

# PERMANENT MAGNET MOTOR CONTROLLER

## MODEL 1229



### DESCRIPTION

The Curtis Model 1229 is a sealed, heavy-duty permanent magnet motor speed controller intended for demanding traction applications in hostile environments. It utilizes an advanced powerful dual-microprocessor logic architecture for maximum functional safety and accurate speed control.

### APPLICATION

The Curtis Model 1229 is designed for large industrial permanent magnet motor applications, such as floor care machines, utility tugs/pushers, burden carriers small material handling vehicles and AGVs.

### FEATURES

#### High Power Capability

- Class-leading power density gives maximum power output from smallest possible package.
- Models available from 200–250A output at 24–36V, and 200A at 48V. These are true 2 minute ratings, not short-term boost values. 10% boost current for 10 seconds.
- Insulated Metal Substrate (IMS) power base provides superior heat transfer for increased reliability and highest possible continuous current ratings.
- Uses a heavy-duty external power isolation contactor to provide maximum safety and performance, eliminating the overheating and reliability problems often found with other manufacturer's high-current controllers that use internal board-mounted isolation relays.

#### Rugged Construction

- Heavy duty threaded M6 busbars for battery and motor connectors eliminate reliability issues often found with push-on power connectors.
- All logic connections via reliable, IP65 sealed 23-pin AmpSeal connector.
- Robust IP65 sealed enclosure provides excellent chemical resistance and protection from harsh environments.
- Designed to withstand high levels of bump, shock and vibration.

#### Powerful, Flexible I/O

- Four 10A peak rated output drivers allow bi-directional PWM control of up to 2 linear actuators, or unidirectional control of up to 4 small motor-type loads.
- Two additional 2A rated PWM-control auxiliary outputs for line contactor, EM brake, solenoid valves or other relay and contactor coils.
- Integrated fly-back diodes on all auxiliary outputs.
- Highly programmable analog and digital inputs, including a motor speed sensor input for closed-loop control.
- Short circuit protection and integral ESD protection on all I/O.
- CANopen compatible CANbus connection allows use as a 'CAN slave' on any CANopen system.
- CANopen EDS (Electronic Data Sheets) available.

## FEATURES continued

### Flexibility and Safety

- Dual-microprocessor architecture cross-checks critical circuits, logic, and software functions to ensure the highest possible functional safety performance level is achieved.
- Advanced Pulse Width Modulation (PWM) techniques minimize heating losses and torque ripple, resulting in high efficiency and ensures lowest possible EMC emissions.
- Logic I/O mapping function allows vehicle developers to write powerful combinational and sequential logic functions.
- Curtis handheld or PC Windows programming tools provide easy programming and powerful system diagnostic tools.
- Simple motor set-up programming.
- Field-upgradeable software.
- Integrated battery state-of-charge algorithm, plus hours-run and service interval timers.
- Integrated overvoltage, undervoltage and thermal cutback protection.

### 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
- IP65 rated per IEC 60529.
- UL recognized per UL583.
- Regulatory compliance of the complete vehicle system with the controller installed is the responsibility of the vehicle OEM.

## FUNCTIONAL SAFETY

Safety Function	PL	Designated Architecture	MTTFd	DC
Uncommanded Powered Motion	d	Category 2	≥40 yrs	≥90%
Motor Braking Torque	c	Category 2	≥20 yrs	≥90%

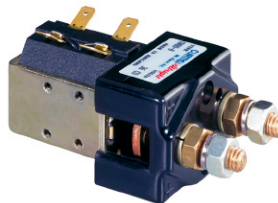
## MODEL CHART

Model No.	Battery Voltage (V)	10 Sec Boost (A)	2 Min Current (A)
1229-31XX	24/36	220	200
1229-32XX	24/36	275	250
1229-41XX	48	220	200

## SYSTEM ACCESSORIES



The Curtis enGage® II Model 3100R is a CAN based instrument that displays vehicle performance and status information.



The DC Contactor SW80 is rated for 100 amps in severe switching applications and 125 amps in light-duty switching applications.

