



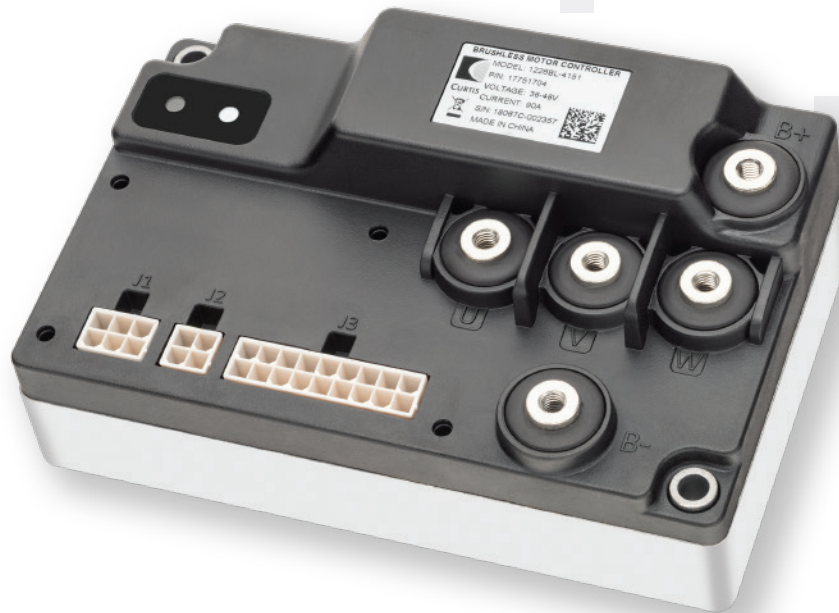
CURTIS

Motor Controllers



Brushless DC Permanent Magnet Motor Controller

Model 1226BL



1226BL



The Curtis Model 1226BL Motor Speed Controllers provide efficient, optimal control of Brushless DC drive motors for battery powered vehicles. Optimized for use on light duty Class III pallet trucks and sweeper scrubber floorcare machines. Highly flexible programmability allows them to be applied on any low power BLDC motor application.

FEATURES

Easy Installation and Set-up

- ▶ CAN bus models can be programmed with Curtis Integrated Toolkit (CIT) as well as the Curtis model 1313 handheld programmer.
- ▶ Serial bus models can be programmed with Curtis 1314 programming station (PCPS) as well as the Curtis model 1313 handheld programmer.
- ▶ Simplified troubleshooting and diagnostics.
- ▶ Industry standard Molex Mini-fit Jr. logic connectors and heavier duty M5 threaded busbars for battery and motor wiring.

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 undervoltage or overtemperature.
- ▶ Emergency reverse inputs.
- ▶ Temporary "Boost Current" feature provides greatly improved performance with transient loads such as starting on a hill, crossing thresholds, climbing obstacles, etc.
- ▶ Hydraulic lift lockout functionality to protect the vehicle's batteries from damaging level of discharge.
- ▶ Dynamic pot fault detection (open/short wiring fault detection).
- ▶ Electromagnetic brake driver.
- ▶ Hydraulic pump contactor driver (24V and 36/48V models).
- ▶ Main contactor driver (72V model).
- ▶ Embedded main relay (24V and 36/48V models).
- ▶ Supports a motor temperature sensor.
- ▶ Inputs are protected against shorts to B+ and B-.
- ▶ Short-circuit protected outputs.



Flexible I/O

- ▶ I/O can be configured to provide up to:
 - Two analog/digital inputs;
 - One potentiometer input;
 - Supports 60° or 120° Hall position sensors;
 - Three 1.5A coil drivers;
 - One motor temperature sensor input;
 - +5V and +14V external power supply (Total 120mA).

1226BL



FEATURES continued

Valuable Additional Features

- ▶ CAN bus option that complies with CANopen DS 301.
- ▶ Multi-mode provides for two distinct and programmable speed modes (indoor/outdoor modes).
- ▶ Battery Discharge Indicator output (0-5V).
- ▶ Adjustable brake holding voltage reduces heating of the brake coil.
- ▶ Integrated LED status indicators.
- ▶ Charger inhibit input prevents driving while the charger is connected (24V and 36V/48V models).
- ▶ Precharge function to reduce arcing that would otherwise occur when the main relay or contactor is closed with the internal capacitor bank discharged.

