Outer Loop Control ICs For Brushless DC And DC Brush Motors

Performance Motion Devices' (PMD) Juno Outer Loop Control ICs are new members of the Juno family of Velocity & Torque Control ICs which provide functions for spindle control, centrifuge control, precision torque control, and a wide variety of other liquid handling and laboratory automation applications. According to the vendor, the Juno Outer Loop Control IC is a brand-new type of control IC that capitalizes on recent trends in digital logic integration and intelligent algorithm development. This type of IC is well suited for controlling pressure, temperature, liquid level, magnetic bearings, chemical reaction rate, and other "outer loop" quantities for medical, industrial, and military applications. An example application is shown in the figure.

"PMD's new Juno Outer Loop Control IC is a completely novel product that answers the growing call for integrated control ICs that apply advanced algorithms to control pressure, temperature, chemical reactions, and other critical applications. By integrating outer loop control with motor velocity and torque control functions, what previously may have required as many as three separate ICs can now be achieved in a single compact IC package," states Chuck Lewin, founder and CEO of PMD.

Features and benefits of these ICs include:

- Three-phase brushless dc and dc brush control
- Programmable outer loop and velocity loop functions
- Deadband and biquad filtering
- Field oriented control (FOC) and current loop
- High/low switching bridge amplifier control signals
- Leg current sensing for minimum noise
- Performance trace with filtering, which enables adaptive control.

All Juno Outer Loop Control ICs are available immediately in a 64-pin TQFP package measuring 12 mm x 12 mm and are priced from $23 depending on motor type controlled and quantity. Juno Developer Kits start at $195. For more information, visit the website.

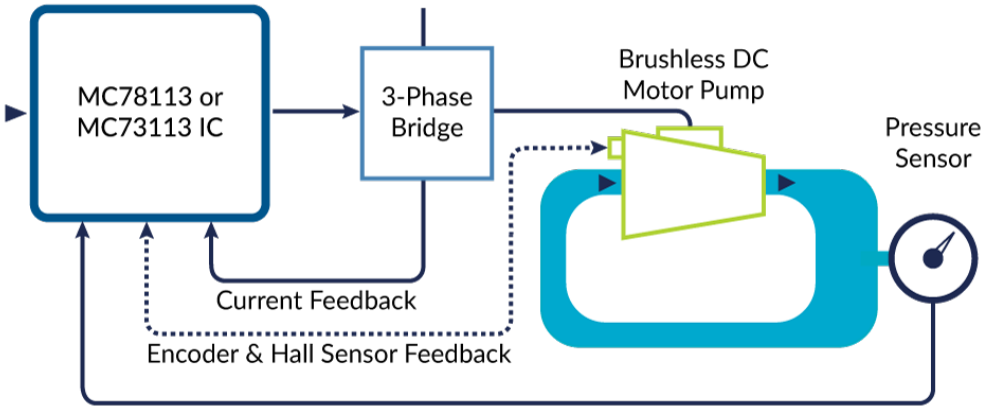

Figure: Pressure Feedback. This figure illustrates a typical application, in this case for a ventilator, where the speed of a brushless dc motor turbine directly affects the measured chamber pressure. A control host sends a stream of pressure commands to the Juno IC which executes its outer loop function to maintain the desired pressure. The Juno Outer Loop Control IC monitors system parameters at up to 10 kHz, allowing it to tackle even the most demanding control applications, according to the vendor.