
Schaedler Yesco
EXPO 2008
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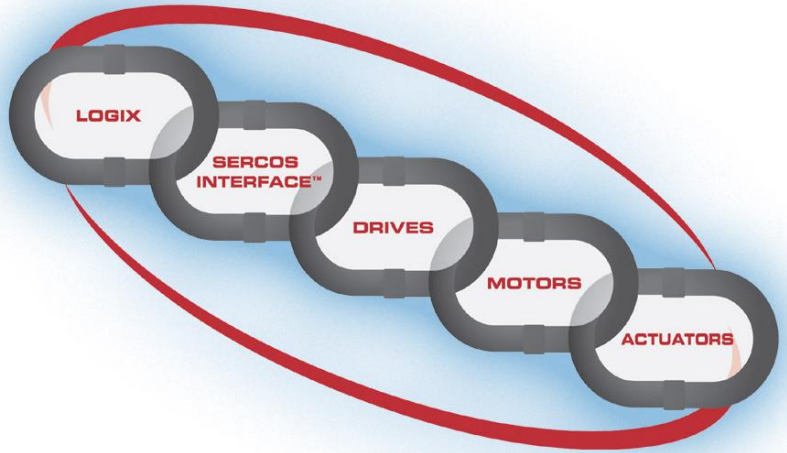
Boardwalks & Beaches
Presented by
Schaedler yesco
IPS
INDUSTRIAL PIPING SYSTEMS

Motion Product Summary



Get up to speed with Kinetix Motion Products

Motion Product Summary

- Analog Servo Drives:
  - Ultra1500
  - Ultra3000

  (Requires a motion controller)

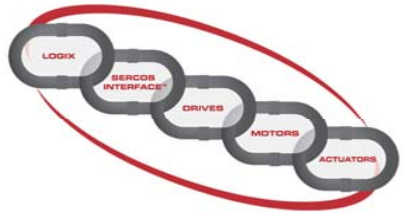
- Stand-Alone Controllers:
  - Ultra3000 Indexer
  - Ultra5000 (1-1/2 Axes)

  (Requires only relay/HMI interface)

- PLC-Based Motion Controllers:
  - SLC Stepper and Servo
  - CompactLogix SERCOS
  - ControlLogix SERCOS
  - SoftLogix 5800 SERCOS
- Logix and Kinetix Drives:
  - Ultra3000 SE
  - Kinetix 2000 System (Low Power)
  - Kinetix 6000 System
  - Kinetix 7000 System (Hi-Power)
- Motors and Actuators

Kinetix Integrated Motion

Click on the topic you want to know more about:



Kinetix
Integrated Motion

April 2008

Motion Product Selection

Use the Kinetix Motion Control Selection Guide (publication GMC-SG001M-EN-P) to qualify and select your components.

Ultra1500 Servo Drive

- Compact
  - Smaller panel footprint than competitive drives
- Simple
  - Plug and play capability
  - Ultraware configuration wizards
  - Built-in operator interface
  - Analog, preset or stepper control
- Cost-Effective
  - Provides the level of power and performance you need at an economical price
  - Setup wizards reduce programming time

Ultra3000 Indexer

- Versatile and Compact
  - Wide range of power and connectivity options allowing you to sell globally into a variety of applications, architectures and power platforms
- Easy to configure, commission and integrate
  - Seamless integration into Allen-Bradley and third-party systems
- Networkable
  - DeviceNet option available across platform
- Cost Effective
  - The variety of features available on the Ultra3000 and Ultra3000i indexing version make them a cost effective solution for most applications.

Programming Ultra3000i with Ultraware

⊟	**Index 0 Setup**		
	Mode	Incremental	
	Distance	1000	Counts
	Batch Count	1	
	Dwell	0	msec
	Velocity	750	RPM
	Acceleration	13	Revs/s^2
	Deceleration	13	Revs/s^2
	Next Index	0	
	Action When Complete	Stop	
⊞	**Index 1 Setup**		
⊞	**Index 2 Setup**		
⊞	**Index 3 Setup**		
⊞	**Index 4 Setup**		

