MOBILE MOTOR CONTROLLERS

High-performance motor control solutions for mobile electrification

Parker CURTIS

WHAT IS A MOTOR CONTROLLER?

Motor Controller for Mobile Electrification

Motor controllers are the core of any electrified mobile machine, managing how energy flows from the battery to the motor to precisely control torque and speed. Beyond motion control, they also enable system coordination, diagnostics, and critical safety functions across the vehicle.

Parker offers a comprehensive range of motor control solutions engineered specifically for mobile applications:

- Parker-Curtis F-Series Low Voltage Motor Controllers
- Parker Curtis GMI Series High Voltage Motor Controllers
- Parker's GVI Gen 2 Series High Voltage Inverters

Designed for real-world mobile environments, Parker motor controllers optimize performance across traction systems, ePTOs, hydraulic pumps, and other essential machine functions—enabling efficient, reliable, and scalable electrification.

Overview

As demand for electrified and hybrid mobile vehicles continues to grow, Parker delivers a comprehensive range of mobile motor controller solutions designed to meet diverse performance, voltage, and application requirements. Covering low-voltage through high-voltage systems, Parker and Curtis motor controllers combine robust power electronics with intelligent motor control to support traction, electro-hydraulic, and auxiliary functions across mobile machines.

From low-voltage Curtis motor controllers to high-power Parker GVI Gen 2 platforms, these solutions are engineered for scalability, durability, and efficiency in the most demanding operating environments. OEMs benefit from flexible power architectures, streamlined system integration, and consistent control strategies that simplify development and accelerate electrification programs.

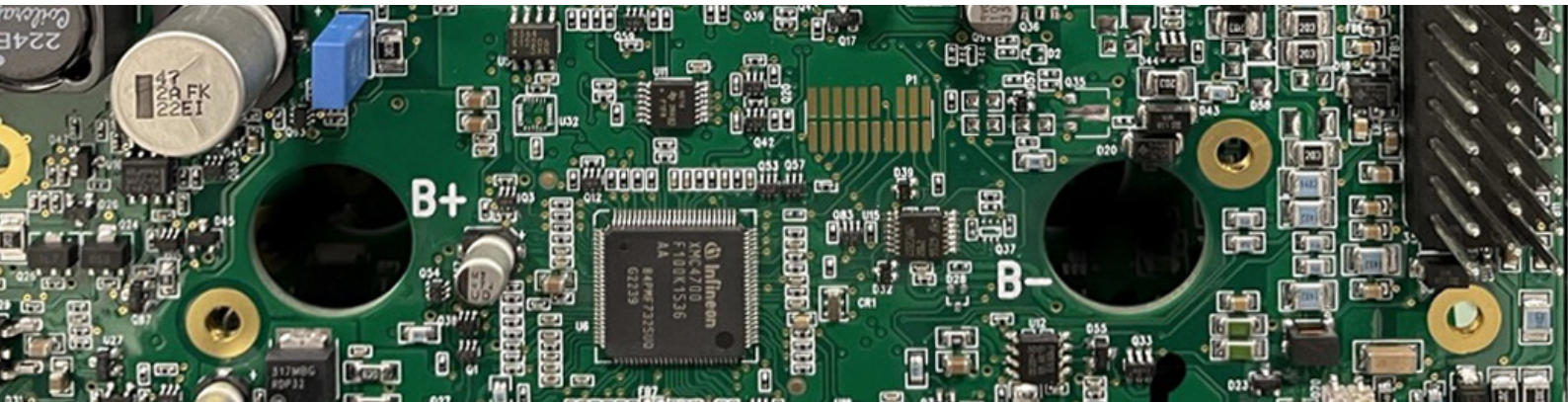
Backed by decades of mobile electrification expertise, Parker's motor controller portfolio helps OEMs improve machine performance, enhance energy efficiency, and meet global emissions and sustainability goals. Partner with Parker to advance your mobile electrification journey with motor control solutions tailored to your vehicle platform.

12–36V

150-800V

500-1000V

Contact your Parker-Curtis representative or visit **Discover.parker.com/Smart-Electrification** to learn more.



LOW VOLTAGE

Parker Curtis F-Series

Curtis low voltage motor controllers are designed specifically for mobile applications requiring precise motor control, integrated vehicle logic, and robust safety features. Supporting battery systems typically ranging from 12 to 144VDC, Curtis controllers combine power electronics with advanced control software to manage traction, pumps, steering, and auxiliary functions.

With compact designs, high efficiency, and proven reliability in harsh environments, Curtis motor controllers enable OEMs to simplify system architecture, reduce installed cost, and deliver smooth, responsive machine performance.

