

LISTEN.
THINK.
SOLVE.SM



KINETIX SERVO DRIVE FAMILY

SCALABLE SIMPLICITY PROVIDES
YOUR COMPETITIVE EDGE

KINETIX SERVO DRIVES

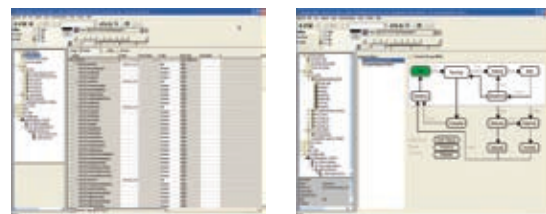
PROVIDE AN INTEGRATED, SCALABLE SOLUTION

Every day presents a new challenge. The only thing that's certain is that time and money are always in short supply. That's why Rockwell Automation has designed Allen-Bradley servo drives with the features you need to use your valuable time and money wisely. As part of the Kinetix® Integrated Motion solution, Kinetix servo drives fit seamlessly into the Rockwell Automation Integrated Architecture and provide simplified and enhanced machine performance.

Logix

A key to the many benefits and convenient features of Kinetix servo drives is the use of Allen-Bradley Logix platforms to provide true integration of motion, discrete and process control. ControlLogix also integrates Kinematics robot control. GuardLogix integrates safety and Kinematics.

- Use a single controller and just one software package
- Motion control functions are embedded in RSLogix™ 5000 programming and in the Logix controller, reducing the time and money involved in machine building, implementation and maintenance
- Basic pre-configured motion control logic code is available to get you up and running quickly, while minimizing engineering costs



Preconfigured Axis Tag Status Preconfigured Axis Logic

Kinetix 7000



Kinetix 6000



Kinetix 2000



Kinetix Servo Drives

- Scalable: Handle a wide range of applications
- Integrated: Simplify machine design, commissioning and operation with a single integrated platform
- Productivity-enhancing: Improve throughput with Kinetix 6000 and 7000 GuardMotion-enabled safety solutions

Line Interface Module (LIM)

Save time, money and space on control panels.

- Use LIM instead of 10 - 15 separate components
- Eliminate up to 100 wire terminations



Kinetix Servo Motors

- Kinetix Servo Motors use Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity, reducing commissioning time
- High precision performance is achieved with more than 2,000,000 position counts per motor revolution
- Motors are available to handle a variety of environmental challenges



Kinetix servo motors provide a wide range of output power

Human Machine Interface (HMI)

- Superior graphics and animation in a variety of display sizes for maximum system optimization and diagnostics
- Hardware for every application from rugged dedicated systems to open PC-based applications in both light and heavy industrial applications
- Preconfigured motion control and diagnostic screens, minimizing system development time and maximizing overall system diagnostics for reduced downtime



Scalable visualization products provide flexibility



Integrated linear Stages

Kinetix Actuators

- Applications that require loads to be supported and moved with precise linear positioning and velocity control will benefit from the use of MP-Series Integrated Linear Stages.
- These linear stage-type actuators, which are available in both direct drive (linear motor) and ballscrew versions, eliminate the need for separate adapters, belts, gears, as well as assembly labor.
- When you need a rotary actuator, the MP-Series Integrated Gear Motor provides high torque in a carefully designed package offering optimized performance, size and connectivity

IMPROVE PRODUCTIVITY

WITH LESS DOWNTIME AND FASTER MACHINE RESTART

Safety on the manufacturing floor is an important concern. Safeguarding personnel not only prevents injuries, it can also lower insurance, maintenance and other related costs. But machine productivity is crucial, too. You're facing constant pressures to produce more and produce it faster.

In the past, bringing safety and productivity together was a challenge. Safety precautions were often cumbersome, expensive and resulted in a great deal of downtime. But with the Kinetix 6000 and Kinetix 7000 with GuardMotion, you can now take advantage of high performance servo drives that not only increase safety for personnel but also enable machine productivity enhancements.

