

Integrated Motion on EtherNet/IP™

A single network for complete machine control simplifies and enhances machine design

Advantages

Well Established Integrated Motion Solution

- Extends the benefits and simplicity of Rockwell Automation Integrated Motion to precise servo drives and high power AC drives on EtherNet/IP with the Kinetix® 6500 and PowerFlex® 755 drives
- Single software package - RSLogix™ 5000 - provides complete system support, including motion configuration, programming, commissioning, diagnostics and drive maintenance
- Advanced motion capability with 41 embedded motion instructions available in Ladder, Structured Text and Sequential Function Chart languages, providing comprehensive functionality

Single Network Architecture

- Low cost, high performance and easy to use as compared to a multi-network architecture
- Integrate high performance drives, I/O, smart actuators, HMI, and any other EtherNet/IP device on a common network

EtherNet/IP - Open and Broadly Adopted

- More than 250 vendors with support for more than 850 devices
- Over 2 million nodes installed
- EtherNet/IP, CIP Motion, and CIP Sync technologies are global standards from ODVA

High Performance with standard, unmodified, Ethernet

- Use standard infrastructure components, switches and tools - no need for proprietary hardware or software
- 100 meg throughput with assured determinism regardless of device type and mix
- 100 ns time synchronization of distributed devices
- 100 µs time scheduled output and time stamped input I/O

Complete Motion Control Support

- Broad range of servo and AC drives, rotary/ linear motors, and linear actuators from .1 to 650hp - get the right solution for any application



What if you could capture the benefits of a high performance, easy-to-use integrated motion solution and use them on a standard, open EtherNet/IP network? It would provide some welcome simplicity, wouldn't it? There would be no need for a dedicated motion network; no proprietary hardware or software; no requirements for non-standard Ethernet infrastructure. Just Ethernet/IP— the same network used by a large and growing number of business, commercial and industrial devices—connecting your entire enterprise, including motion control.

Open, Flexible EtherNet/IP

This groundbreaking solution is now available with the new Kinetix 6500 servo drive and the enhanced PowerFlex 755 AC drive with Integrated Motion. It offers increased machine design flexibility, improved system performance, and reduced system cost by providing all of the capabilities of Integrated Motion on EtherNet/IP. A key attribute of this solution is that it uses CIP Motion™ and CIP Sync™ technology from ODVA, all built on the Common Industrial Protocol (CIP)™. EtherNet/IP uses standard, unmodified Ethernet, and allows you to effectively manage real-time control and information flow for improved plant-wide optimization, more informed decision-making and better business performance.

Powerful, Easy-to-Use Integrated Motion

Machine builders can now configure, program, commission and maintain the Kinetix 6500 servo drives and PowerFlex 755 AC drives on EtherNet/IP using motion profiles and instruction sets within a single software environment— RSLogix 5000. Integrated motion instructions are used for coordinated drive control and provide a common solution for these drives. In addition to offering standardized operation and consistent behavior, these new drives significantly extend the power range of the Integrated Motion solution available from Rockwell Automation.

Imagine the possibilities that Integrated Motion on EtherNet/IP can bring to your application.

LISTEN.
THINK.
SOLVE.®

Rockwell
Automation

The Value of Integrated Motion Extended to VFD and Servo Drives on EtherNet/IP

For nearly a decade, machine builders and automation users have recognized the value of the Rockwell Automation Integrated Motion solution. And now, those benefits have formed the foundation of a new generation of Integrated Motion, one that's

available to both servo and VFD drives on standard EtherNet/IP, helping to simplify everything from drive programming and commissioning to diagnostics and maintenance.

Motion Instructions are Integrated into RSLogix™ 5000 Software for Fast, Convenient Programming