Meets or complies with relevant US and International Regulations

EMC: Designed to the requirements of EN12895:2015.

Safety: Designed to the requirements of EN1175-1:1998+A1:2010, EN (ISO) 13849-1.

UL 583 (pending).

Electronics sealed to IP54 per IEC 60529.

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

MODEL CHART

Model Number	Nominal Voltage	Current Rating (S2-1 Min)	Current Rating (S2-60 Min)	Peak current 10 seconds	CANbus / Serial	Internal Main Relay
1226BL-2201	24V	130A	50A	150A	Serial port	Yes
1226BL-2251					CAN	Yes
1226BL-4101	36/48V	90A	35A	120A	Serial port	Yes
1226BL-4151					CAN	Yes
1226BL-6151	72V	70A	30A	80A	CAN	No

FUNCTIONAL SAFETY DATA

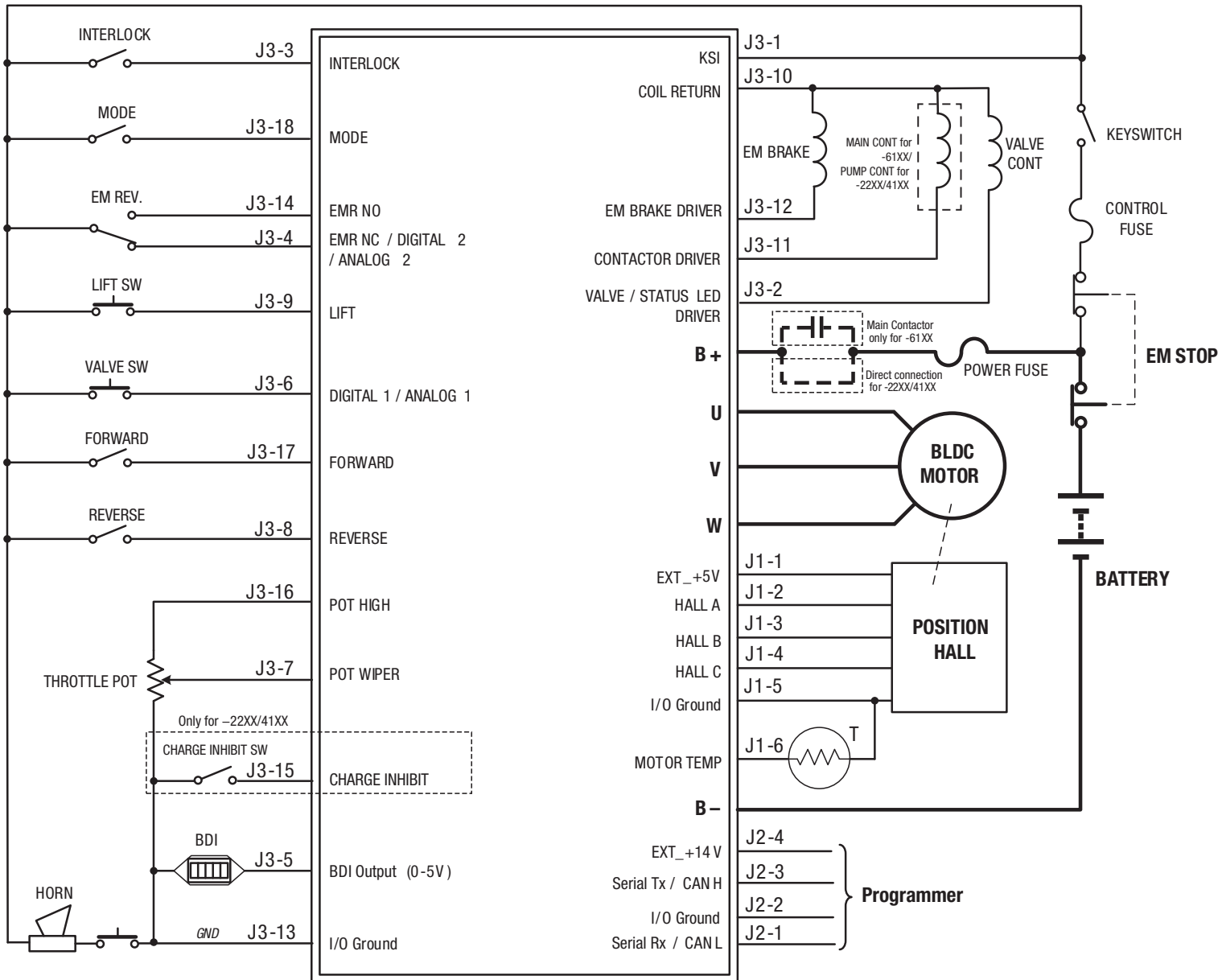
Safety Function	Designated Architecture	MTTFd	Diagnostic Coverage	CCF	PL
Uncommanded Powered Movement	Category 2	> 40 yrs.	> 90 %	Pass	D
Motor Braking Torque	Category 2	> 16 yrs.	> 90 %	Pass	C

