P is easily programmed with Model 1313 handheld or 1314 PC programmers, or can be supplied pre-programmed.
- Compatible with industrial tiller handle wig-wag throttles such as the Curtis Model ET-190 MCU.
- Simplified troubleshooting and diagnostics.
- Standard Mini-Fit Molex Jr. and Faston terminals provide proven, robust wiring connections.

### FEATURES continued

#### 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.
- Emergency stop provides immediate EM braking.
- Emergency reverse with belly button switch input.
- 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.
- Input from Curtis 906 battery discharge indicator meter.
- Output Lift Lockout signal, which can drive a relay to prevent lift pump operation when the vehicle's batteries need recharging.

# MODEL 1212P

## FEATURES continued

### Valuable Additional Features

- 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.
- 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

EMC: Designed to the requirements of EN12895.

Safety: Designed to the requirements of:

EN1175-1:1998+A1:2010

EN (ISO) 13849-1

UL recognized per UL583.

Regulatory compliance of the complete vehicle system with the controller installed is the responsibility of the vehicle OEM.

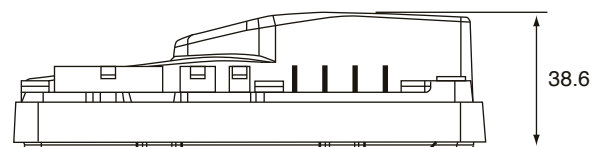
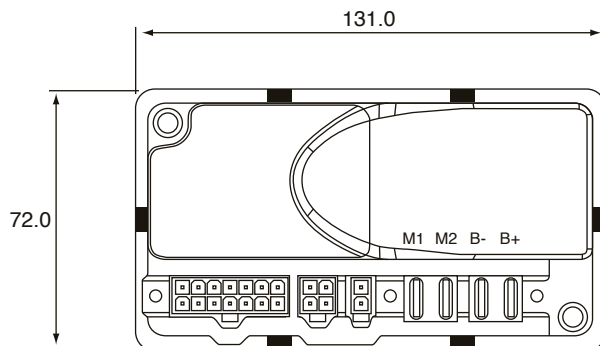
## MODEL CHART

Model	Nominal Voltage (V)	Drive Current (Amps)	Peak Boost Current (Amps)	Max. Boost Duration (Seconds)
1212P-2501	24	50	90	10

## FUNCTIONAL SAFETY

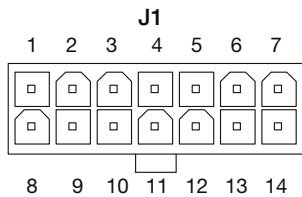
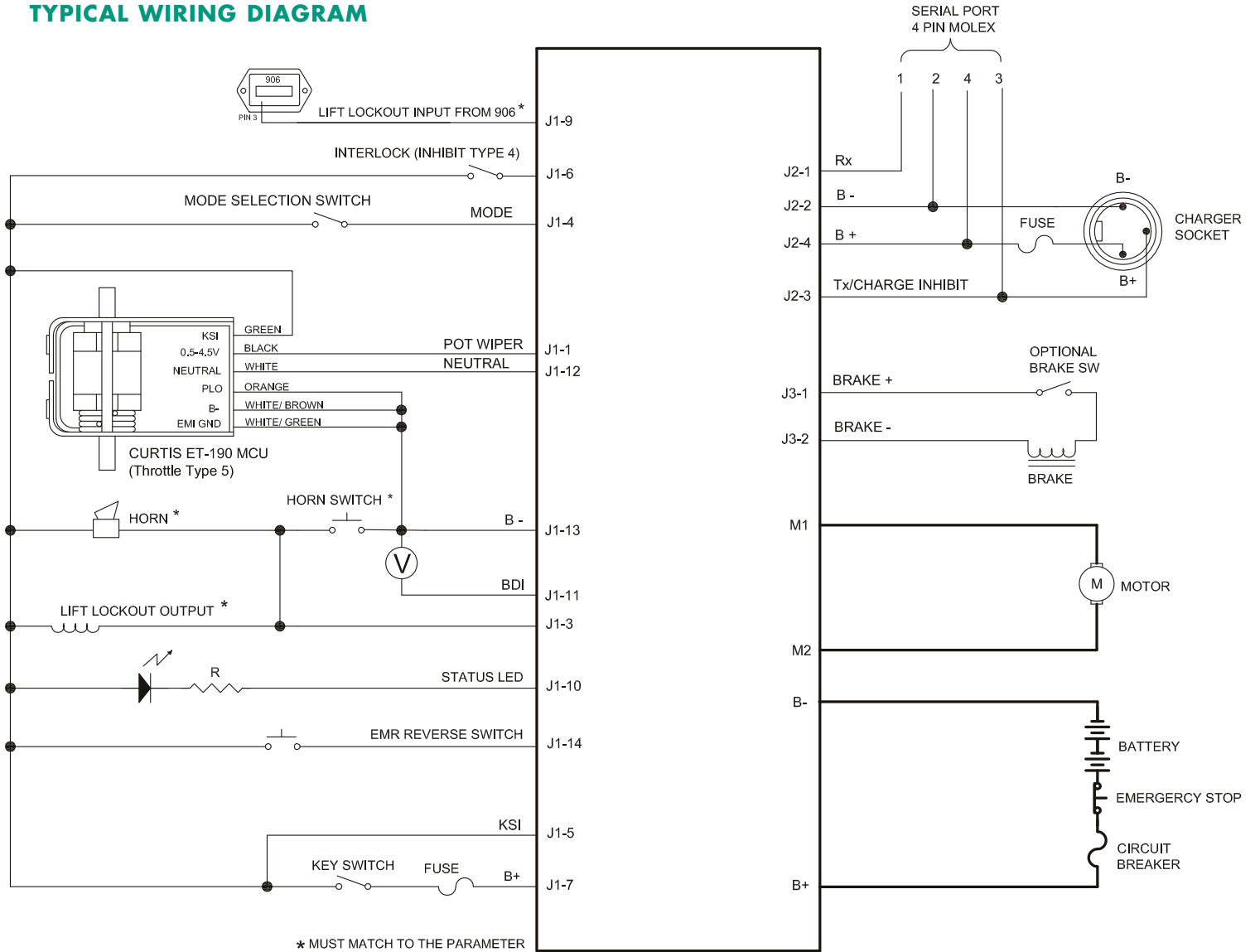
Safety Function	Performance Level (PL)	Designated Architecture	MTTFd	DC
Uncommanded Powered Movement Motor Braking Torque	b	Category 2	≥ 22 years	≥ 70

## DIMENSIONS mm

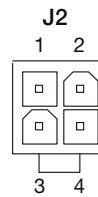


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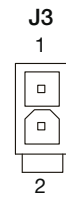
## TYPICAL WIRING DIAGRAM



Pin	Description	Pin	Description
1	POT Wiper	8	POT Low
2	POT Hi	9	Speed POT/Lift Lockout Input *
3	Horn/Lift Lockout Output *	10	Status LED
4	Mode	11	BDI
5	KSI	12	Reverse / Neutral
6	SPD Inhibit	13	B-
7	B+	14	Emergency Reverse *



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



Pin	Description
1	Brake +
2	Brake -

\* Optional, must match to the parameter

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



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Specifications subject to change without notice

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The Curtis Difference  
You feel it when you drive it