

# COMFORT THROUGH SUSTAINABILITY

## Unlock the Power of Heat Pump Innovation

Heat pumps are at the crux of the energy efficiency revolution, unique in their ability to deliver more heating energy than the electrical energy they consume. With the ability to convert 300% to 500% of the energy provided into useful heating or cooling, heat pumps represent a pivotal step toward a sustainable future and are indispensable in achieving the net-zero carbon emissions goal by 2050.

Globally, heat pumps are increasingly recognized for their integral role in the transition to renewable strategies. Many regions now offer subsidies for heat pump installations and mandate their inclusion in new buildings, a testament to their growing importance.

The Allegro product portfolio is crafted to simplify and enhance the work of system designers, enabling them to meet the surging market demand for sustainable heating solutions efficiently. Our innovative designs are tailored to provide seamless integration and optimal performance, ensuring that you stay ahead in the rapidly evolving landscape of renewable energy solutions.

### Allegro solutions provide:

- **Efficiency:** Ensure the greatest conversion of energy to heating/cooling using lower ohmic and capacitive losses combined with advanced control algorithms.
- **Safety and Reliability:** Increase system longevity with highly robust Allegro products driven by a "zero-defects culture"
- **Solution Size Reduction:** Pack more features in less board space with compact, integrated solutions.
- **Faster Time to Market:** Reach the market faster with easy to use turn-key solutions.
- **Appealing ROI:** Reduce upfront costs and improve lifetime.



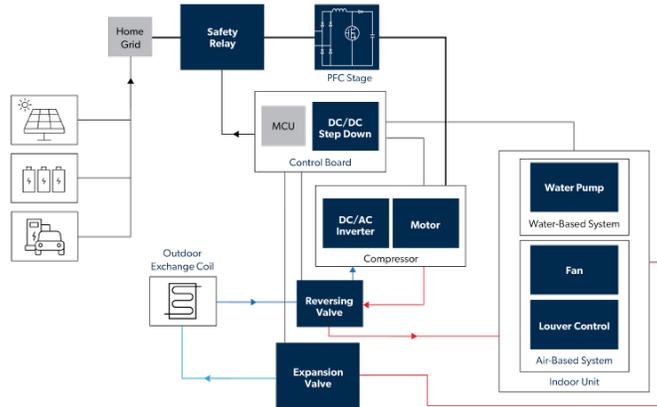
- 1 Indoor unit
- 2 PFC stage
- 3 Compressor
- 4 Outdoor heat exchange

Discover how Allegro innovative solutions can revolutionize your heat pump systems and enhance their longevity through automotive-grade quality.

Our latest high-performance current sensors are tailored to enable precise system control. They are packed with features in a compact monolithic package, removing the need for extra components. Our intelligent fan and pump drivers ensure low-noise and high-efficiency operation without the need for a microcontroller unit (MCU) or any programming.

# Market-Leading Portfolios That Sense, Regulate and Drive

## Block Diagram



## Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
Safety Relay		A2550	3-channel relay controller with integrated voltage regulator and watchdog
PFC Stage	Current Sensor	ACS37002	Lowest voltage offset for precise low current sensing
	Gate Driver	AHV85110/1	Isolated GaN driver for uncomplicated system design
Control Board	DC/DC Step Down	APM81911	Highly efficient power module with integrated capacitors and inductor
Compressor	DC/AC Inverter	AHV85110/1	Integrated GaN driver enable high efficiency power conversion
		ACS37030	Unparalleled DC to 5 MHz isolated current sensor for complete control
	Motor	CT43x/42x	Highly accurate and extremely responsive TMR current sensor
		ACS772/3	Isolated high power current sensor for in-line or high-side motor sensing
Reversing Valve		A33023	Precise stray field robust angle sensing for motor commutation
		A17700	IC interface for reliable and accurate piezo-resistive-bridge pressure sensing
Expansion Valve		A4950	Full bridge driver for precise relay control
		CT100	Low power and highly sensitive TMR differential linear sensor
Indoor Unit	Water Pump	A5984	Microstepping DC driver for precise pressure reduction control
		A89332	Programming free motor driver with integrated sinusoidal algorithm
		CT110	Low cost TMR current sensor
	Fan	A89331	Motor driver optimized for efficient and low noise control
	Louver Control		A4950
		A31301	Low cost compact angle sensor



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