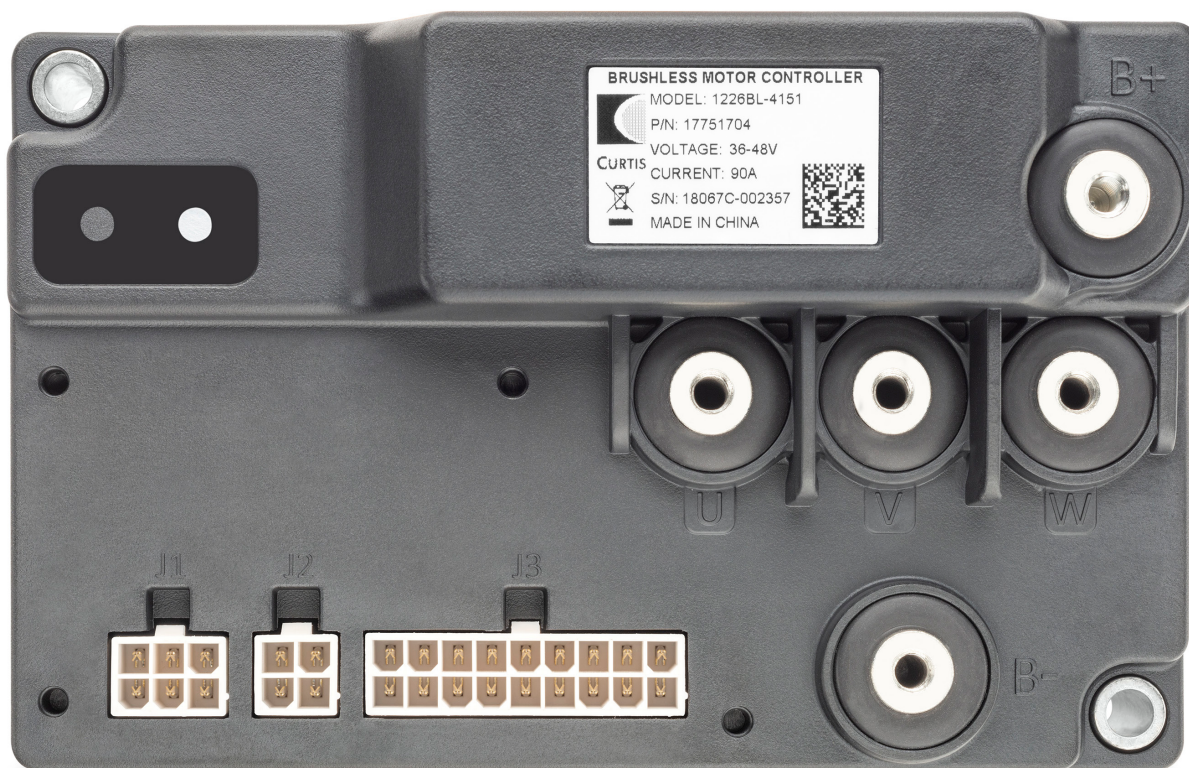




1226BL

Brushless DC Permanent Magnet
Motor Controller



Brushless DC Permanent Magnet Motor Controller

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 be programmed with the Curtis Integrated Toolkit (CIT) as well as the Curtis Model 1313 Handheld Programmer.
- Simplified troubleshooting and diagnostics.
- Industry standard 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.
- A switchable high side driver (coil supply).

Flexible I/O

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



Features continued

Valuable Additional Features

- Fully CANopen compliant per CiA 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.
- Support the Curtis 1220E Electric power steering controller to limit speed based on the steering angle.
- 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 EN 12895:2015+A1:2019.
- Safety: Designed to the requirements of EN 1175:2020 and EN ISO 13849-1:2023.
- TÜV Rheinland Certified. Certificate number: AK 50643089 0001
- UL 583.
- 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	Internal Main Relay
1226BL-22XX	24V	130A	50A	150A	Yes
1226BL-41XX	36/48V	90A	35A	120A	Yes
1226BL-61XX	72V	70A	30A	80A	No



System Accessories



Curtis Model 3150

A CAN-based color LCD vehicle status display in a rugged 52 mm diameter housing is the ideal partner to Model 1226BL.

- Battery Discharge Indicator, Service (Hours) Counter and Diagnostic/Message Center functions.
- Sealed to IP67 front and IP65 rear.
- CE/UKCA compliant.
- UL583 recognized component.
- Optional heater.