Ultra5000 Motion Controller

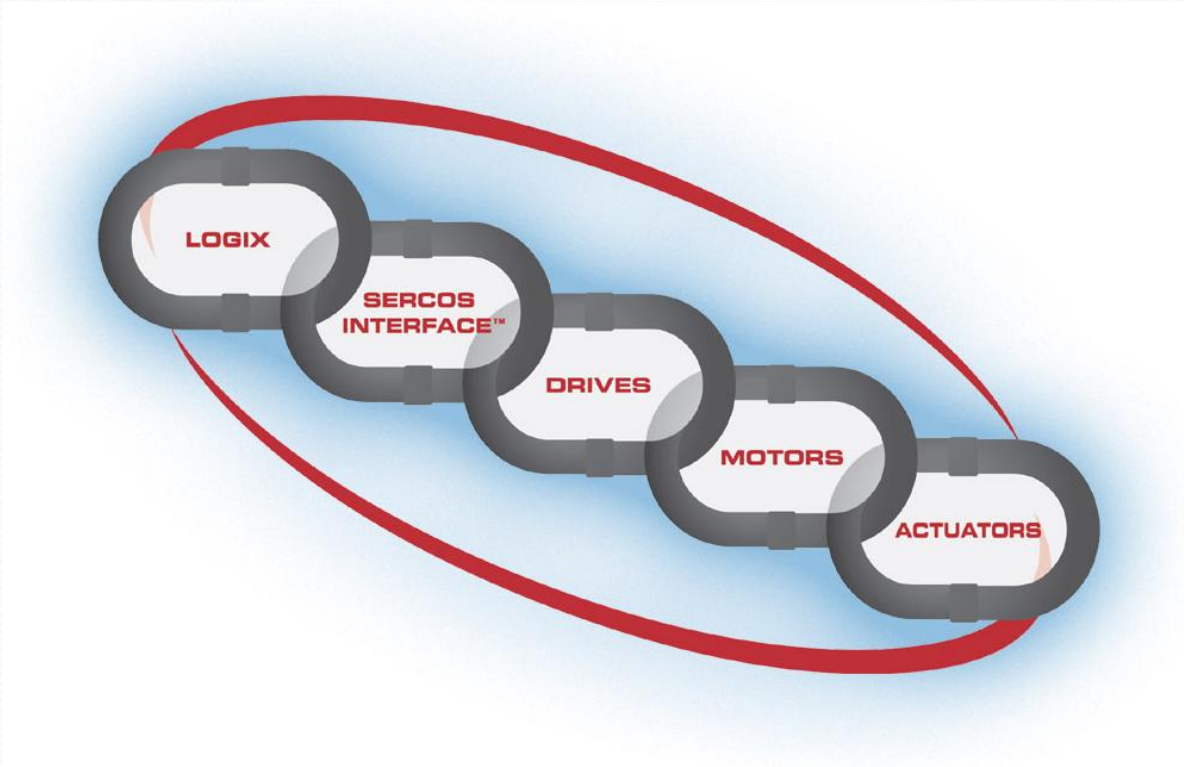
- High Performance
  - Fully programmable motion controller through ANSI C
  - Stand-alone single axis servo drive
- Versatile
  - Intelligent, high-performance, fully programmable positioning drive
  - Encapsulates the performance and flexibility required by advanced motion applications
  - Perfectly suited for single and master/follower axes system integration

Programming Ultra5000 with

```
01  #include <motion.h>                    // Use Motion Library
02  #include "Defs.h"                      // Include definitions file
03
04  // Program Global Variables
05  extern float Scale;                    // Counts per unit (revs)
06  extern float Scale2;
07  extern float                           // Variables for tracking master cam position
08      CamMasterCycle;
09
10  typedef struct Cam Cam;
11  extern Cam* GlobalCam;
12  extern long Cam_GetInputPos(Cam* cam, long* pos);
13  extern long Cam_GetCurrentPos(Cam* cam, long* pos);
14
15  void CreateRKCCam(long table)
16  {
17
18      float
19          MotorDist,
20          MasterDist,
21          ratio;
22
23      CamMasterCycle = FloatArrayGetElement(RKC_Length) * Scale2;
24      MotorDist = FloatArrayGetElement(RKC_CutWindow) * Scale;
25      ratio = FloatArrayGetElement(RKC_Ratio) * Scale / Scale2;
26      MasterDist = MotorDist / ratio;
27
28      CamOpenTable(table,10,5);    // Open table (1-3), 10 segments, 5th order
29      CamConstantVelocity(MasterDist,MotorDist);
30      CamSpline(CamMasterCycle,Scale,ratio,ratio);
31      CamCloseTable();
32  }
33
```

Integrated Architecture

Kinetix
Integrated Motion



CompactLogix L43 & L45 Motion Controllers

Expands the CompactLogix family to address simple to complex motion applications and high performance communications

Same I/O bus structure as the L3x system

1768 backplane

1769 backplane

- Up to 4/8 real axes of motion
- 2/4 additional feedback axes
- 6/6 additional virtual axes

for L43 and L45, respectively.