GuardMotion is the basis for safety innovations integrated into Kinetix motion products. Safe-off, integral in the Kinetix 6000 and Kinetix 7000, is the initial GuardMotion offering. It allows machine builders and manufacturers to implement machine solutions that increase safety and maximum machine availability. Tasks such as machine setup, cleaning, removal of jams and other typical maintenance work that previously required power-down conditions can

now be accomplished without removing power from the entire machine. With the Safe-off capability, the drive output is safely disabled to eliminate motor torque. As a result, you'll enjoy faster machine restart and shorter machine downtime. In addition, components such as input contactors can be eliminated, simplifying machine design and reducing both panel space requirements and overall system cost.

The safe-off function in the Kinetix 6000 and Kinetix 7000 is certified by TUV and meets the requirements of EN-954-1 Category 3 and IEC-61508 SIL 3 for safe-off and reduced risk against unexpected restart applications.

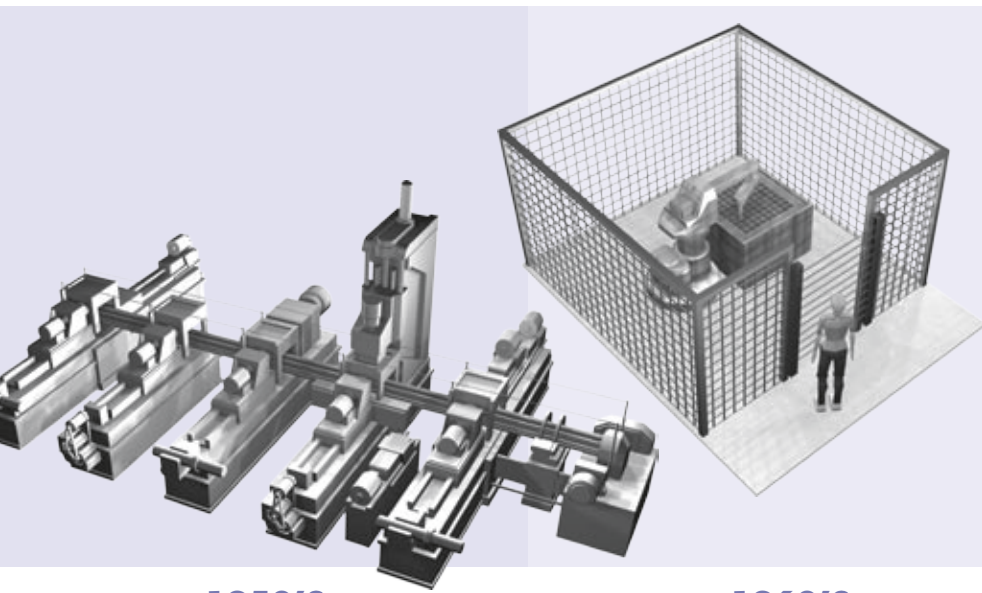


GUARDMOTION BENEFITS

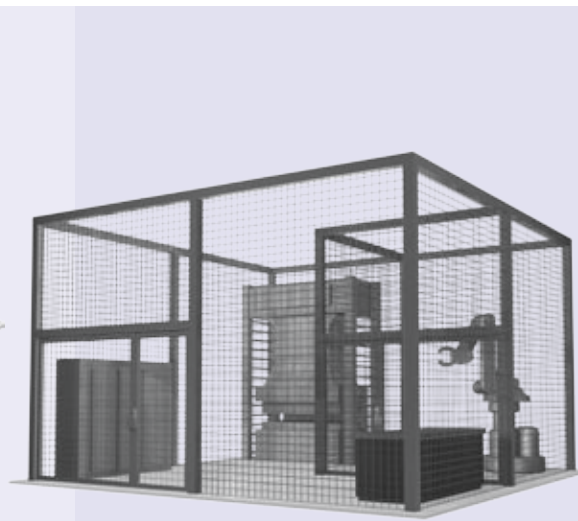
- Personnel safety
- Reduced number of components
- Smaller panels
- Simple installation
- Greater machine availability
- Lower total cost of ownership



