ALLEGRO microsystems

THE PULSE OF NEXT-GEN HEALTHCARE

Driving Precision, Safety, and Reliability in Medical & Personal Health

The landscape of healthcare is shifting rapidly from the hospital to the home. Modern medical devices are evolving from stationary, plug-in equipment to sophisticated, portable, and wearable solutions that empower patients and streamline clinical workflows. For engineers, the challenge is to design devices that are not only smaller and more ergonomic but also operate flawlessly in critical scenarios. This requires significant advancements in core technologies, particularly in precise sensing, efficient motion control, and ultra-low power management.

Whether developing continuous glucose monitors, surgical robotics, or automated drug delivery systems, designers must balance the need for extended battery life with the absolute requirement for patient safety and clinical precision. Allegro's from nanopower magnetic switches to quiet, high-efficiency motor drivers provide the innovative technology that allows you to build the safer, smaller, and smarter health devices of the future.

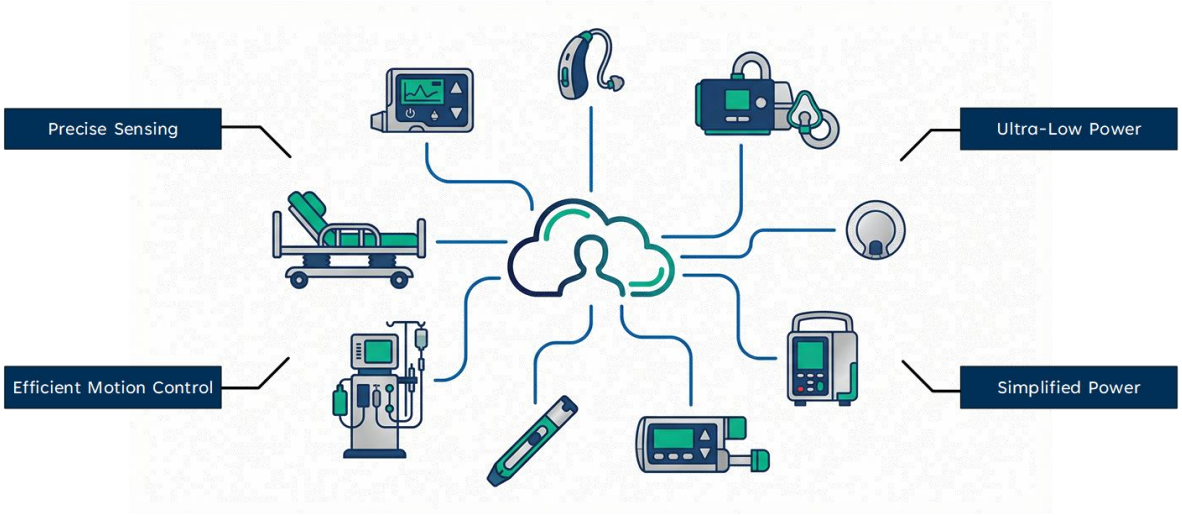
What you can achieve with Allegro solutions

- **Extended Battery Life & Portability:** Our state-of-the-art Nanopower TMR and Micropower Hall-effect technologies dramatically extends runtime for battery-critical applications ensuring "always-on" readiness without draining power.
- **Enhanced Safety & Sterile Design:** Allegro's solid-state, contactless magnetic sensors eliminate mechanical wear and allow for fully sealed, hermetic enclosures. This enables devices to withstand harsh sterilization processes and fluid exposure while providing built-in diagnostics for critical fail-safe operations.
- **Miniaturization & Faster Time-to-Market:** Highly integrated solutions significantly reduce board space and component count. This allows for smaller, more ergonomic patient-centric designs while accelerating your certification and development cycles.

As medical technology becomes more personal and portable, the underlying electronics must become more innovative and reliable.

Allegro MicroSystems' advanced magnetic sensors, motor drivers, and power ICs provide the clinical-grade precision, robust safety features, and ultra-low power consumption required for the next generation of life-saving medical devices.

Block Diagram



Key Products and Solutions

Subsystem	Component	Allegro Parts	Key Differentiator
Ultra-Low Power	Switches & Latches	CT81xx	Nanopower TMR with high sensitivity for extended battery life.
		APS1x753	Micropower Hall-effect with solid-state reliability.
		APS1x203	High-voltage Hall-effect switches and latches; robust & stable.
Precise Sensing	Position Sensors	ALS31300	3D linear sensing with I2C for complex motion tracking.
		A31010	High-precision linear sensing for fine motion control.
	Current Sensors	ACS71010	Reinforced isolation with exceptional accuracy
		ACS772/3	High current sensing with ultra-low power loss.
		ACS37041/2	Compact & low-cost alternative to shunt resistors.
Efficient Motion Control	BLDC Driver	A89333	Ultra-quiet, sensorless FOC; code-free implementation.
	Stepper Driver	A5984/8	Smooth microstepping for precise, vibration-free operation.
	Brushed DC Driver	A4954	Dual full-bridge driver with integrated protection features.
Simplified Power	Power Module	APM81911	Integrated inductor reduces EMI and minimizes PCB footprint.
	LED Driver	APM80900	High efficiency with precision brightness control.
	DC/DC	A8586	High-efficiency buck converter optimized for battery runtimes.

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