1768-M04SE

Integrated Serial port

Network modules for EtherNet & ControlNet

SERCOS motion module

Rockwell SERCOS Servo Drive

ControlLogix L6x Motion Controllers

1756-L60M03SE (Combo)

1756-M03SE (3-Axis)

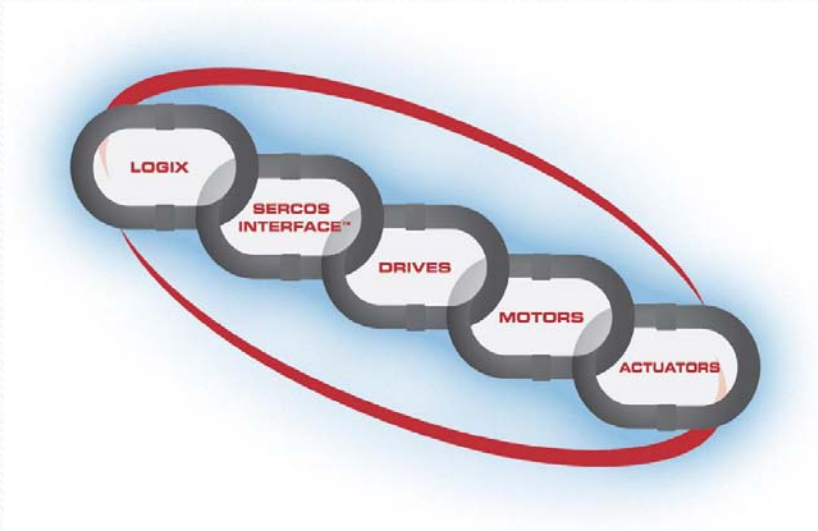
1756-M08SE (8-Axis)

1756-M16SE (16-Axis)

1756-MxxSE

SERCOS

Rockwell SERCOS Servo Drive



ControlLogix Motion supports up to 32 axes. Any combination of real, feedback and virtual.

SoftLogix 5800 Motion Controllers

1784-PM16SE (16 Axis) SoftLogix (PC-Based)

- **1789-L60 (16 slot virtual back plane)**
  - Maximum of (6) controllers
  - 64 Axis of Motion (4) 1784-PM16SE cards
  - 8 Axis of Motion (4) 1784-PM02AE cards
  - Maximum of (16) network communications cards
  - Maximum 64 M user program
- **1789-L30 (5 slot virtual back plane)**
  - Maximum of (2) controllers
  - 16 Axis of Motion (1) 1784-PM16SE card
  - 4 Axis of Motion (2) 1784-PM02AE cards
  - Maximum of (5) network communications cards
  - Maximum 64 M user program
- **1789-L10 (3 slot virtual back plane)**
  - One controller
  - Maximum of (2) network communication cards
  - No motion
  - Maximum 2 M user program