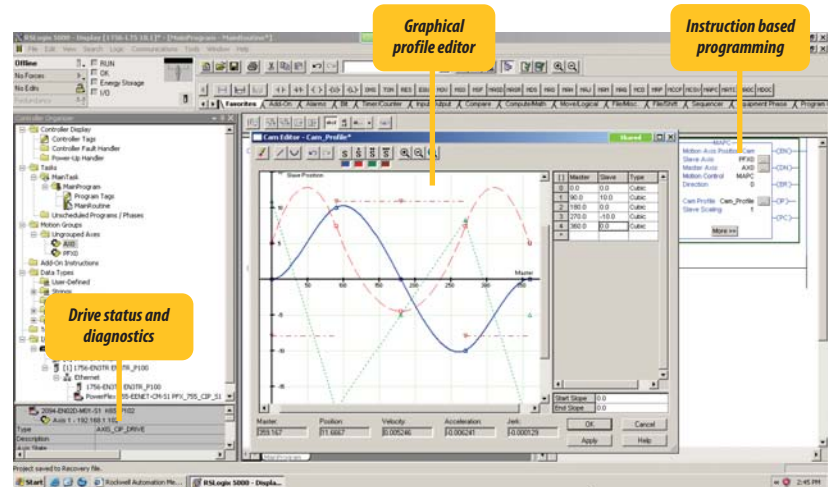
- One software package, RSLogix 5000, provides complete support for drive configuration, programming, commissioning, diagnostics and maintenance.
- Extensive library of 41 motion instructions provides a broad range of basic and advanced motion functionality including time and position camming (TCAM, PCAM), linear and circular interpolation, kinematics and high speed event handling support
- A choice of three IEC-61131-3 programming languages: Ladder, Structured Text (ST), and Sequential Function Chart. Multiple languages can be used for the same project.
- Powerful on-line and off-line motion tools including real-time data trending, graphical PCAM and TCAM profile editor, auto and manual drive tuning, and advanced diagnostics
- A common set of interfaces and behaviors for VFD and servo drives. The common user experience helps to simplify drive use.

Integrated Motion Configuration and Commissioning Makes Drive Control Easy

- Drive, motor and actuator selection and configuration is simplified by use of catalog numbers. This out-of-the-box "connect and run" support eliminates the need for complex drive/motor/actuator configuration and tuning.
- Easily add the desired motion function to your application program - just point and click
- Create tags once and use enterprise-wide

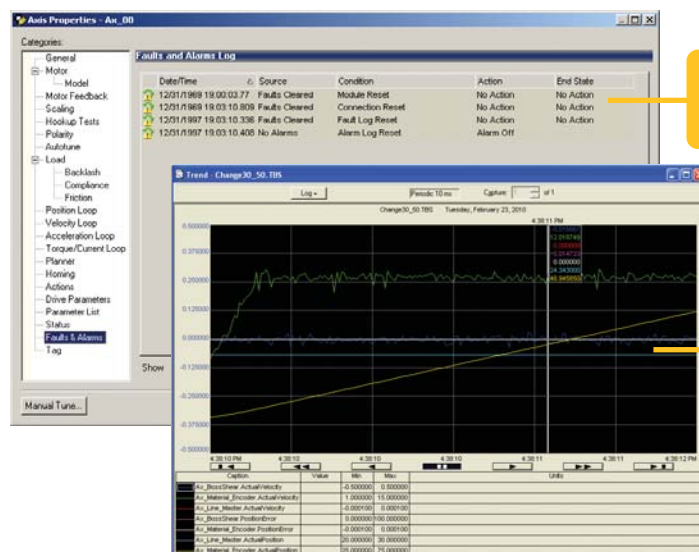
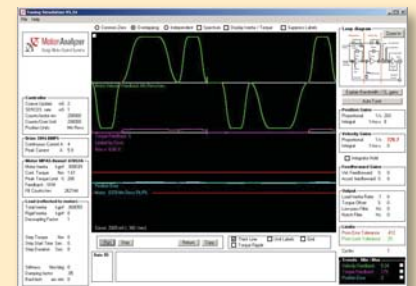
Powerful Diagnostics to Identify and Resolve Problems

- True integration simplifies data collection. With excellent status information available, fault tracing and correction are easier. Machine downtime can be minimized
- Time stamped faults and alarms log provides precise drive speed and position regulation
- With remote diagnostics, detailed drive and motor status information is available anywhere in the Logix system, allowing you to remotely manage applications where needed.
- Quick and easy firmware revision management for drives via RSLogix 5000



Motion Analyzer Software

Tuning simulation is a Motion Analyzer tool that helps predict how your machine will perform in the real world. It emulates tuning an axis in RSLogix 5000 (including 'Auto-tune') and then simulates the behavior of the load, motor and drive while factoring in mechanical compliance or backlash to give a realistic result. Helps to reduce design error and save time during machine commissioning.



