

POWERING THE FUTURE OF MATERIAL HANDLING

Driving Efficiency, Safety, and Precision
in Electric Forklifts



The modern warehouse industry runs on speed, efficiency, and safety. At the heart of this is the forklift. For engineers, the challenge is to design deliver not only the high torque required for heavy lifting but also the precise control needed for maneuvering in tight spaces, all while maximizing battery life. This requires robust solutions for power conversion, traction and lift motor control, and dependable sensing for operator controls and safety.

Allegro delivers a portfolio of solutions designed to meet the rigorous demands of forklifts. Our 48V motor drivers, high-current sensors, and precise position sensors provide the core components for efficient and reliable lift and traction actuators by addressing the critical challenges of power efficiency, system cost, and safety.

What you can achieve with Allegro solutions

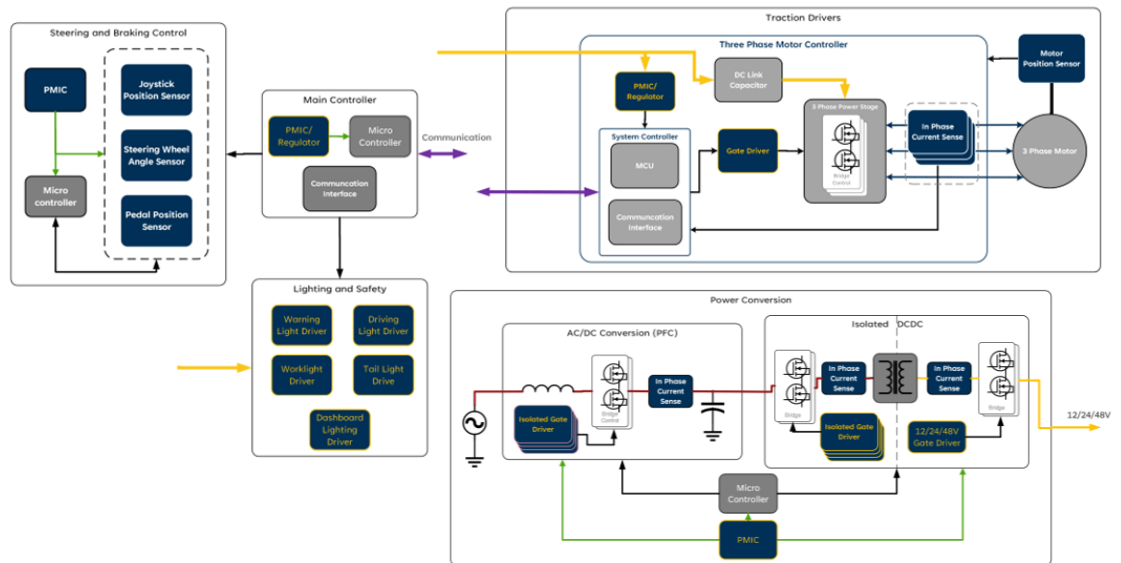
- **Maximum Uptime & Efficiency:** Leverage Allegro's true 48V motor drivers and low-loss current sensors to optimize power consumption, extend battery life, and deliver the high torque needed for heavy lifting and rapid transport.
- **Uncompromising Safety & Control:** Enhance operational safety and vehicle control with position sensors for steering, braking, and joystick inputs, along with ASIL-compliant components for safety-critical applications.
- **Reduced System Cost & Complexity:** Lower your bill of materials and simplify design with highly integrated solutions, including compact gate drivers that reduce component count and streamline power management.



As the backbone of modern logistics, forklifts require power and sensing solutions that are built for performance and reliability.

Allegro Microsystems provides the advanced, highly integrated components needed to build the next generation of safe, efficient, and powerful material handling equipment.

Block Diagram



Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
Traction and Lift Motor Drivers	48V Gate Driver	A89500 (1/2 Bridge)	100V absolute max, 3x3 mm DFN package
	In-Phase Current Sensor	ACS37220 (Integrated)	±1.4%, ±50 to ±200A, 4x4 mm package
		ACS37610 (Field)	±1.2%, ±50 to >10000A, 4-pin SIP package
	Motor Position Sensor	A33023 (SFI)	12-bit resolution, stray field immune
		A17803 (Inductive)	>18-bit resolution (with 2x), replace optical
Power Conversion	PMIC/Regulator	APM81815	Highest performance 48V pre-regulator
	In-Phase Current Sensor	ACS37220 (Integrated)	±1.4%, ±50 to ±200A, 4x4 mm package
		ACS37610 (Field)	±1.2%, ±50 to >10000A, 4-pin SIP package
	Isolated Gate Driver	AHV85110/1 (GaN)	1 kV (8kV Abs Max), >2x PCB reduction vs comp
		AHV85311 (SiC)	1.5 kV (8kV Abs Max), >2x PCB reduction vs comp
Steering and Braking Control	PMIC/Regulator	APM81815	Highest performance 48V pre-regulator
	Joystick Position Sensor	A31301	User-selectable magnetic for on/off-axis sensing
	Steering Wheel Angle Sensor	A33003	On-Chip linearization, multiple output protocols
	Pedal Position Sensor	ATS19580	Large air gap GMR transmission sensor
Lighting and Safety	Warning Light Driver	A6263	Quad-output linear LED driver
	Dashboard Lighting Driver	A6263	Quad-output linear LED driver
Main Controller	PMIC/Regulator	APM81815	Highest performance 48V pre-regulator
Traction and Lift Motor Drivers	48V Gate Driver	A89500 (1/2 Bridge)	100V absolute max, 3x3 mm DFN package



To learn more about the Allegro family of products and to explore available design resources, visit [allegromicro.com](https://www.allegromicro.com)