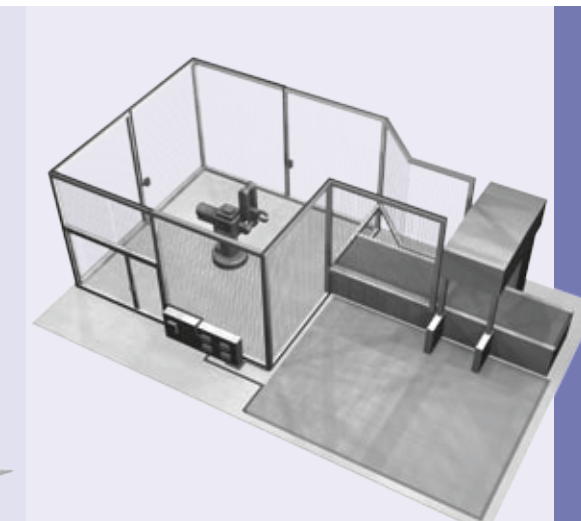
EVOLUTION OF MACHINE SAFETY > > > > > >



1950'S
PERSONAL RESPONSIBILITY
HIGH INJURY RATE



1960'S
INTRODUCED OPERATOR AND
PERIMETER GUARDING



1970'S
MACHINE
INTERLOCKING



1980'S - 1990'S
CONTROL RELIABLE
INTRODUCTION OF SAFETY
CIRCUITS AND SAFETY RELAYS

TODAY
INTEGRATION OF SAFE AND STANDARD CONTROLS
AS A DESIGN PHILOSOPHY IS SUPPORTED BY
NEW INTEGRATED SAFETY PRODUCTS

KINETIX 7000

SIMPLIFIES HIGH POWER APPLICATIONS

Power. Your application needs a lot of it. But you want a servo drive that's both precise and easy to use. In addition, safety and improved productivity are crucial concerns. Look no further. Rockwell Automation has developed the Allen-Bradley Kinetix 7000 High Power Servo Drive specifically for applications like yours.



GuardMOTION



If you're looking to extend the benefits of Kinetix® Integrated Motion to high power applications, the Kinetix 7000 servo drive is the ideal solution. It delivers unprecedented ease of use and the benefits of the Rockwell Automation Integrated Architecture.

The Kinetix 7000 offers:

INTEGRATED MOTION – Get all the benefits of Kinetix Integrated Motion in a high power servo drive. Save time and money throughout the machine lifecycle from design and installation through operation and maintenance.

QUALITY – Outstanding performance is based on established, successful product designs. The Kinetix 7000 is built on two proven foundations: PowerFlex® power structure and Kinetix control structure.

POWER RANGE AND SCALABILITY – The Kinetix solution has a servo drive to meet the needs of almost any machine, with complete power coverage up to 112 kW. Take advantage of a single solution to meet your machine requirements.

COMMON USER EXPERIENCE – Same status codes, I/O, feedback cables and safety connections as the Kinetix 6000, providing commonality throughout the drive family – up to 112 kW. Learn once and re-use product knowledge.

SAFETY – Learn more about GuardMotion. It means more productivity for your machine as well as safeguarding employees.

MOTOR FLEXIBILITY – One drive solution for permanent magnet (synchronous) and induction (asynchronous) motors.