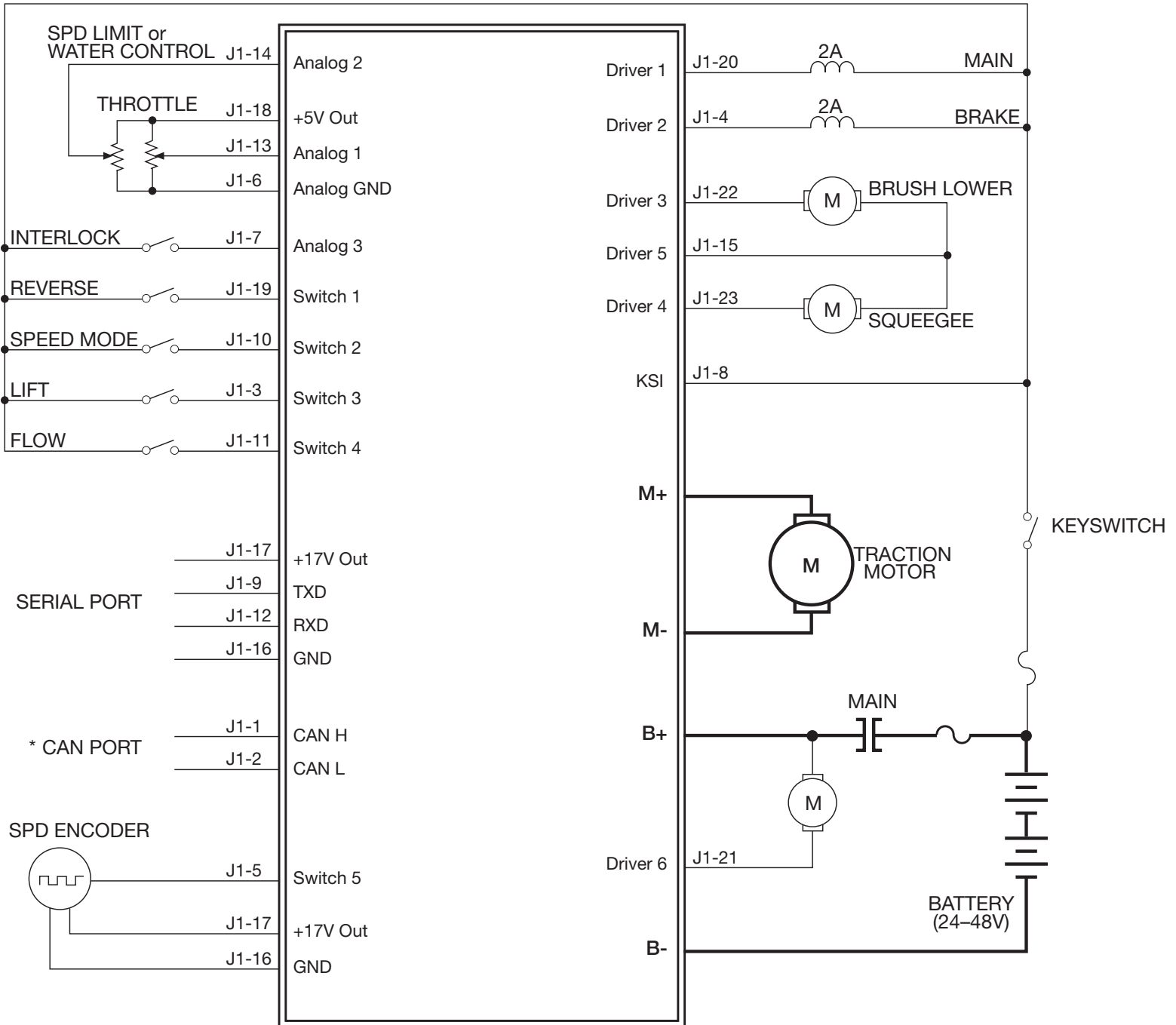


The Curtis Model 1313 Handheld Programmer is ideal for setting parameters and performing diagnostic functions.

