

# EXPLANATION ON PAC AND PLC EMBEDDED CONTROLLERS

Concepts like modularity and scalability have re-defined industrial equipment architectures. Software enables automation systems to integrate historically-separate components to operate on the same hardware platform.

Drive-based automation controllers empower machine builders to implement new system topologies and reduce machine footprint - all while reducing total system cost. For example, the [AKD® PDMM](#) integrates one drive-axis, a full IEC61131-3 soft-PLC, and a high-performance motion controller for up to seven or more servo axes in a single, compact package. The tight integration of these functions can **save hundreds of dollars by eliminating a dedicated motion controller, design time (e.g. wire routing, EMC and thermal provisions, etc.), and as much as 75% of the controller footprint within the cabinet.**

Acting as an EtherCAT® Master, the AKD PDMM combines the motion and field buses to provide deterministic response to I/O events for demanding applications like high-speed registration. Controller technologies benefit from the advent of more powerful and efficient processors. With more capability within a smaller package, OEMs have unprecedented scalability in controller architectures.



Whether programming an AKD PDMM controlling 1-8 axes, or a PAC-based machine comprising up to 128 axes, a single development environment such as [Kollmorgen Automation Suite™](#) integrates [HMI](#), network and drive configuration, motion and PLC programming, and simulation. Standardizing on one control software,

OEMs reduce the time to develop future designs utilizing reusable, pre-validated code modules. Whether new designs are large or small, changes can be limited to hardware form-factor and mechanical integration considerations.

Fieldbus-enabled versions of drive-based controllers provide OEMs with design for modularity. Complex multi-stage processes can be divided into simpler sub-processes to reduce debugging and accelerate time-to-market with a more robust machine.

This concept has been an industry trend transcending markets for nearly a decade; now it's easier to realize. The drive-based controller fully encapsulates the motion and automation requirements for the module, and where applicable, operates as a slave to a higher-level machine controller. The performance/size/cost of drive-based controllers are making new and innovative machine architectures possible.

Kollmorgen Automation Suite™ is a complete, integrated set of software tools and hardware components designed to accelerate the development of high-performance machines. Its pre-integrated components and easy-to-use rapid software development tools help bring better machines to market faster and more affordably. Using KAS, OEMs can create machines that produce the highest-quality products with optimum throughput, minimal waste and outstanding OEE.

## **Technology Brief**

Insight on Embedded Controllers

### **ABOUT KOLLMORGEN**

Kollmorgen is a leading provider of motion systems and components for machine builders around the globe, with over 70 years of motion control design and application expertise.

Through world-class knowledge in motion, industry-leading quality and deep expertise in linking and integrating standard and custom products, Kollmorgen delivers breakthrough solutions unmatched in performance, reliability and ease-of-use, giving machine builders an irrefutable marketplace advantage.

For more information visit [www.kollmorgen.com](http://www.kollmorgen.com), email [support@kollmorgen.com](mailto:support@kollmorgen.com) or call 1-540-633-3534.