KINETIX 7000 SPECIFICATIONS

2099-	BM06-S	BM07-S	BM08-S	BM09-S	BM10-S	BM11-S
VAC Input @ 47-63 Hz	380 - 480 V ac +/- 10%					
VDC Input	450 - 750V dc					
Main AC Input (rms)	36.7 A	47.7 A	59.6 A	90.1 A	117 A	169 A
Input DC current	42.9 A	55.7 A	69.7 A	105 A	137 A	204 A
Logic Power Input (auxiliary)	18-30 V dc					
Safety Function Support (built in)	EN-954-1 Category 3, IEC61508 SIL3 safe-off and prevention against unexpected restart. TUV certified.					
Cont. Power Output (KW)	22	30	37	56	75	112
Cont. Power Output (HP)	30	40	50	75	100	150
Continuous Output Current (0-pk)	56	73	92	135	176	254
Continuous Output Current (rms)	40	52	65	96	125	180
Peak Current (rms) 60s	51	60	78	115	138	234
Peak Current (0-peak) 60s	72	84.8	110	162.6	195	331
Peak Current (rms) 3s	68	80	104	154	163	312
Peak Current (0-Peak) 3s	96	113	147	217.7	230.5	441
Frame Size	3	3	3	5	5	6
Drive Height (mm)	517.5	517.5	517.5	644.5	690.3	977.1
Drive Depth (mm)	224	224	224	287	287	283
Drive Width (mm)	254	254	254	332	332	429
Motor Support	Synchronous Permanent Magnet and Asynchronous Induction Motors					

KINETIX 7000 MOTOR COMPATIBILITY

MOTOR	DESCRIPTION	FEATURES	APPLICATIONS
 HPK-Series High Power Induction Servo Motors	The HPK-Series Motors employ proven induction motor technology optimized for servo system performance. These AC motors have been custom-engineered to provide superior performance when used with the Kinetix 7000 high power servo drives.	<ul style="list-style-type: none"> The performance of a permanent magnet motor combined with the cost-effectiveness of an induction motor High resolution feedback (up to 2 million counts per revolution) for smooth, precise control. A multi-turn feedback option eliminates homing routines. Base speed options of 1500 and 3000 Blower cooled Laminated construction 	<ul style="list-style-type: none"> High power packaging Converting Wind/unwind/rewind Sheeters Flying knife Material handling
 MP-Series Low Inertia Servo Motors	MP-Series low-inertia, high output brushless servo motors use innovative design characteristics to reduce motor size while delivering significantly higher torque. These compact and highly dynamic brushless servo motors are designed to meet the demanding requirements of high performance motion systems.	<ul style="list-style-type: none"> High-resolution feedback (up to 2 million counts per revolution) allows higher inertia mismatch. Absolute feedback option saves time by eliminating homing routines Broad torque range Speeds up to 5000 rpm 	<ul style="list-style-type: none"> Packaging Converting Material handling Electronic assembly Automotive Metal forming
 1326AB Servo Motors	1326AB Torque Plus motors feature a specially engineered housing that reduces motor length and increases continuous torque ratings. These high performance, three-phase, brushless, ac, synchronous servo motors are designed to meet the stringent requirements of high performance motion systems.	<ul style="list-style-type: none"> Higher inertia matching capability Environmentally rugged for application flexibility High-resolution feedback option Resolver feedback option Speeds up to 7250 rpm Available with 460V windings 	<ul style="list-style-type: none"> Machine tool Bottle filling Press feed Progressive die manufacturing Narrow web printing

KINETIX 6000 AND KINETIX 2000

SIMPLIFY MULTI-AXIS APPLICATIONS

The Kinetix 6000 and Kinetix 2000 multi-axis servo drives provide powerful simplicity to handle even the most demanding applications quickly, easily and cost-effectively.



Kinetix 6000

Kinetix 2000

SIMPLICITY AT ITS BEST. Everything from initial wiring and programming to operation and diagnostics is faster and easier, saving you time and money each step of the way. In fact, innovative installation features allow you to mount an axis in less than a minute. It couldn't be much easier.

In addition, there's simplified wiring. Fewer connections take less time to wire and make it easier to wire correctly the first time.

Simplify wiring with:

- SERCOS interface™. A single, digital fiber optic link eliminates up to 18 discrete wires per axis
- One simple Power Rail. Replaces power wiring, logic control wiring and other complex cables. Makes layout and installation fast and easy and provides a reliable system for grounding and bonding
- Optional Line Interface Module. Install this single compact module instead of nine complicated components, eliminating up to 100 wire terminations

COMPACT SYSTEM DESIGN. Traditional control cabinets are usually big and bulky, taking up valuable floor space and often needing to be mounted across an aisle or other inconvenient location. Kinetix 2000 and Kinetix 6000 drives are sized to allow smaller enclosures that fit under, or even inside, the machine. The smaller size of the drive modules, along with many space-saving design features, result in enclosures that are up to 50% smaller than those required for competitors' units.