Technical Data

	Single Drive					Dual Drive	
Model(s)	**AC F2-A**	**AC F4-A**	**AC F6-A**	**AC F10-A**	**AC F16-R**	**AC F2-D**	**AC F5-DE**
Nominal Voltage Range [1]	12-48V	24-96V	24-96V	24-96V	72-144V	24-48V	36-96V
Peak Current Range [1] **(S2, 2 min.)**	120-280Arms	150-500Arms	375-650Arms	550-1000Arms	700-900Arms	2x 120-240Arms	2x 275-450Arms
Operating Temperature	–40°C to 50°C						
Weight	1.1 kg	1.9 kg	3.1 kg	5.0 kg	7.0 kg	1.5 kg	4.5 kg
Dimensions (mm)	120x155x55	1180x140x75	212x155x78	230x200x94	275x232x85	206x150x70	230x200x90
Ingress Protection	IP65/IP67						
EMC	EN12895						
Safety	EN 1175 EN ISO 13849-1 EN IEC 60204-1					EN 1175 EN 280-1 EN ISO 13849-1 EN IEC 60204-1	EN 1175 EN ISO 13849-1 EN IEC 60204-1
UL	UL583/cUL583[2]						

[1] See product datasheet for full model range and voltage/current configurations
[2] Pending on F16-R

HIGH VOLTAGE

Parker Curtis GMI Series

The **GMI Series** delivers advanced high power motor control solutions designed for next-generation electric and hybrid mobile machines. Engineered for demanding off-highway and industrial environments, GMI controllers provide precise traction and work-function control while enabling scalable electrification across vehicle platforms.

Supporting battery systems up to 750Vdc nominal, the GMI family combines high-efficiency power electronics, integrated functional safety architecture, and flexible machine system control in compact, rugged packages optimized for mobile applications.

From compact auxiliary electrification to high-power traction systems exceeding 150 kW peak power, GMI controllers allow OEMs to standardize on a common control platform across multiple machine types—reducing integration complexity while improving performance, efficiency, and reliability.

Technical Data

Model		GMI 070	GMI 100	GMI 020
Operating Voltage Range (without derating)		150–500VDC[1]	150–800 VDC[1]	150–800 VDC[1]
Operating Voltage Range (with derating)		500–525VDC	800-825 VDC	800-825VDC
LV Supply Voltage Range		12–24 VDC	12–24 VDC	12–24 VDC
Current Range[2]	Continuous, 60 min.	100-150Arms	75-125Arms	27Arms
	S2, 2 min.	200-300Arms	140-200Arms	45Arms
Operating Temperature		–40°C to 50°C	–40°C to 50°C	–40°C to 50°C
Weight		7.2 kg	6.5 kg	4.1 kg
Dimensions (mm)		315 x 290 x 98	309 x 278 x 92	223 x 158 x 90.5
Ingress Protection		IP6K9K/IP67		
EMC		EN12895, ISO 13766-1 and ISO 13766-2		
Safety		EN 1175-1:2025 and EN ISO 13849-1:2023		
Environmental & Chemical		ISO 16750-3 & -4 and ISO 19014-3		
UL		UL583		

[1] Overvoltage protection cuts back the regenerative braking (regen) current when the voltage is above 525/825 VDC.
[2] See product datasheet for full model range and voltage/current configurations

HIGH VOLTAGE

Parker's GVI Generation 2 Series

Parker's GVI Generation 2 platform is the high power solution within Parker's Mobile Motor Controllers family, designed to operate as part of a fully integrated electric vehicle system. GVI Gen 2 works seamlessly with battery systems from 200 to 750VDC to deliver coordinated power and motor control across traction, electro-hydraulic, and auxiliary functions. Engineered for scalability, durability, and ease of integration, GVI Gen 2 helps OEMs simplify system architecture, reduce development risk, and accelerate the deployment of next-generation electrified mobile machines.

Technical Data

Model	GVI125	GVI250
Supply Voltage	200-750V DC	
Continuous Current (1hr)	180 A	360 A
Overload	130% for 60 seconds	
Continuous Power	125 kW	250 kW
Switching Frequency	1.5 - 8 kHz Variable [1]	
Temperature Range	-40˚C to 65˚C	
Altitude	0-5000m	
Housing	IP67/IP6K9K	
Cooling	WEG 50:50 -20˚C to 65˚C	
Output Frequency	0-1333Hz [2]	
Auxiliary Supply	8-32V DC	
CAN Interfaces	CANopen, J1939, DM1, UDS [3]	
Compliance	EN61800-5, IEC61800-3, ISO13849, ISO6469, R10, R100, CISPR25 Edition 4, Class 3, ISO11452, ISO7637, 61000	

[1] Higher switching frequencies may require current derating
[2] Software limited to 590Hz
[3] 125 baud – 1M baud, with/without termination

