

PERMANENT MAGNET MOTOR SPEED CONTROLLER

MODEL 1212P



CURTIS



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.

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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.

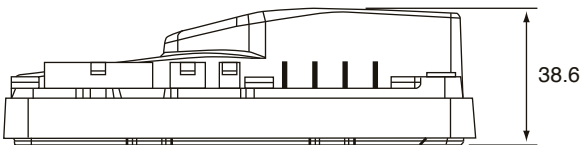
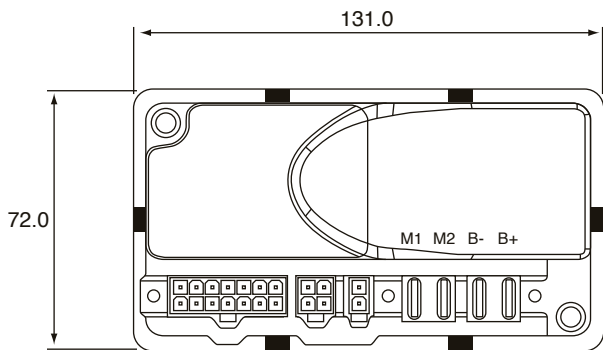
MODEL CHART

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

FUNCTIONAL SAFETY

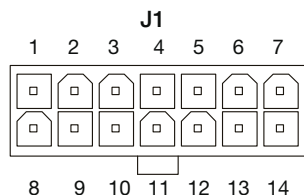
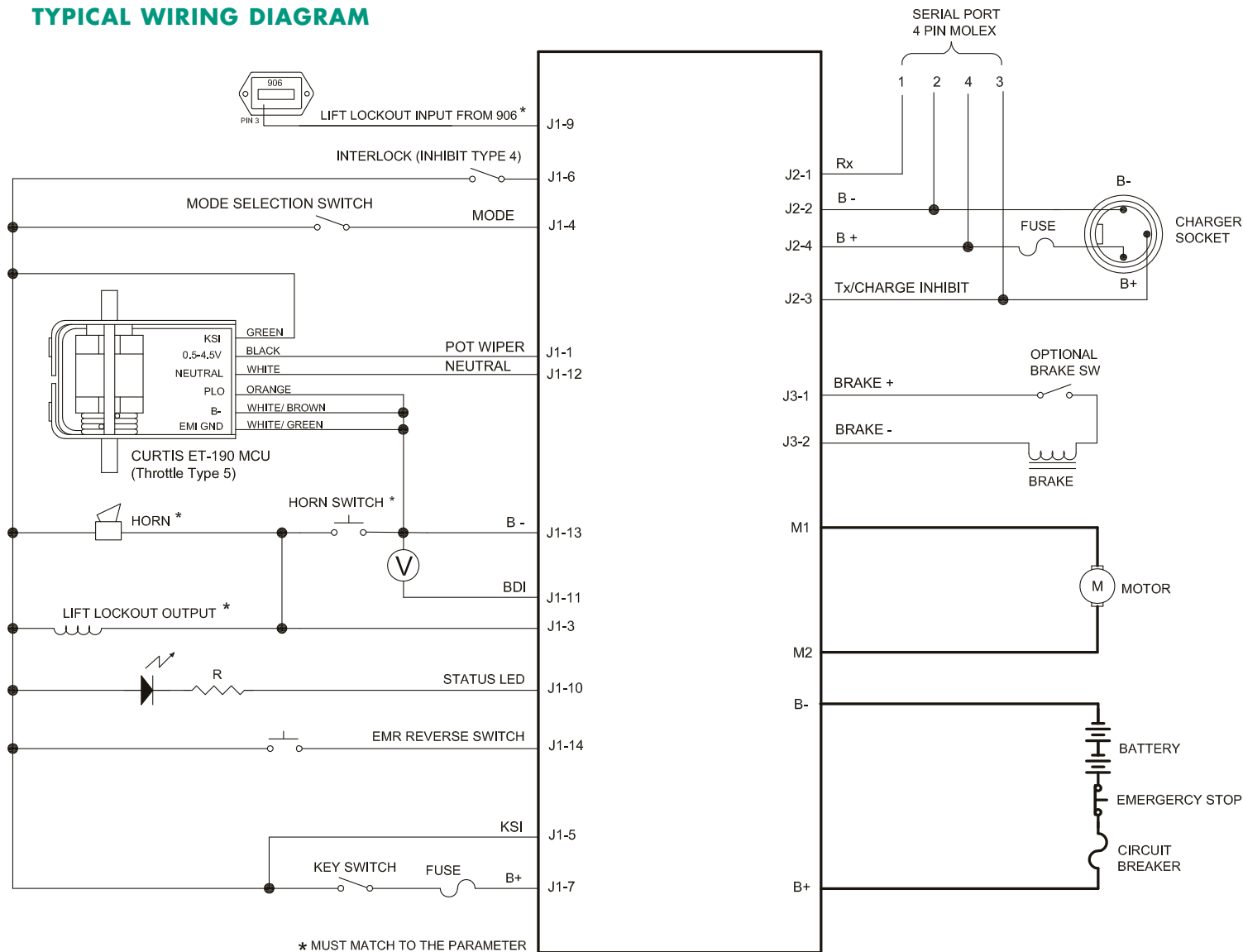
| Safety Function | Performance Level (PL) | Designated Architecture | MTTFd | DC |
|--|------------------------|-------------------------|------------|------|
| Uncommanded Powered Movement Motor Braking Torque | b | Category 2 | ≥ 22 years | ≥ 70 |

DIMENSIONS mm



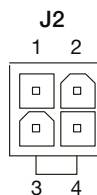
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TYPICAL WIRING DIAGRAM



| 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 * |

* Optional, must match to the parameter



| 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.



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Specifications subject to change without notice

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The Curtis Difference
You feel it when you drive it