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WIRING DIAGRAM

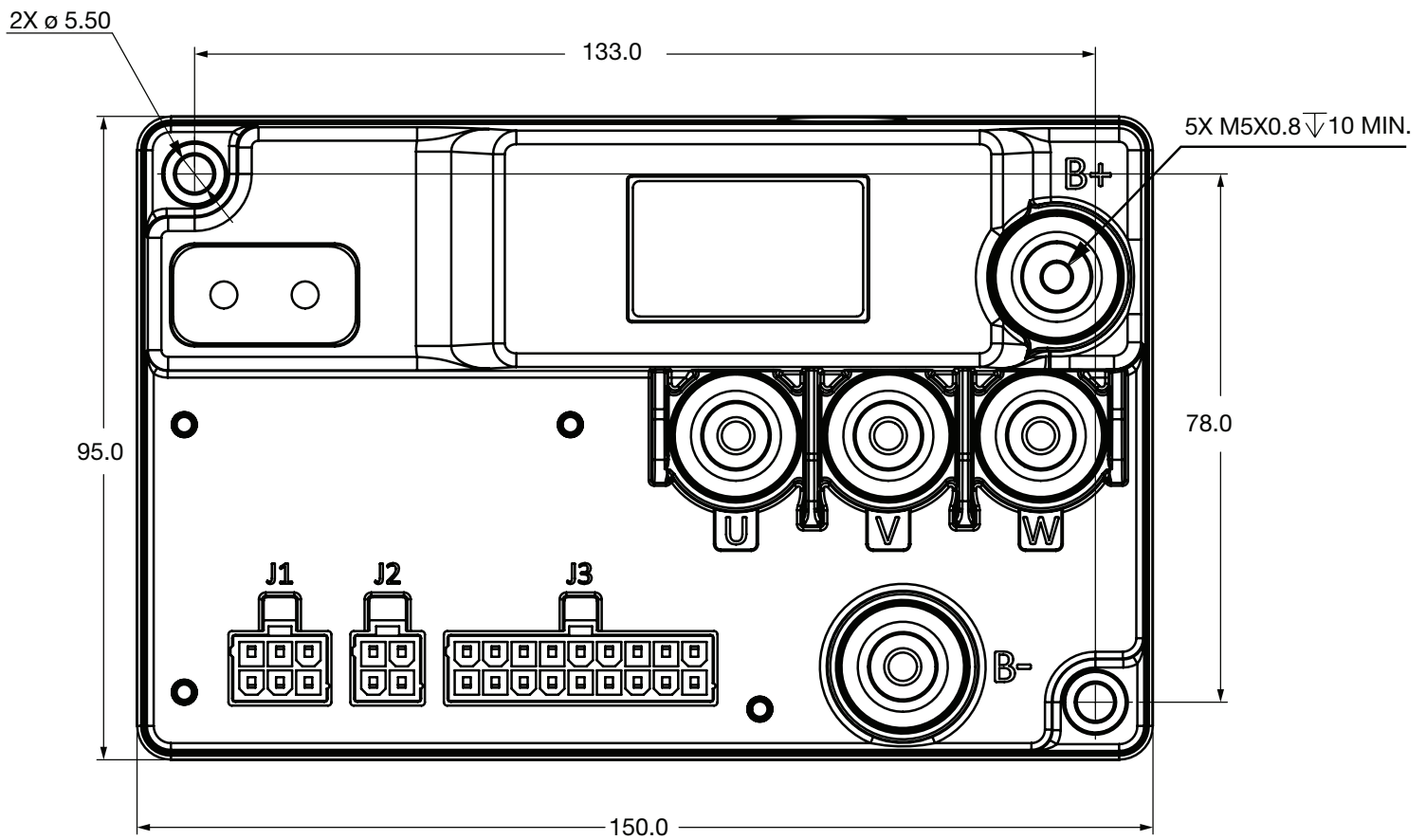
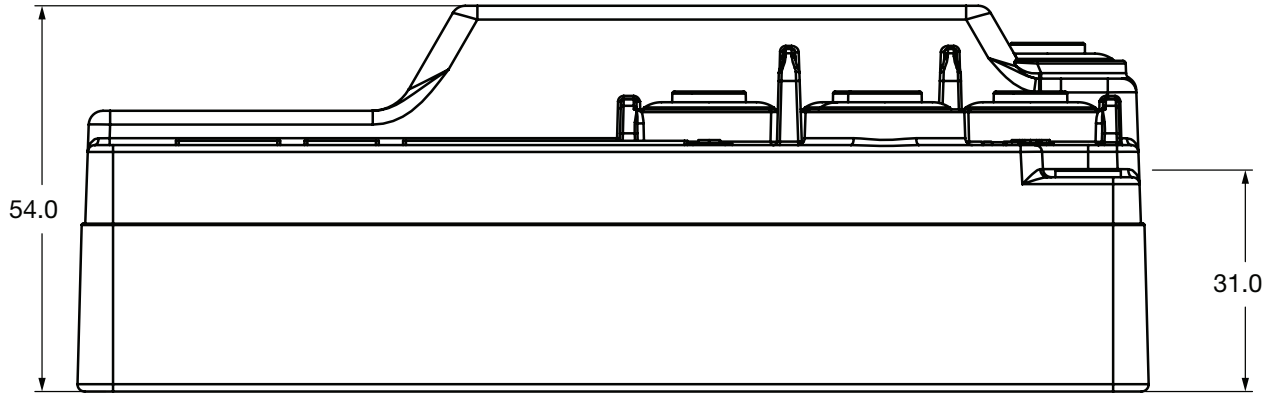
1226BL-22xx, 1226BL-41xx and 1226BL-61xx