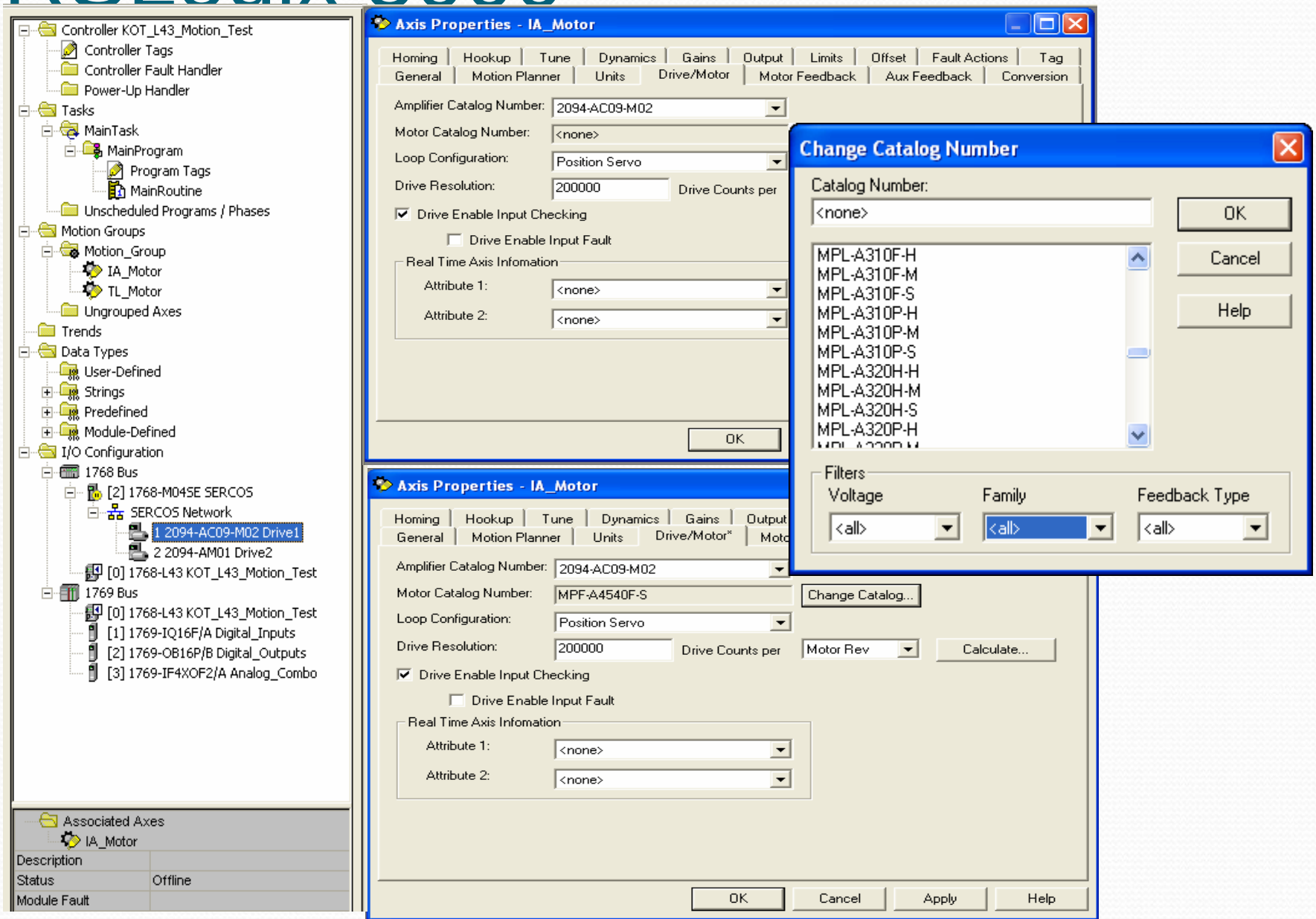
L30, L60

Controller

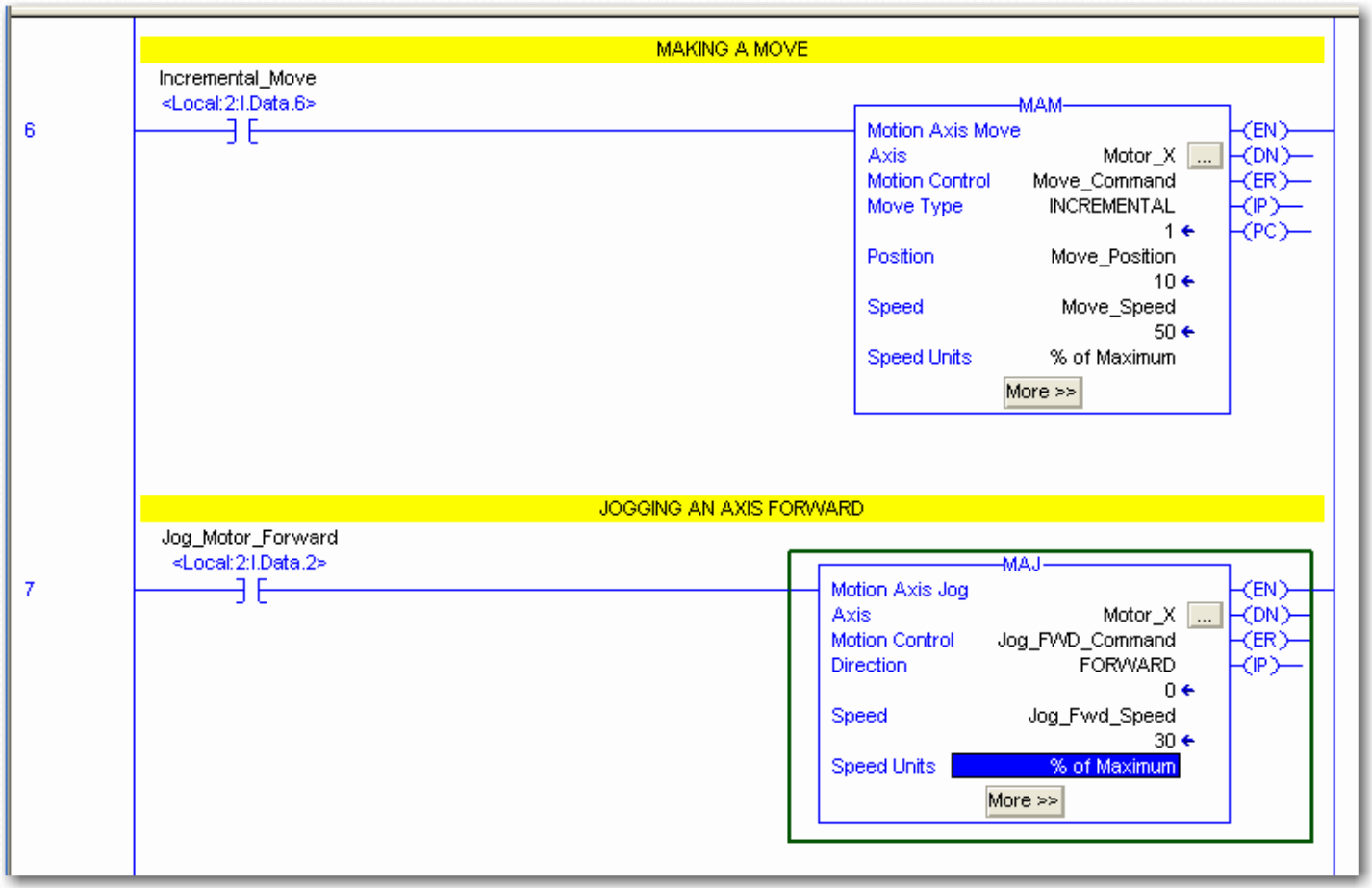
SERCOS

Rockwell SERCOS Servo Drive

Configuring Motion with RSLogix 5000

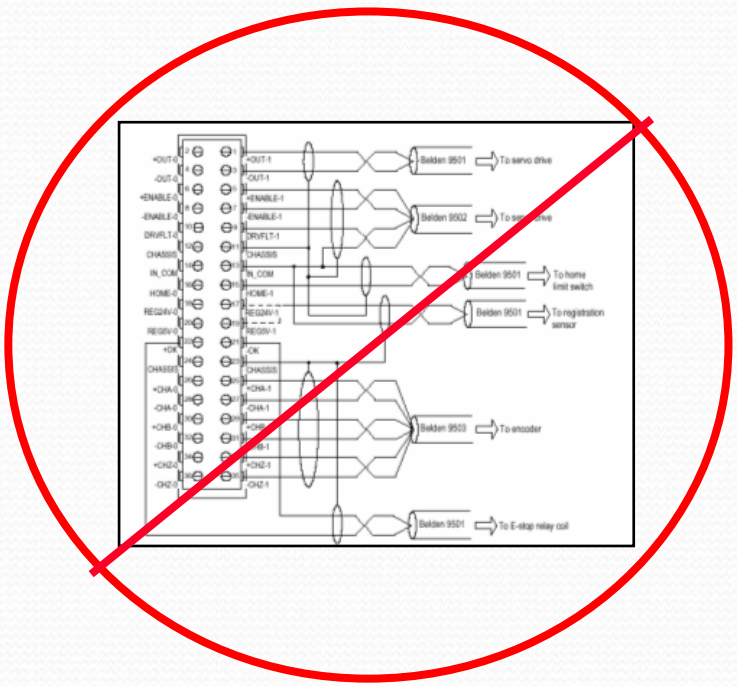


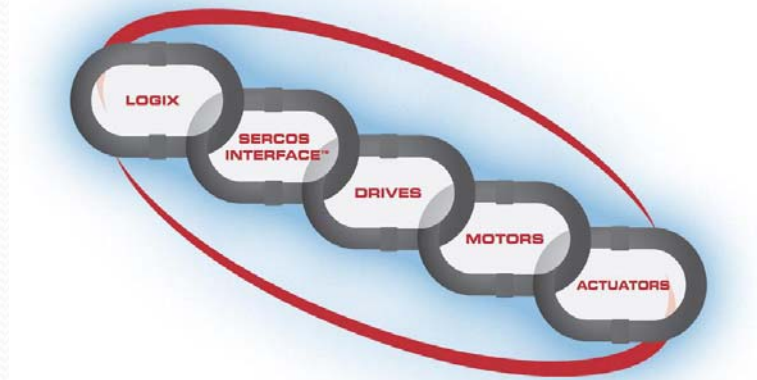
Programming Motion with RSLogix 5000



SERCOS Connectivity

- Simple and hi-performance.
- Reduces both installation time and wiring costs.



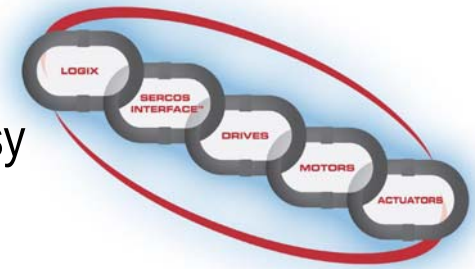


Fiber Connection

(2) fiber connections replace (18) discrete wires per drive, eliminating 36 terminations per axis.

Ultra3000 SERCOS

- Versatile and compact
- Wide range of power: 1 Nm to over 150 Nm Torque