EXCEPTIONAL PERFORMANCE. Advanced control capabilities provide greater precision and throughput, allowing you to meet demands for increased productivity.

SIGNIFICANT COST SAVINGS. Many products claim to save you money, but the Kinetix 2000 and Kinetix 6000 not only reduce your costs but even extend the savings beyond the drive, eliminating many standard non-drive costs throughout your machine. For example, compact, easy-to-use accessory modules replace multiple components and complex wiring. This saves on installation time and maintenance as well as engineering documentation.

The savings continue with:

- A simple modular design lowers wiring costs by greatly reducing the total number of connections
- The compact size saves you money with significant space savings that translate into greater flexibility for machine design and more production in the same amount of floor space
- Kinetix Servo Motors use Smart Motor Technology to provide automatic identification of correct motor-to-drive connectivity, reducing commissioning time

With these Kinetix drives, you continue to enjoy cost reductions, all the way through to fast, easy diagnostics and maintenance. The result is lower overall machine costs – and higher overall profits for you.

KINETIX 6000 WITH GUARDMOTION SPECIFICATIONS

AM converters (2094-)	AC05-MP5-S	AC05-M01-S	AC09-M02-S	AC16-M03-S	AC32-M05-S	BC01-MP4-S	BC01-M01-S	BC02-M02-2	BC04-M03-S	BC07-M05-S
AC Input Voltage	195-265Vrms 3-Phase					324-528Vrms 3-Phase				
AC Input Frequency	47-63 Hz									
Safety Function Support (built in)	EN-954-1 Category 3, IEC61508 SIL3 safe-off and prevention against unexpected restart. TUV certified.									
Continuous Output Current to Bus (Adc)	9A	9A	19A	35A	69A	10A	10A	22.5A	42A	69A
Continuous Power Output to Bus (nominal)	3 kW	3 kW	6 kW	11 kW	23 kW	6 kW	6 kW	15 kW	28 kW	45 kW
IAM and AM inverters (2094-)	AC05-MP5-S & AMP5-S	AC05-M01-S & AM01-S	AC09-M02 & AM02-S	AC16-M03 & AM03-S	AC32-M05-S & AM05-S	BC01-MP5-S & BMP5-S	BC01-M01-S & BM01-S	BC02-M02-S & BM02-S	BC04-M03-S & BM03-S	BC07-M05-S & BM05-S
Continuous Output Current (0-peak)	5 A	9 A	15 A	24 A	49 A	4 A	9A	15 A	28 A	48 A
Continuous Power Out (nominal)	1.2 kW	1.9 kW	3.4 kW	5.5 kW	11 kW	1.8 kW	3.9 kW	6.6 kW	13 kW	22 kW
Module Size Specifications										
Height	200mm	200mm	200mm	300mm	300mm	250mm	250mm	250mm	250mm	310mm
Width AM	70mm	70mm	70mm	70mm	70mm	70mm	70mm	70mm	140mm	140mm
Width IAM	125mm	125mm	125mm	125mm	195mm	125mm	125mm	125mm	195mm	195mm
Depth	195mm	195mm	195mm	195mm	195mm	260mm	260mm	260mm	260mm	260mm

