EFFICIENT CLIMATE CONTROL, ENGINEERED TO PERFECTION

Driving Performance and Sustainability in Next-Generation Heat Pumps & HVAC Systems

The global push toward energy-efficient buildings and electrified heating is accelerating innovation in heat pump and HVAC system design. Consumers and regulators alike demand systems that deliver precise climate control, ultra-quiet operation, and maximum seasonal efficiency without compromising increasingly compact form factors.

Allegro MicroSystems' advanced magnetic sensors, motor drivers, and power ICs empower HVAC engineers to build smarter, quieter, and more efficient systems. Our technology ensures reliable operation across extreme temperature ranges while reducing energy consumption and simplifying system design for residential, commercial, and industrial applications.

What can you achieve with Allegro solutions

- **Maximized Seasonal Efficiency:** High-performance gate drivers and ultra-low resistance current sensors reduce inverter power losses in compressor and fan drives, boosting system COP across heating and cooling cycles. This optimization extends the effective operating temperature range while reducing energy costs
- **Ultra-Quiet Climate Control:** High-bandwidth sensors and sensorless FOC motor driver ICs enable smooth, vibration-free compressor and blower operation. This delivers precise temperature and humidity management with minimal acoustic noise
- **Simplified Design & Reliability:** Highly integrated, contactless ICs reduce BOM and PCB footprint while withstanding the moisture, condensation, and temperature extremes common in HVAC environments.

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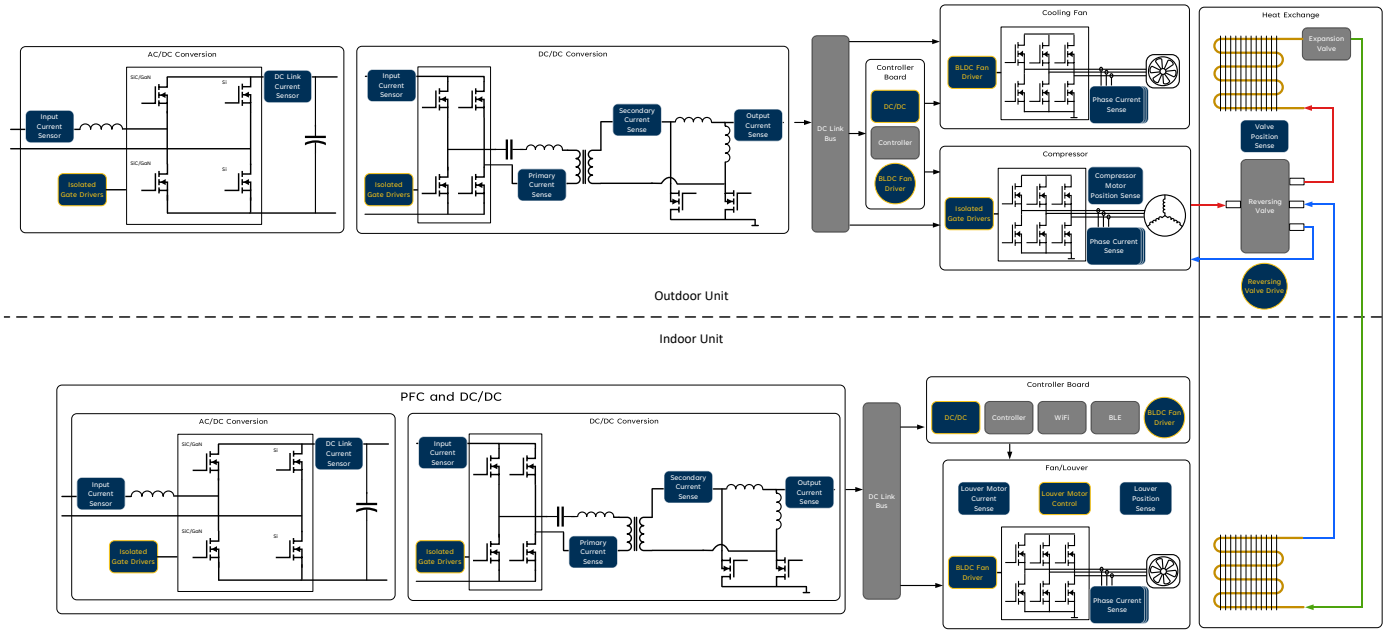
Block Diagram



Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
PFC	Current Sensor	**ACS71010**	Reinforced isolation with precise, high-voltage power monitoring
DC/DC	Current Sensor	**ACS37035**	Extreme bandwidth for fast control loops and stray field immunity
Fan	Current Sensor	**ACS37220**	Ultra-low power loss maximizes efficiency
Motor	Current Sensor	**ACS772/3**	High current density with minimal heat
PFC, Motor	Gate Driver	**AHV85110/1**	Self-powered "Power-Thru" isolation simplifies design
Power	DC/DC Reg.	**APM81815**	Superior EMI performance with robust, high-voltage operation
Fan	BLDC Fan Motor Driver	**A89333**	Quiet sensorless operation with integrated safety braking
Valve	Stepper Motor Driver	**A5984/5**	Precision microstepping eliminates noise and vibration
	Position Sensor	**A31020**	Wear-free, contactless precision for reliable control

To learn more about the Allegro family of products and to explore available design resources, visit allegromicro.com