- Axis configuration and commissioning using RSLogix 5000 over SERCOS
  - Reduces start up costs and integration time
- Reduced wiring with fiber optics
  - Cuts installation time and costs
- Absolute and high resolution system feedback
  - No homing required after power up-increases machine cycle time
  - Improved system bandwidth
- Diagnostics using SERCOS
  - Drive information communicated over SERCOS to RSLogix for easy access to more drive information



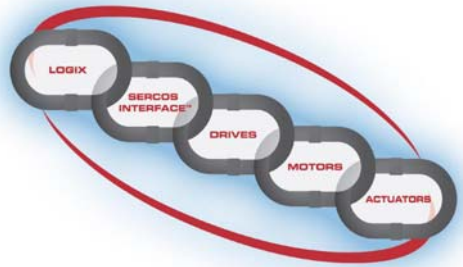
Kinetix 2000 Drives

- Compact
  - Smaller panel footprint than competitive drives
  - Competes in “stepper” market well
- Simple
  - SERCOS interface eliminates up to 18 discrete wires per axis
  - Power rail makes layout and installation fast and easy
- Familiar
  - Assembled, configured and programmed just like the Kinetix 6000 drive!

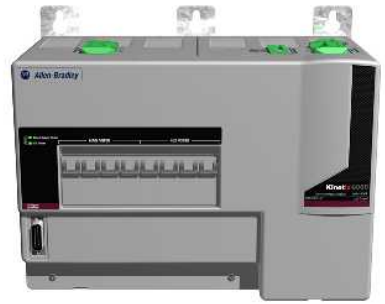
Kinetix 6000 Drives

- Simplicity
  - SERCOS interface **eliminates up to 18 discrete wires per axis.**
  - Power rail makes layout and installation fast and easy.

- Compact design
  - Up to 65% smaller than competitors' units.
  - Integral features save additional panel space.



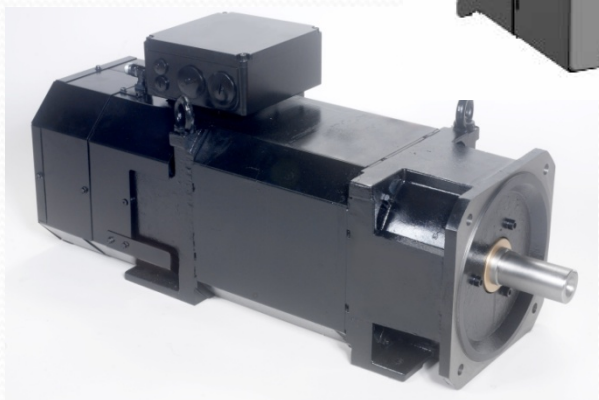
- Time saving accessories
  - Line interface module replaces nine components (such as 24 VDC power supply for I/O), **eliminating up to 72** wire terminations (and mistakes).