Time stamped faults and alarms provides precise drive information

High speed data logging and trending for system commissioning, diagnostics and process monitoring

The Motion Control Products, Tools and Support You Need to be Successful

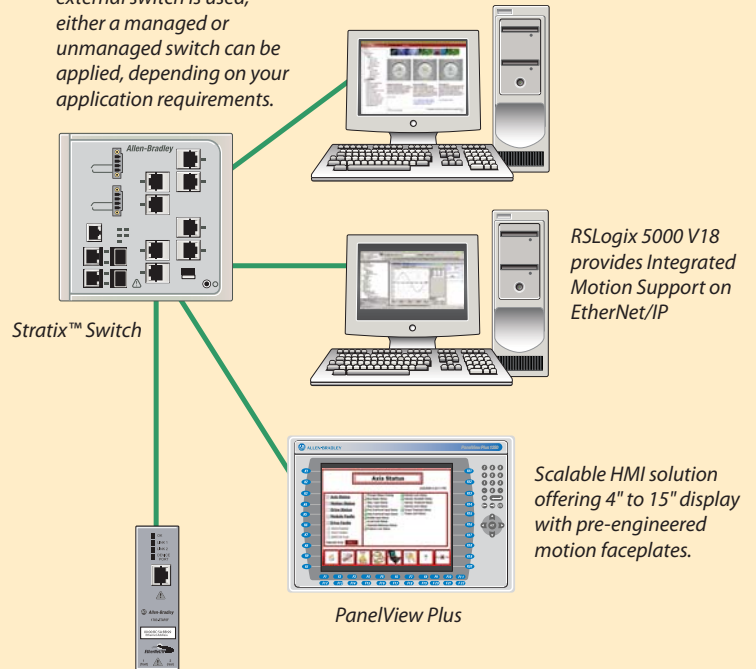
As part of our commitment to your success, we provide a full range of world-class motion control products, tools and services, all designed to help you become more efficient and profitable. From the first steps of machine design to high performance operation and routine maintenance, we're working with you to enhance productivity and performance.

The PowerFlex 755 and Kinetix 6500 are supported in **Motion Analyzer software** which helps machine builders easily select, size and optimize motion control systems. The software also provides simulation tools which not only help reduce design time but also help minimize errors for enhanced machine reliability.

PowerFlex and Kinetix Accelerator Toolkits help you reduce programming time with pre-built logic code and HMI templates. Use the easy-to-use tools and templates to get your machine to market faster.

Add On Instruction (AOI) motion libraries provide easy access to advanced motion functions

In topologies where an external switch is used, either a managed or unmanaged switch can be applied, depending on your application requirements.



RSLogix 5000 V18 provides Integrated Motion Support on EtherNet/IP

Scalable HMI solution offering 4" to 15" display with pre-engineered motion faceplates.

PanelView Plus

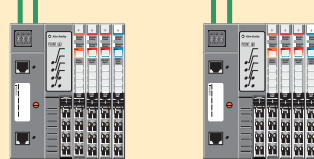
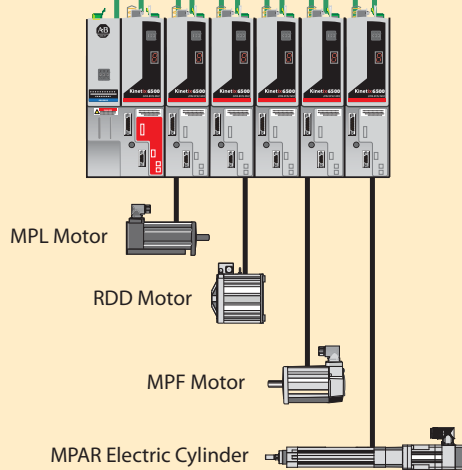
ControlLogix 1756-ENXT®

- 1-8 position configured drives with 1756-EN2TR®
- 1-255 position configured drives with 1756-EN3TR®
- Unlimited velocity, torque and Vhz configured drives
- Up to 100 drives per controller



Kinetix 6500 Servo Drive

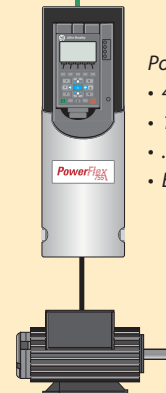
- Dual port embedded switch technology
- 460V AC input voltage
- 1.8 kW to 22 kW
- Automatic recognition and commissioning of Allen-Bradley servo motors and actuators



Point I/O capacity is a maximum of 63 point I/O modules per adapter

The 1783-ETAP can be used to connect devices that do not currently have the two port embedded linear/ring technology

- PowerFlex 755 AC Drive
- 400/480V AC
 - 1-650 HP
 - .75-400 kW
 - Embedded EtherNet/IP



Integration extends all the way to high performance motors and actuators, with catalog numbers included in RSLogix 5000 for fast selection and configuration. This out-of-the-box "connect and run" support eliminates the need for complex drive/ motor/actuator configuration and tuning.