KINETIX 2000 SPECIFICATIONS

	IAM Converters (2093-)				
	AC Line Voltage	AC05-MP1	AC05-MP2	AC05-MP5	
Main Power AC Input Voltage	170 ~ 264 Vrms 3-Phase/Single-Phase				
AC Input Frequency	50/60 Hz				
Logic Power AC Input Voltage	170 ~ 265Vrms Single-Phase				
Main AC Input Current - Nominal (Rms)	230V/3Phase 230V/1Phase	11.66 A 10.95 A	11.66 A 10.95 A	11.66 A 10.95 A	
Continuous Output Current (Adc)	230V/3Phase 230V/1Phase	9.67 A 6.42 A	9.67 A 6.42 A	9.67 A 6.42 A	
Continuous Power Output (nominal)	230V/3Phase 230V/1Phase	3 kW 2 kW	3 kW 2 kW	3 kW 2 kW	
	IAM & AM Inverters (2093-)				
	AC05-MP1 & AMP1	AC05-MP2 & AMP2	AC05-MP5 & AMP5	AM01	AM02
Continuous Output Current (RMS)	1 A	2 A	3 A	6 A	9.5 A
Continuous Output Current (0-peak)	1.41 A	2.83 A	4.24 A	8.48 A	13.4 A
Rated Peak Output Current (RMS)	3 A	6 A	9 A	18 A	28.5 A
Rated Peak Output Current (0 - Peak)	4.24 A	8.48 A	12.73 A	25.45 A	40.31 A
Maximum Peak Output Current Time	3 sec from 0% drive utilization				
Continuous Power Output (Nominal)	0.3 kW	0.6 kW	0.9 kW	1.9 kW	3 kW
Module Size Specifications					
Height (mm)	160	160	160	160	160
Width AM (mm)	40	40	40	80	80
Width IAM (mm)	90	90	90	N/A	N/A
Mounting Depth (mm)					
Min Depth w/ Feedback kit	191	191	191	191	191
Max Depth w/ Combo Kit	202	202	202	202	202