Line Interface Module

Kinetix 7000 - High Power

- Highlights
  - Fully supported in RSLogix 5000
  - SERCOS connectivity
  - Built-in Safety (Category 3, SIL 3 safe-off solution as standard)
  - GuardMotion enabled
- Motor support
  - New HPK-Series high power asynchronous motor
  - 8720SM
  - MP Line
  - 1326AB
  - 1329L
  - 3rd party motor files



Which Kinetix Drive Do I Use?

Continuous Power Rating

100W 200W 1.2 KW 6.6 KW 15 KW 18 KW 22 KW 93 KW 150 KW

Kinetix 2000

Ultra3000

Kinetix 6000

Kinetix 7000

Ultra3000 30Amp Servo Drive

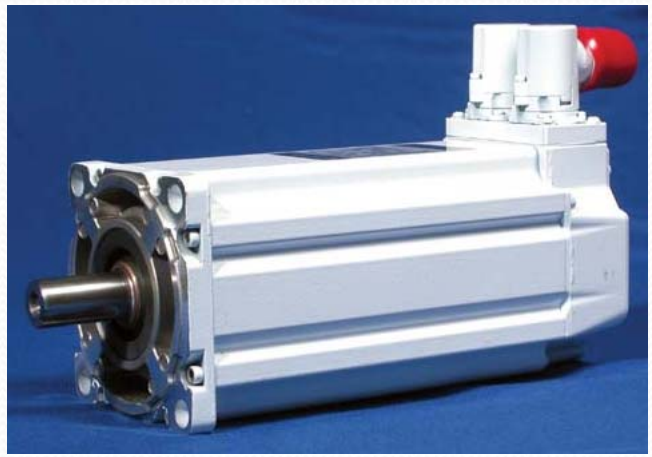
What is GuardMotion?

- GuardMotion is integrated safe motion
  - It means safety inside, built in
- It is available in the Kinetix 6000 and 7000 drives, and the first release supports the following applications:
  - Safe-off
  - Prevention against un-expected start
  - Door Locking Control
  - Category one stop
- It means more productivity for your machine
  - Faster recovery time (no bus discharge, no pre-charge limitations, etc..)
  - Higher MTBF – “Gentle” on the product
  - Less components – Simple to design, install, operate and maintain

MP-Series (Low Inertia)

- Extremely high torque in a small package
- Very low rotor inertia
- IEC standard flange and shaft
  - F100, F115, F130, F165, F215, F265 and F300 frames
  - Multiple lengths per frame, up to 200mm stack
- 230 and 460 volt windings standard
- Feedback: High resolution, single- and multi-turn absolute; 2000 line incremental; and 2-pole resolver
- Keyed shafts
  - Non-keyed optional
- 24 volt brake option

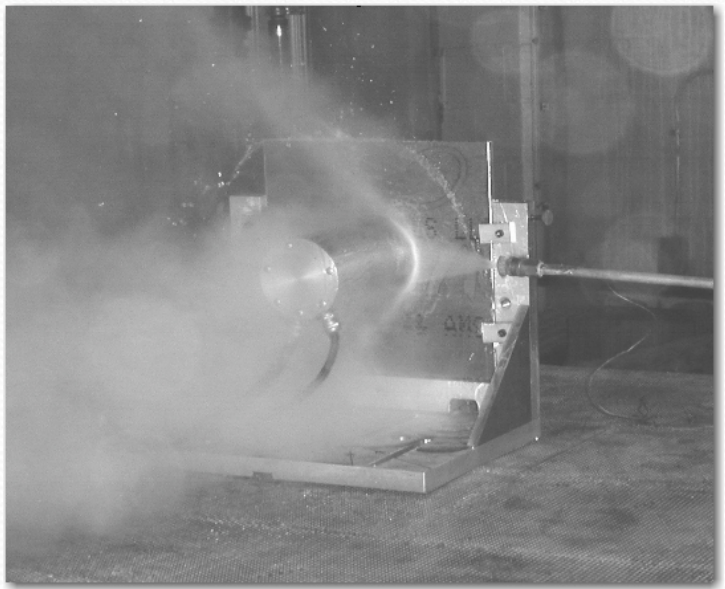
MP-Series Food Grade Motors



- Built on the MP-Series high performance platform.
- Specifically designed for use in food and beverage packaging and handling.