The Curtis Integrated Toolkit

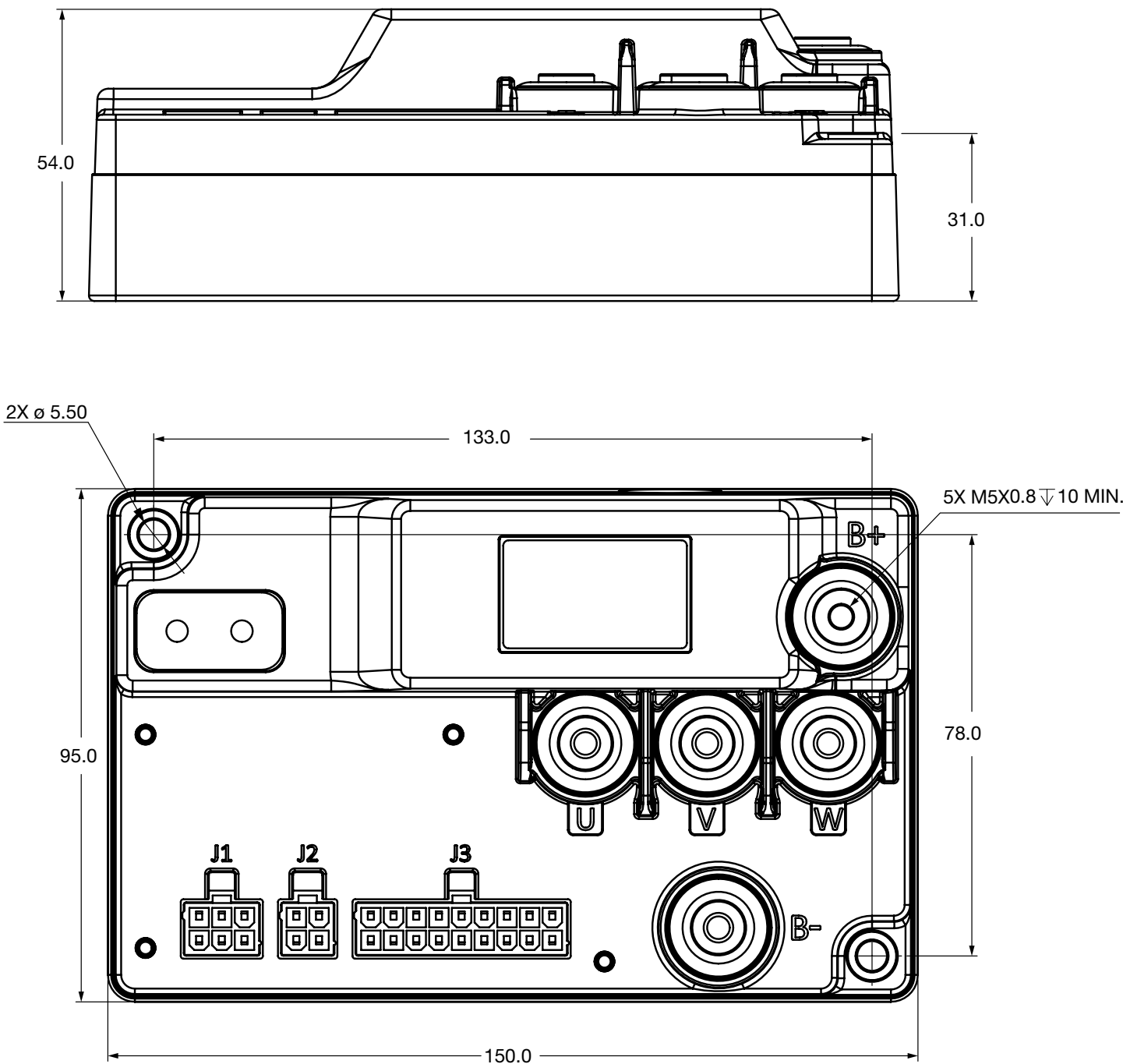
The Curtis Integrated Toolkit (CIT) provides a suite of development and diagnostic tools for working with CAN systems that use Curtis and third-party CAN devices. CIT consists of the following tools:

- | | |
|---|--|
| • Launchpad
Starting point and project editor. | • VCL Studio
Editor and compiler for VCL software. |
| • Programmer
Configure parameters, view monitor values, and view active faults and the fault history. | • Menu Editor
Create and modify programming menus. |
| • TACT
Stand-alone oscilloscope and data-logging tool. | • Package & Flash
Load your software into CAN devices. |

The Curtis Integrated Toolkit is compatible with many leading USB>CAN interface dongles from Peak, Kvaser, iFAC, Sontheim, etc.

