

How Delta fits into the world of motion control

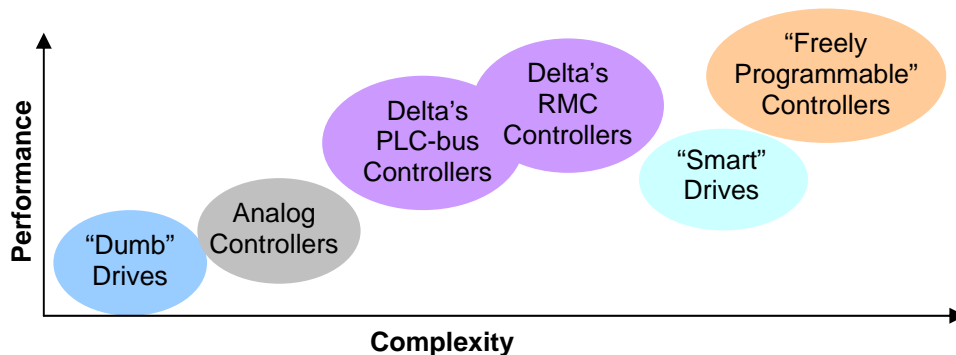
No single motion controller is ideally suited for every application. Even versatile, general-purpose motion controllers like the RMC family have certain areas where they fit best.

Delta's motion controllers are aimed precisely at industrial motion applications—closed-loop electric, hydraulic, and pneumatic—that can benefit by the following characteristics:

- **Easy to Connect:** Delta's motion controllers offer high performance communications to a wide variety of PLCs, direct connection to most transducers, and the ability to “mix and match” axis types.
- **Quick to Implement and Inexpensive to Maintain:** Integrate motion control efficiently by issuing commands from the PLC program of your choice—augmented by Delta's user programs for fast sequences. Engineers typically get projects completed in a fraction of the time needed for other motion controllers, and end users benefit by having systems that are inexpensive to maintain and upgrade.
- **High Performance:** The precise control provided by Delta's motion controllers boosts performance and machine life. Unlike most motion controllers, Delta provides the specialized parameters and algorithms needed for high-performance fluid power motion control, as well as electric. And Delta has turned two decades of experience in responding to customers needs into a rich set of advanced features. For example, Delta's Curve Tool greatly simplifies complex jobs such as curved saw cutting and ladle pouring. And Delta's sophisticated force control modes allow smooth position/pressure control with a single hydraulic valve—reducing cost and complexity of injection molding machines and presses while increasing throughput and improving part quality.

Here is a graphical look at how Delta's motion controllers fit into the big motion control picture:

Method of Programming



Delta's controllers, programmed using high level commands executed either directly or indirectly by the host PLC, have nearly as much power as the so-called “freely programmable” controllers, and are quicker to set up and easier to maintain.

Type of Motion

Delta’s motion controllers handle all types of closed-loop servo motion control plus stepper control for a variety of machine control and automation applications.

And Delta’s extensive development of hydraulic motion and position/pressure capabilities is unsurpassed in the industry.

CNC Machines using special G-code software	
Closed-loop Electric Servo Motors (typ quadrature feedback)	Position-Pressure/Force, Pressure/Force Control
AC and DC Drives (typ velocity control)	Delta’s Motion Controllers Closed-loop Servo Hydraulic and Pneumatic
Stepper Motors (with or w/o position feedback)	Open-loop Electric, Hydraulic and Pneumatic

Communication Choices

Delta’s motion controllers are designed to integrate closely with most common industry-standard PLCs—speeding implementation and greatly reducing long-term training and support costs.

The ability to use the same motion controller with a variety of PLCs and other host systems allows system integrators to use the same controller, achieving “best of class” motion performance while using the PLC dictated by end user.

Delta’s controllers can save in other ways as well. Offloading time-critical sequences into the motion controller user programs (which run at the motion loop speed) can result in tight coordination and fast throughput even with inexpensive PLCs.

Fieldbus: (Ethernet, PROFIBUS, Modbus+, Serial, etc.) Delta’s RMC Controllers
PLC Backplane Bus: (A-B, Modicon, Siemens, etc.) Delta’s PLC- and Open-bus Controllers
Industrial Backplane Bus: (CompactPCI, Multibus, VME, etc.)
PC Backplane Bus: (ISA, PCI, PCMCIA, etc.)

Transducer Compatibility

Delta’s motion controllers reduce wiring cost and complexity by connecting directly with most common position transducers—including direct connection to magnetostrictive displacement transducers (MDTs).

MDTs provide absolute linear position information and are available with Start/Stop, PWM, Analog, and Synchronous Serial Interface (SSI) options.

Rotary encoders with SSI outputs are also supported along with quadrature incremental encoders.

In addition, most of Delta’s controllers offer optional force and position/pressure capabilities, with analog interfaces for pressure transducers or load cells.

Quadrature Encoders
SSI Output Transducers
Start-Stop or PWM MDTs Delta’s Motion Controllers
Analog Pressure Sensors
Analog Position Transducers (LVDTs, Potentiometers, etc)
Resolvers