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You want to build a better machine?
We will give you the tools!

HIGH PERFORMANCE MOTOR AND DRIVE SYSTEM IN ONE PACKAGE 0.5-3 HORSEPOWER



SIMPLE

COMPACT

RELIABLE

PERFORMANCE ON PAR WITH SERVO SYSTEM

ELIMINATES WIRING AND SET UP

ELIMINATES NEED FOR ENCLOSURE

ENERGY EFFICIENCY FAR SUPERIOR TO AC INDUCTION MOTOR

a Potomac Electric Company

OUR LEADERSHIP

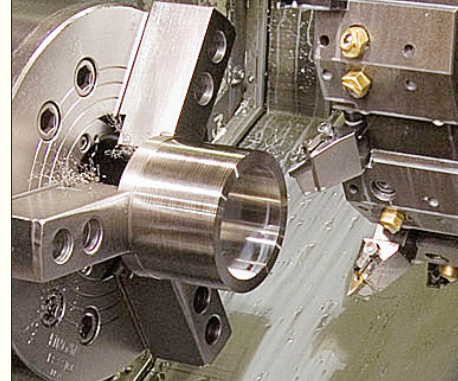
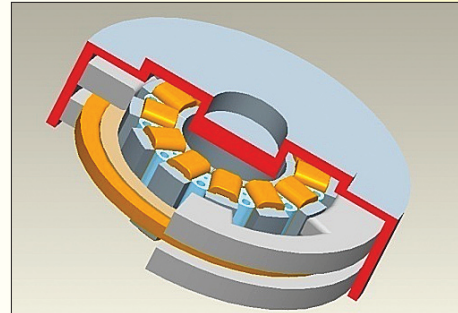
Since 1995 Mechatronics Systems has been a leader in innovative design of electromechanical components. We design and manufacture our products at corporate headquarters in Boston, Massachusetts.

OUR TECHNOLOGY

Utilizing modern technologies, equipment and advanced manufacturing techniques, Mechatronics Systems designs, manufactures, assembles and tests the most innovative motor and drives technology in the industry. Our products are known for outstanding craftsmanship and superior quality.

OUR COMMITMENT TO INNOVATION

Underlying Mechatronics' leadership is a dedication to excellence and commitment to innovation. We constantly explore new ideas and seek new ways to meet industry's and military weapon's need for increasingly energy-efficient, variable speed drives and motors, servomotors and systems.



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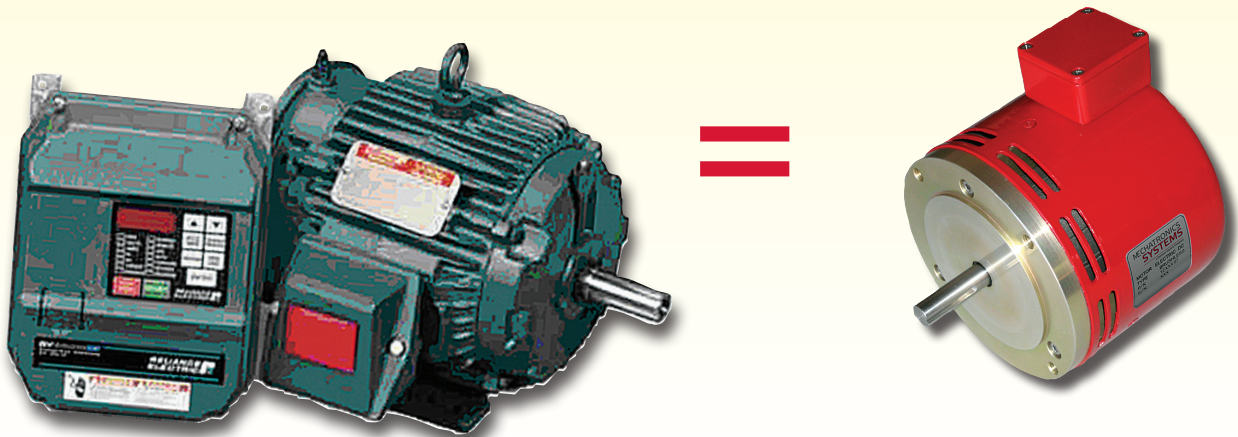
Organically combined in one compact package, Motor Control System (MCS) is a new generation of variable speed systems with Servo performance. MCS opens the way for engineers to design smaller and higher performance machines.

Engineers have been asking for such a product for years, but the technology was not available. Several manufacturers addressed the need by simply attaching a drive to an AC induction motor. This often interfered with the mechanical structure of the

machine. In contrast, MCS was developed to naturally fit the footprint of NEMA 56 size AC induction or DC brush motors. MCS can be mounted through the front plate or via NEMA standard mounting base.

MAJOR ADVANTAGES OF MCS:

- **NO NEED** to mount the drive in the control cabinet or on the machine frame. Space is critical today and will be more so in the future.
- **NO MORE** motor cables, short circuits and wiring errors. All you need to do is to unpack MCS, connect the AC power and command, and you are ready to go. It's easier than setting up a DVD player.
- **NO MORE** tuning the motors with the drives.
- **HIGH PERFORMANCE** permanent magnet motor technology.
- **REMARKABLY** small package.