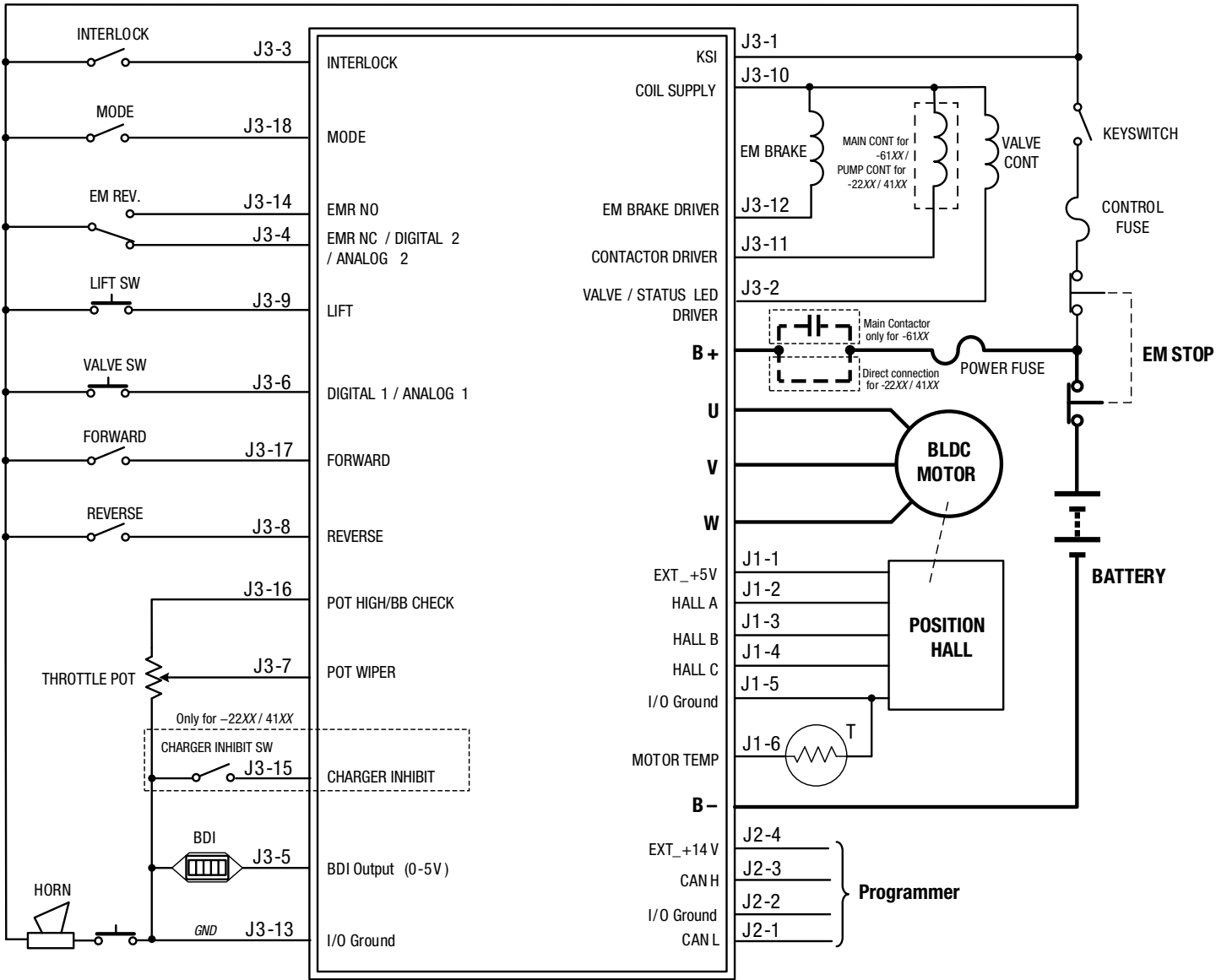


Dimensions (mm)

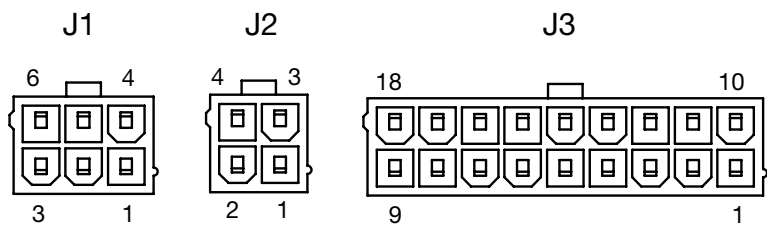


Wiring Diagram

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



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	CAN Low
2	I/O Ground
3	CAN High
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 Supply
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	Charger Inhibit (1226BL-61XX N/A)
7	Pot Wiper	16	Pot High/BB Check
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.

Specifications

Voltage Ranges	Model	Nominal Voltage	Brownout Voltage	Minimum Voltage	Maximum Voltage	Severe Over-Voltage
	1226BL-22XX	24V	12V	16.8V	30V	36V
	1226BL-41XX	36V/48V	20V	25.2V	60V	68V
	1226BL-61XX	72V	30V	50.4V	95V	105V
PWM Operating Frequency	14.7 kHz					
Electrical Isolation to Heatsink	Depends upon the model: 500 VAC (minimum) for models 1226BL-22XX and 1226BL-41XX 1200 VAC (minimum) for model 1226BL-61XX					
Weight	0.7 kg					
Dimensions W x L x H	95 × 150 × 54 mm					
Mounting	2x ø5.5 mm					
I/O Connections	4 pin, 6 pin, 18 pin					
Power Connections	5x M5x0.8					
Storage Ambient Temperature	–40°C to 85°C					
Operating Ambient Temperature	–40°C to 50°C					
Package Environmental Rating	Electronics sealed to IP54 per IEC 60529					
EMC	Designed to the requirements of EN 12895:2015+A1:2019					
Safety	Designed to the requirements of EN 1175:2020 and EN ISO 13849-1:2023					
UL	Recognized Component as per UL 583					
Communications	CANbus					

Warranty

Two year limited warranty from time of delivery.

Parker Hannifin Corporation
Electronic Controls & Motion Division
200 Kisco Ave
Mt. Kisco, NY 10549
phone 1.914.666.2971

www.parker.com/ecm

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