(This is NOT washdown).

MP-Series Stainless Steel (Washdown)



- Built on MP-Series high performance platform.
- Specifically designed for use in 1200 psi washdown food and beverage applications.

1326AB Series (460V)

- Medium inertia servo motors for use in applications that require moving large loads with smooth performance.

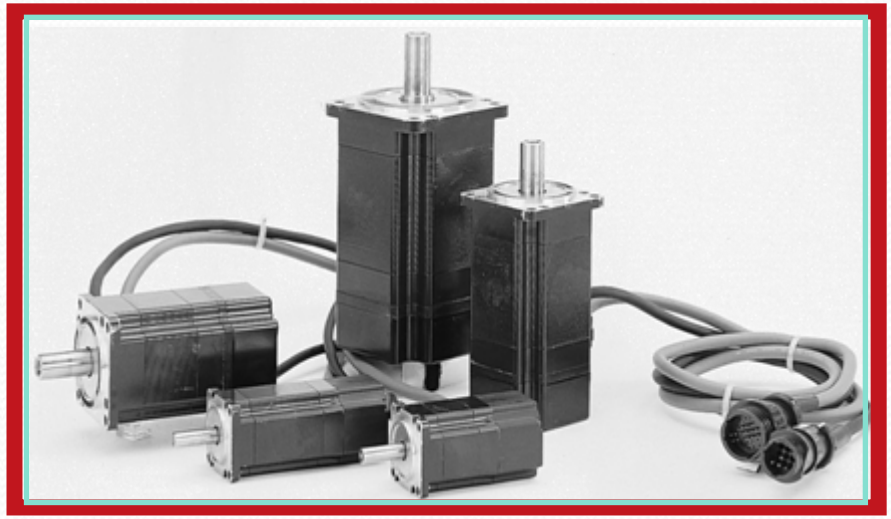
- Absolute encoder option available

TL-Series

- Compact
  - High torque density in a small footprint
  - Low inertia solution
  - NEMA or JIS Metric flanges
  - Incremental feedback option
    - Absolute feedback option compatible with Ultra 1500 servo drives
- Integrated
  - Compatible with the Kinetix Integrated Motion drives
- Cost-Effective
  - Provides the high performance at an economical price
  - Economical stepper motor replacement

Legacy Motors

- Y-Series (120/230V)
  - Small, low-inertia servo motors for use in light applications that require quick acceleration.



- F-Series (230V)
  - Medium inertia servo motors for use in applications that require moving large loads smoothly.

MP-Series Integrated Gear Motor/Rotary Actuator

- MP servo motor with integrated gear reducer.
- Space saving design.
- Directly replaces some costly mechanical indexing systems.

MP-Series Linear Actuators; MPAS

- Very Compact
  - Drop-in linear stages in screw and *Direct Drive* (magnetic) versions
- Integrated
  - Fully integrated servo motor/linear actuator
  - Compatible with the Kinetix and Ultra servo drives
- Cost-Effective
  - Significantly reduces your design engineering, assembly, wiring, and commissioning time

Controller/Drive/Motor Compatibility

How do I know which motors work with different drives/controllers?

System Combinations are found in Chapters 11 & 12 of the Motion Selection Guide (GMC-SG001M-EN-P).

Controller/Drive/Motor Sizing/Selection

How do I know which ***motors and drives*** to choose for my application?

Visit www.ab.com/motion to download a copy *today*!

Selecting the correct Servo Motor and Drive is the first step to implementing a successful motion application. An undersized Motor and Drive will not produce optimal performance; an oversized Motor and Drive will add unnecessary cost to the solution.

Controller/Drive/Motor Sizing/Selection

April 15 Labs (Tuesday)

(2:30 – 3:30) Sizing and Selecting

(3:30 – 4:30) Five Minutes to Motion

April 16 Labs (Wednesday)

(9:00 – 10:00) Five Minutes to Motion

(10:00 – 11:00) Sizing and Selecting