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High Quality Data Acquisition and Embedded Control Products



### ICP DAS Motion Control Application Summary

With the constant evolution in the field of industrial motion control, it is no surprise that top automation control manufacturers are striving to meet consumer's needs on a multitude of levels. Keeping this in mind, ICP DAS has not only kept up with current motion control trends, but exceeded them as well!

ICP DAS offers a full line motion controllers, as well as precision industrial controllers to orchestrate the complex control processes needed for today's 2 to 4 axis applications. In a recent application, an OEM customer approached ICP DAS with the need for a 20-axis motion control system, with upwards of an additional 250+ I/O points. Because the customer stressed that reliability and precise control were the main attributes needed to make this a successful integration, ICP DAS chose to integrate a multifaceted approach; allowing robust and reliable control, and environmental resilience, all contained in a user friendly platform.

Since motion control was the most pertinent element of the application, ICP DAS decided to implement their newest motion control module; the I-8094. The I-8094 is a high speed, 4-axis stepping/pulse-type servo motor control module that can be used in conjunction with any of the ICPDAS I-8000, W/L-8000 series controllers, and is suitable for almost any motion control application. Apart from its wide speed range, the I-8094 intelligent motion controller also has a variety of motion control functions built in; such as:

- Independent 4-axis motion control
- Onboard processor
- 2/3 axis linear interpolation
- 2 axis circular interpolation
- T/S curve acceleration / deceleration
- Variable synchronous actions
- Automatic Homing

By implementing the I-8094 motion controller, ICP DAS drastically cut down the amount of devices needed to perform the full 20-axis motion control, all while adding superior control capabilities via the module's onboard processor. With just five I-8094 modules installed, all 20 axes were capable of independent control, all while maintaining a compact, modular footprint. With the motion control aspect of the installation sorted out, ICP DAS turned to the I-8430 rack mount PLC controller to not only house the motion control modules, but also handle the secondary duties of: embedded control and high speed digital data acquisition. With a robust controller in place, ICP DAS chose to implement their new line of FR-net products to handle the requirement for the high speed digital signals. FR-net is an innovative industrial field bus, capable of high speed deterministic control, real I/O synchronization, non-protocol communication, and much more. By implementing the FR-net I/O infrastructure, ICP DAS enabled transfer speeds of up to 250 kbps per 2.88ms; thus offering superior high speed data analysis.

Overall, ICP DAS offered a cost effective and robust solution, capable of out performing numerous more costly solutions, and allowing cutting edge data acquisition and embedded in a modular, user friendly format.

**Fig 1. Installation Example**