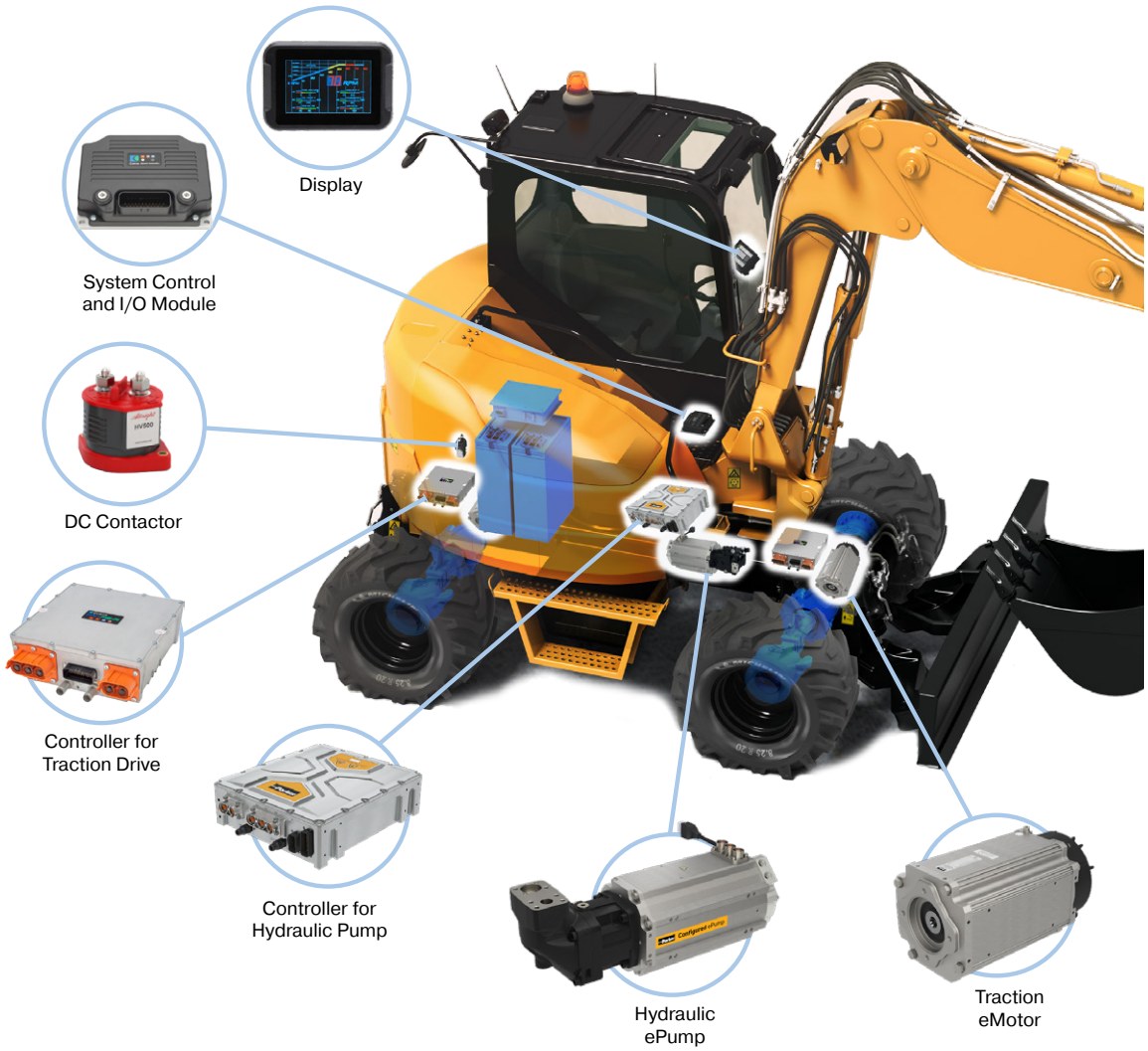
INTEGRATED SYSTEM SOLUTIONS

Parker's motor controllers are supported by a full range of complementary products engineered to work together as a complete vehicle system, streamlining integration and accelerating electrification programs.

ENGINEERING YOUR SUCCESS

Curtis and Parker bring unmatched system expertise, from hydraulics to full vehicle electrification.

What sets us apart is the breadth and depth of system expertise behind our solutions. No other supplier combines our knowledge in **mobile hydraulics, motor control, and vehicle electrification** with a product range that spans low-voltage through high-voltage motor controllers, hydraulics, thermal management, power conversion, HMIs, software, and supporting components. This unique combination allows Parker and Curtis to design solutions that work together as a complete vehicle system that reduces integration complexity, improves performance, and accelerates OEM development from concept through production.



Your partner in mobile electrification

Learn more at Discover.parker.com/Smart-Electrification

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