1226BL

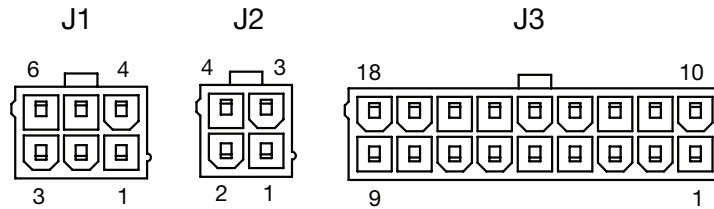


DIMENSIONS mm





CONNECTOR PINOUT CHARTS



J1

Pin	Description
1	EXT +5V
2	Hall A
3	Hall B
4	Hall C
5	I/O Ground
6	Motor Temp Sensor Input

NOTE: Mating connector: Molex #39-01-2065 with appropriate 45750 series crimp terminals.

J2

Pin	Description
1	Rx (Serial Models) / CAN Low (CAN Models)
2	I/O Ground
3	Tx (Serial Models) / CAN Hi (CAN Models)
4	EXT +14V

NOTE: Mating connector: Molex #39-01-2045 with appropriate 45750 series crimp terminals.

J3

Pin	Description	Pin	Description
1	KSI	10	Coil Return
2	Valve Driver / Status LED Driver	11	Pump Driver (22xx/41xx) / Main Contactor Driver (61xx)
3	Interlock Input	12	Electromagnetic Brake (EM) Driver
4	EMR NC Input/ Analog 2 / Digital 2 Input	13	I/O Ground
5	BDI Output	14	EMR NO Input
6	Analog 1 / Digital 1 Input	15	Charge Inhibit (1226BL-61xx N/A)
7	Pot Wiper	16	Pot High
8	Reverse Input	17	Forward Input
9	Lift Input	18	Mode Input

NOTE: Mating connector: Molex #39-01-2185 with appropriate 45750 series crimp terminals.

WARRANTY Two year limited warranty from time of delivery.