Consider your motion application and how it would benefit from the industry-leading network

As you determine the future of networks on your machine, consider these factors and how they impact your decision.

What will you use the network technology to do?

- EtherNet/IP is an agile, multidiscipline network that can be used to control, configure, monitor and do peer interlocking for motion, safety, process and discrete applications - and it provides true enterprise-wide integration.
- It's also flexible. Use it to connect business, commercial and industrial devices to help simplify networking, save time and reduce costs
- EtherNet/IP provides secure, remote access to information and industrial devices to help simplify networking, which helps save time and reduce costs

What devices are available?

- This IT-friendly network boasts more than 2 million installed nodes and support for more than 850 devices from over 250 vendors. Integrated Motion on EtherNet/IP builds on the time-proven success of EtherNet/IP – the network offering more devices, more vendors and a larger installed base than any other industrial Ethernet.
- EtherNet/IP enables a wide variety of devices including robots, programmable automation controllers, I/O, HMI, servo and VFD drives, barcode scanners, etc.

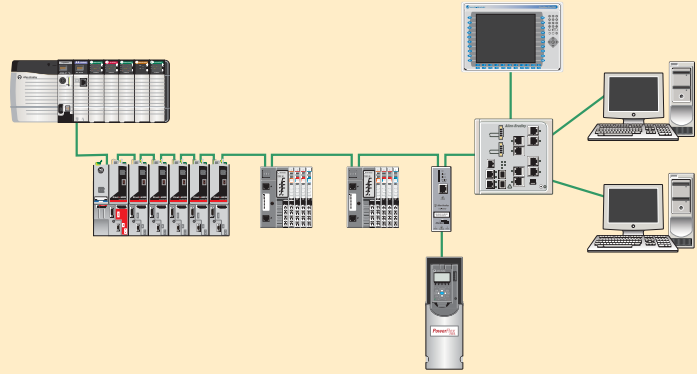
Is it a good technical fit to your applications?

- Use the right topology option for your machine
 - Support for any Ethernet topology including ring, star, hybrid and linear topologies
 - Mix drives and any other EtherNet/IP device on a common subnet, with full communication between subnets
 - Capacity of 255 devices per subnet

What is the network technology longevity?

- EtherNet/IP is an established network which has been used since 2001
- Robust global standards established by ODVA help ensure multi-vendor interoperability
- Three of the five largest control vendors use EtherNet/IP as their core network
- Nearly every type of automation device has EtherNet/IP connectivity

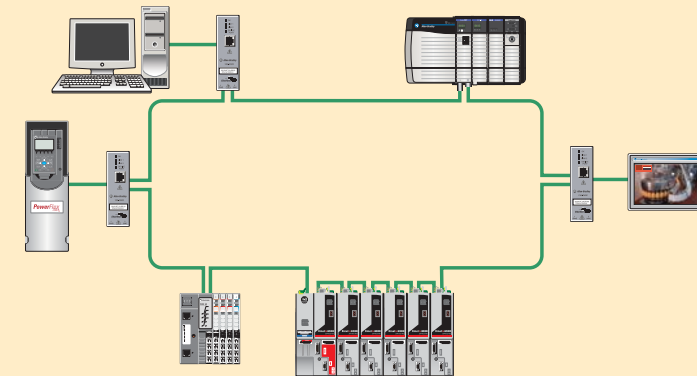
A hybrid topology is cost-effective for a broad range of devices with varying connectivity.



Linear Topology helps to reduce wiring and provides the longest network options.



Device Level Ring is an ODVA standard and provides fault tolerant connectivity for high drive availability.



ControlLogix, Kinetix, PowerFlex, RSLogix 5000, Stratix and Rockwell Automation are trademarks of Rockwell Automation, Inc.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846