SERVO MOTORS

FOR THE KINETIX 2000 AND KINETIX 6000

LINE INTERFACE MODULE

SAVES TIME, MONEY AND PANEL SPACE

MOTOR	DESCRIPTION	FEATURES	APPLICATIONS
 MP-Series Low Inertia Servo Motors	MP-Series low-inertia, high output brushless servo motors use innovative design characteristics to reduce motor size while delivering significantly higher torque. These compact, highly dynamic brushless servo motors meet the demanding requirements of high performance motion systems.	<ul style="list-style-type: none"> High-resolution feedback (up to 2 million counts per revolution) allows higher inertia mismatch Absolute feedback option saves time by eliminating homing routines Broad torque range Speeds up to 5000 rpm Available with 230 and 460V windings 	<ul style="list-style-type: none"> Packaging Converting Material handling Electronic assembly Automotive Metal forming
 MP-Series Food Grade Servo Motors	MP-Series Food Grade motors combine the characteristics of the MP-Series low inertia servo motors with features specifically designed to meet the unique needs of many food and beverage packaging and handling applications. These motors address the challenges of food environments by incorporating improved sealing techniques and noncorrosive food grade fasteners and coatings.	<ul style="list-style-type: none"> Can be used in close proximity to food IP66 and IP67 for low pressure wash and incidental spillage protection Dilute cleaning compounds can be used Durable two-part food grade epoxy Food grade grease All stainless steel fasteners and shaft High-resolution feedback standard, absolute feedback option Speeds up to 5000 rpm Available with 230 and 460V windings 	<ul style="list-style-type: none"> Food packaging Volumetric filling Form, fill, seal Food handling For meat and poultry applications, the MP-Series Stainless Steel motors are recommended.
 MP-Series Stainless Steel Servo Motors	The MP-Series Stainless Steel Motors are specifically designed to meet the unique needs of hygienic environments. Use these servo motors even in high pressure, highly caustic washdown conditions, such as meat and poultry applications.	<ul style="list-style-type: none"> Can be used in close proximity to food IP66, IP67 and IP69K for 1200 psi washdown Smooth, passivated 300 series stainless steel cylindrical exterior Factory-sealed and leak tested High resolution feedback standard, multi-turn absolute feedback option Available with 230 and 460V windings 	<ul style="list-style-type: none"> Meat and poultry Food slicing and filling Raw food handling Processing Closing machinery Life science Consumer products
 MP-Series Integrated Gear Servo Motors	MP-Series Integrated Gear Motors integrated motor and gearbox into a single housing, that reduces overall weight and size. These motors provide an excellent solution for applications requiring high torque and low speed.	<ul style="list-style-type: none"> Extremely high torque output in a compact design Rotational backlash < 3 arc min. Multiple gear ratio options High-resolution feedback standard (up to 12 million counts per revolution) Absolute feedback option Available with 230 and 460V windings 	<ul style="list-style-type: none"> Robotics Material handling Pick-and-place machines Specialty machinery Converting Indexing applications
 TL-Series Low Inertia Servo Motors	The TL-Series motors are low inertia, high performance servo motors featuring metric and NEMA frame sizes. They combine a compact size with a high torque density afforded by their superior stator design. The result is a package that provides substantial power in a small footprint.	<ul style="list-style-type: none"> Superior torque to size ratio Excellent servo response Environmentally rugged IP65 sealed motor case High-resolution feedback standard (131,072 counts per revolution) Single-turn absolute feedback with battery-backup multi-turn capability Speeds up to 5000 rpm Available with 230V windings 	<ul style="list-style-type: none"> Semiconductor Electronic assembly Material handling
 1326AB Servo Motors	1326AB Torque Plus motors feature a specially engineered housing that reduces motor length and increases continuous torque ratings. These high performance, three-phase, brushless, AC, synchronous servo motors meet the stringent requirements of high performance motion systems.	<ul style="list-style-type: none"> Higher inertia matching capability Environmentally rugged for application flexibility High-resolution feedback option Resolver feedback option Speeds up to 7250 rpm Available with 460V windings 	<ul style="list-style-type: none"> Machine tool Bottle filling Press feed Progressive die manufacturing Narrow web printing
 F-Series Servo Motors	These medium inertia servo motors are ideal for applications that require moving large loads smoothly; they offer a compact design and high inertia-matching capability.	<ul style="list-style-type: none"> High inertia-matching capability Heavy duty continuous operations Environmentally rugged 2000-line incremental encoder standard Speeds up to 4000 rpm Available with 230V windings 	<ul style="list-style-type: none"> Web processing Machine tool Textile machinery CAM replacement
 Y-Series Servo Motors	The Y-Series motors, available in either 115V or 230V windings, provide low inertias for fast accelerations.	<ul style="list-style-type: none"> Fast accelerations Low-inertia precision Application flexibility Available with either 115V or 230V windings Speeds up to 4500 rpm 	<ul style="list-style-type: none"> Robotics Material handling X-Y tables Specialty machinery Semiconductor manufacturing Medical/laboratory equipment Light packaging machines Office machinery