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## TYPICAL WIRING DIAGRAM

Floor Care Wiring Diagram

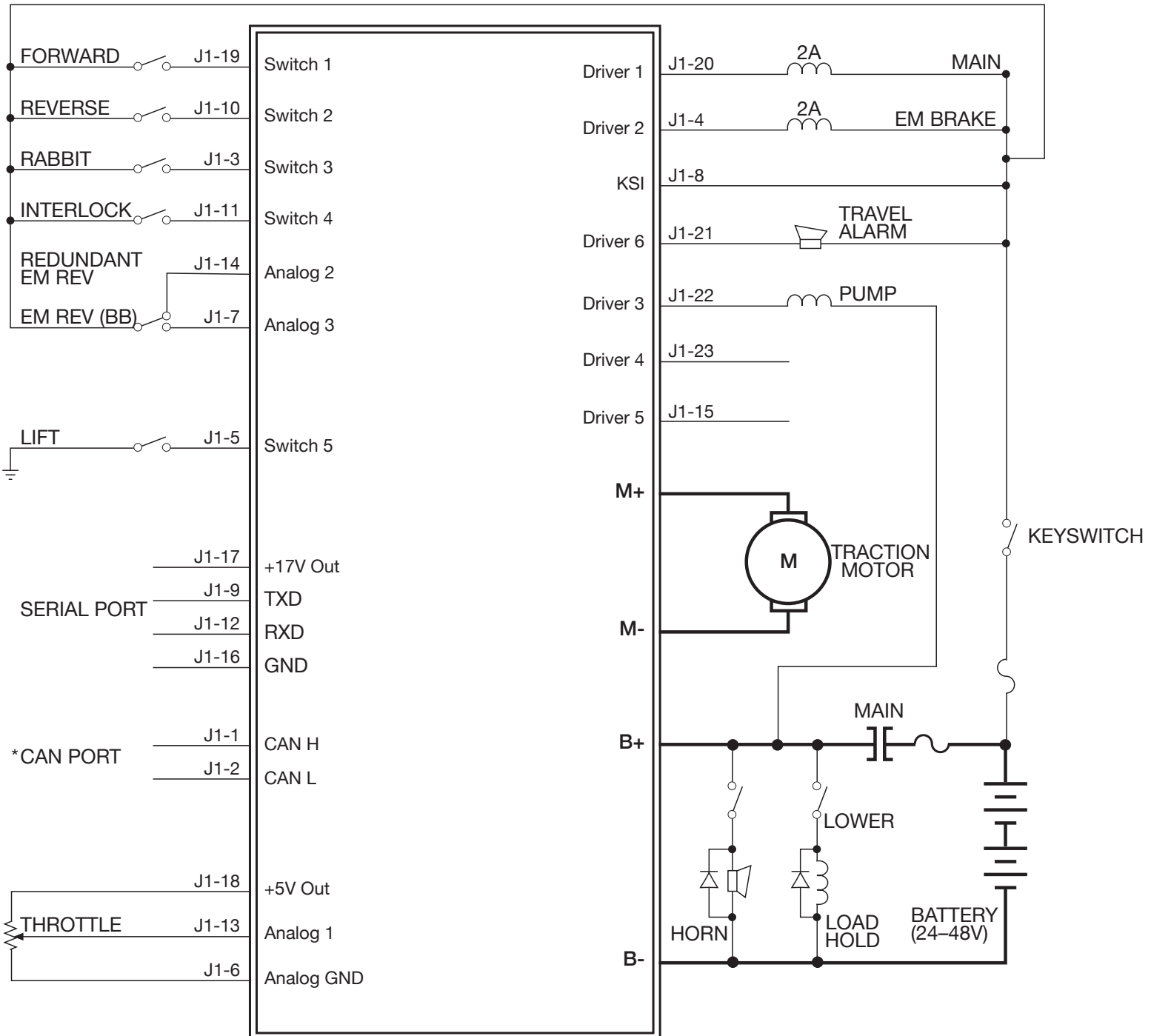


\* With CAN bus, additional I/O pins will be available.

