

# THE FAST TRACK TO FLEXIBLE AUTOMATION

Driving Speed and Precision in Next-Generation Industrial Transport

Linear transport systems are revolutionizing industrial automation, replacing traditional conveyor belts with intelligent, high-speed tracks where every carrier can be moved independently. For engineers, the challenge is to design systems that are not only fast and flexible but also robust enough to handle heavy payloads and operate reliably 24/7. This requires significant advancements in the core technologies that drive these systems, particularly in motor control, position sensing, and power management.

The powerful motors that propel the carriers require precise control to ensure smooth and rapid movement, while arrays of position sensors are needed to track each carrier with sub-millimeter accuracy. Allegro offers a comprehensive portfolio of motor drivers, position sensors, and power ICs designed to meet the unique demands of these systems, addressing critical challenges like power efficiency, system cost, and functional safety.

## What you can achieve with Allegro solutions

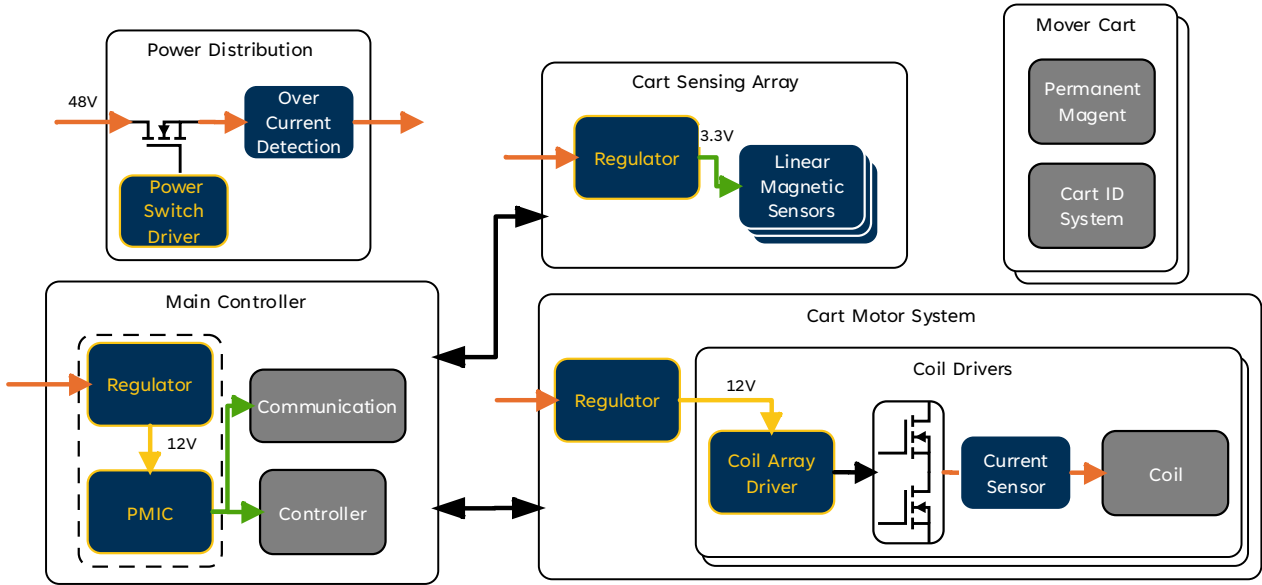
- **Higher Throughput & Payload:** Allegro's 48V motor drivers deliver the high power and torque needed to move heavier payloads at greater speeds, maximizing production throughput and system efficiency.
- **Reduced System Cost:** Highly integrated motor drivers, position sensors, and power ICs reduce component count, simplify PCB layout, and lower overall BOM cost and design complexity.
- **Enhanced Reliability:** Robust, contactless magnetic sensors and motor drivers with built-in diagnostics are designed for functional safety, ensuring reliable operation in demanding industrial environments.



**As linear transport systems become essential for building the smart factories of the future, the underlying electronics that power and guide them are more critical than ever.**

Allegro Microsystems' advanced motor drivers and magnetic sensors provide the precision, power, and reliability required for the most demanding high-speed automation applications.

Block Diagram



Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
Power Distribution	Over Current Detection	CT4022	Isolated, 500kHz, ultra-low noise TMR
	Power Switch Driver	A3942	4.5 to 60V, High-side MOSFET gate driver
Cart Sensing Array	Regulator	APM81815	48V, 4x4x2mm package with integrated components
	Linear Magnetic Sensor	A139x (1D)	User selectable sleep mode and quick wakeup
		ALS31300 (3D)	12-bit output, 0.7% accuracy error, ideal for 3-axis
		A31301 (3D)	Lower noise 3D solution
Cart Motor System	Regulator	APM81815	48V, 4x4x2mm package with integrated components
	Coil Array Driver	A89500	48V Half-Bridge Driver (100V max), small form factor
	Current Sensor	ACS37041	Compact SOT23-W, 1.6mΩ conductor resistance
Main Controller	Regulator	APM81815	48V, 4x4x2mm package with integrated components
	PMIC	A81411	3.2 to 36V, High safety, SPI



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