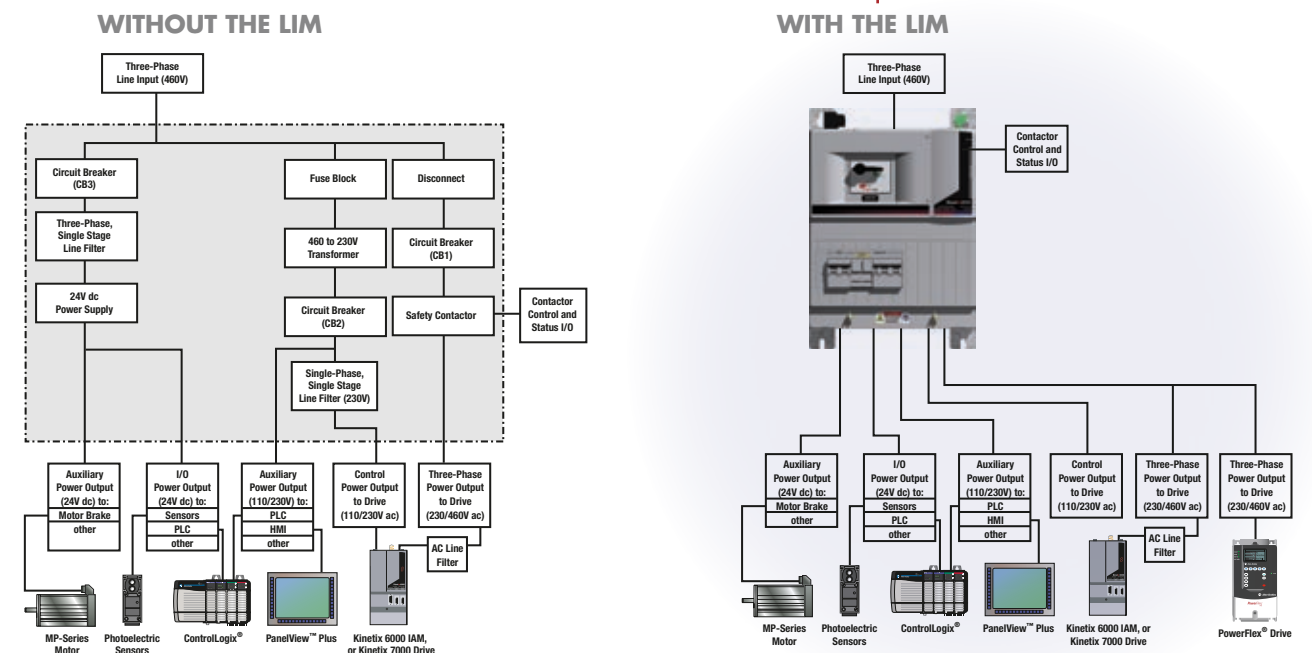
Finding a more efficient way to handle your drive applications would not only save you time but also reduce costs. So start simplifying your machine with the Allen-Bradley Line Interface Module (LIM).



The LIM offers advantages to both machine builders and end users, including the ability to serve as the power connection and generation point for the complete power needs of most control panels. The LIM provides not only the control for the 3-phase power and the drive logic power, but serves as the source, and circuit protection, of power for the controller, I/O and other panel devices.

The LIM provides a compact, cost-effective way to deal with the components that are commonly required for a drive application. A single compact LIM module can replace nine individual components, eliminating up to 100 interconnecting wire terminations. Just think of the time and money you can save.

Simplify Your Machine



Without the LIM, you need separate components requiring more time for:

- Panel layout/design
- Sizing
- Making 100 wire terminations
- Mounting 9+ components
- Testing

With the LIM, you benefit with:

- Single, cost-effective component
- Reduced labor for design, panel layout and mounting
- Extra filtering
- Safety contactor
- A factory-tested component

WORLD-CLASS

SUPPORT SERVICES



Every day, you face intense pressure to run efficient, productive and profitable operations. To succeed, you need to optimize every aspect of production.

For more than a century, Rockwell Automation has helped customers increase their operational excellence. In addition to world-class products, we offer the industry's broadest range of support services to help you implement your motion control solution – no matter where you are. Our technical consultants understand motion control and servo technology and have the expertise to evaluate your application requirements and help you achieve the optimum solution. In addition, we offer a wide range of application experience to assist you with your solution, providing productivity improvements while helping to reduce commissioning time. This application expertise will guide you to a complete Rockwell Automation solution that meets your needs today and in the future.

Rockwell Automation Engineering Solutions leverages Rockwell Automation's decades of know-how to provide world-class technical support through:

- Real-time Phone Support - Call centers directly route you to the product specialist who can answer your question immediately
- Web Services – Site hosts a variety of technical support tools including: manuals, product updates and online support requests
- Support Products – Support tools have been designed to prevent the problems you face on a daily basis. These products help reduce the time it takes to troubleshoot problems or configure equipment for control applications
- On-site Services – On-site technical assistance is only a call away. The Rockwell Automation Engineering Solutions team from across the world provides the expertise customers need for new project start-ups, projects that need supplemental resources and efficient problem solving

For additional product information, refer to the Allen-Bradley Kinetix Motion Control Selection Guide: Publication # GMC-SG001x.

For more information on Kinetix Integrated Motion or any of our support services, contact your nearest Rockwell Automation sales office or Allen-Bradley distributor, or refer to our Web site: www.ab.com/motion

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