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## TYPICAL WIRING DIAGRAM

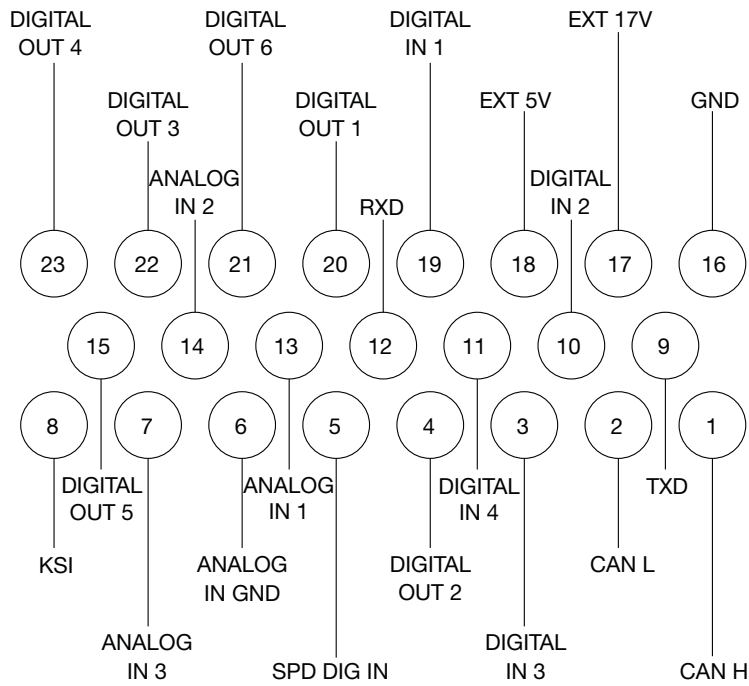
Pallet Mover Wiring Diagram



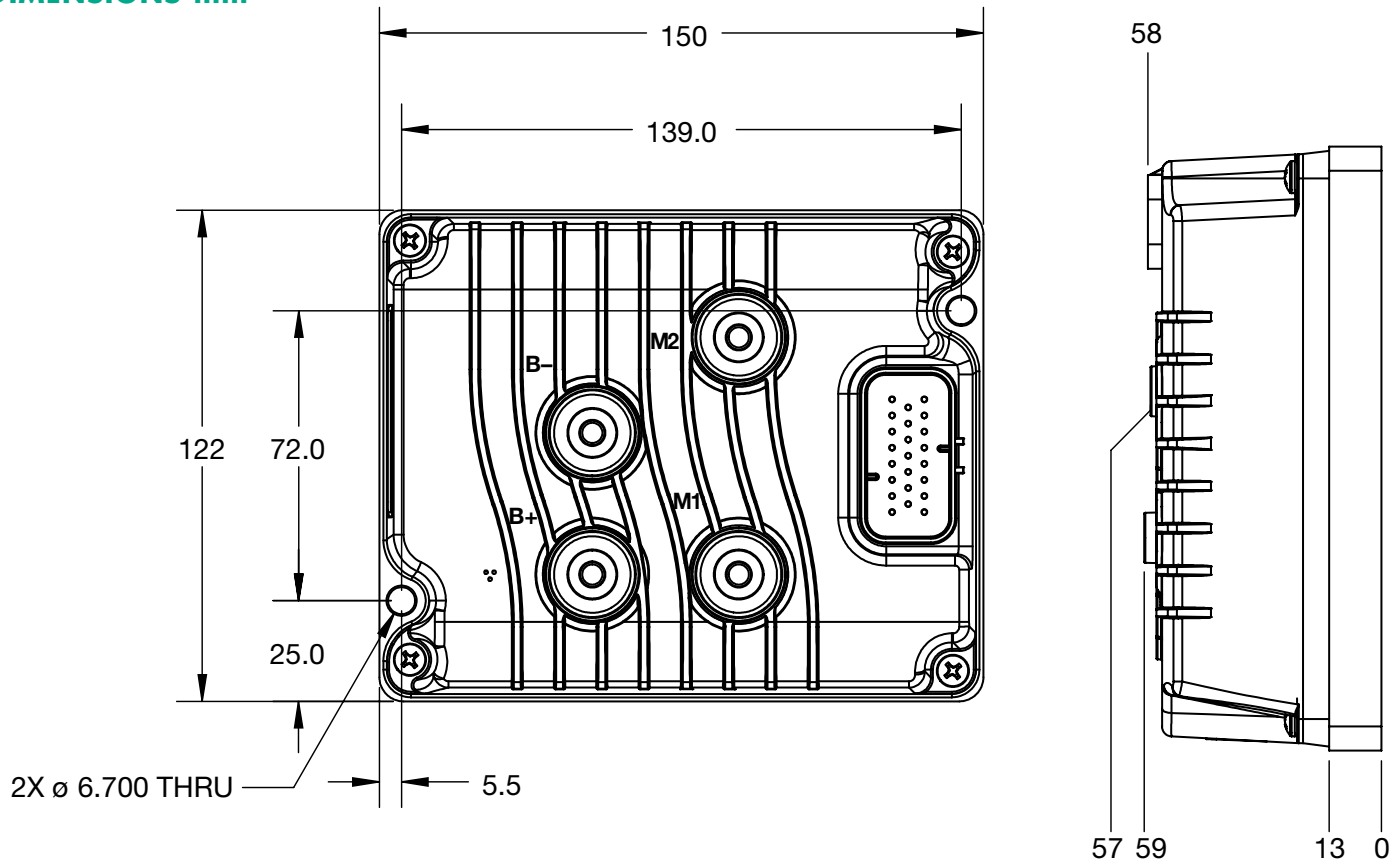
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## CONNECTOR WIRING



## DIMENSIONS mm



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