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SMALLEST SIZE AVAILABLE

3 HP unit is only 8 inches long*.

GO GREEN WITH MCS CONTROLLERS

Government sponsored research has proven that permanent magnet electric motors are much more efficient than AC induction motor systems.

The price of electricity over time far exceeds the price of AC induction motor. MCS will reduce the life cycle cost of the system.

ACHIEVE HIGH PERFORMANCE

Many modern motor control applications need to vary speed and torque accurately. Variable Speed Inverter drives can only achieve this with motor feedback devices; otherwise, low speed and torque regulation is very poor. Feedback devices on the back of the motor add wiring and cost. MCS employs permanent magnets with built in algorithms that provide major benefits.

- Fast acceleration
- High Torque in a much smaller package
- Superior Speed Control

A GROWING NUMBER OF APPLICATIONS

MCS is a great choice for application of a variable speed drive system where minimizing cabinet space, wiring and improving performance are important. MCS is flexible, allowing for custom modification to optimize the cost/performance ratio specifically for the machine you are designing.

CUSTOMIZE YOUR MACHINE WITH MCS

MCS offers OEMs a number of mechanical and electrical enhancements. You, our customer, will create new ideas and applications and we will meet the challenge of implementing them! Some of the typical custom modifications we often come across are:

SHAFT CONFIGURATION, INCLUDING PINION

ELECTRICAL BRAKE

OUTPUT GEARBOX

CUSTOM POWER RATINGS, VOLTAGE, SPEED
AND TORQUE RANGE

METRIC VERSION OF THE PRODUCT

INPUT/OUTPUT FUNCTIONS

IP67 FOOD INDUSTRY GRADE SEAL

NETWORK COMMUNICATION

* Patent Pending

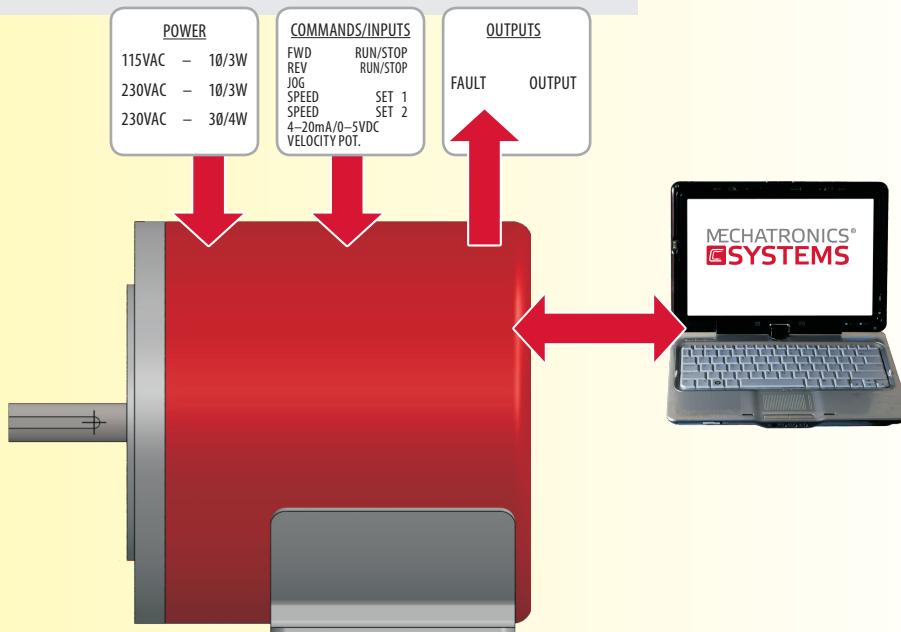
MCS SERIES TECHNICAL SPECIFICATION

CATALOG NUMBER	PHASE	VOLTAGE	OUTPUT POWER, HP	SPEED	ENCLOSURE	FRAME
MCS05	1/3	115/230	0.5	1800	Open	56C
MCS1.0	1/3	115/230	1	1800		56C
MCS1.5	3	230	1.5	1800		5C
MCS2.0	3	230	2	1800		56
MCS2.5	3	230	2.5	1800		56
MCS3.0	3	230	3	1800		56

MCS is designed to tailor the system to achieve the best results in your specific application:

- Speed up to 5000 RPM
- Built in Dynamic Brake circuit for fast deceleration
- Ethernet /Modbus RS485 communication
- External encoder follower mode
- Pulse and direction speed command
- Position Control mode
- Frequency input speed command

CONNECTION DIAGRAM



RATED POWER OPERATION

Model			MCS05/MCS1	MCS2/MCS2.5	MCS3
Output Rating	Output Power	HP	0.5/1	2/2.5	3
		KW	0.38/0.745	1.5/1.8	2.2
Input Rating	Rated Voltage/ Frequency		Single/Three Phase 115/200/208/220/230V AC 50-60Hz		
Voltage/Frequency Tolerance		Voltage: ±10% Frequency: ±10%			
Length (inch [mm])		5.5 [140]	6.5 [165]	7.5 [191]	
Weight (lb [kg])		9.7 [4.4]	13.5 [6.2]	19.5 [8.9]	

GENERAL SPECIFICATON

CONTROL CHARACTERISTICS

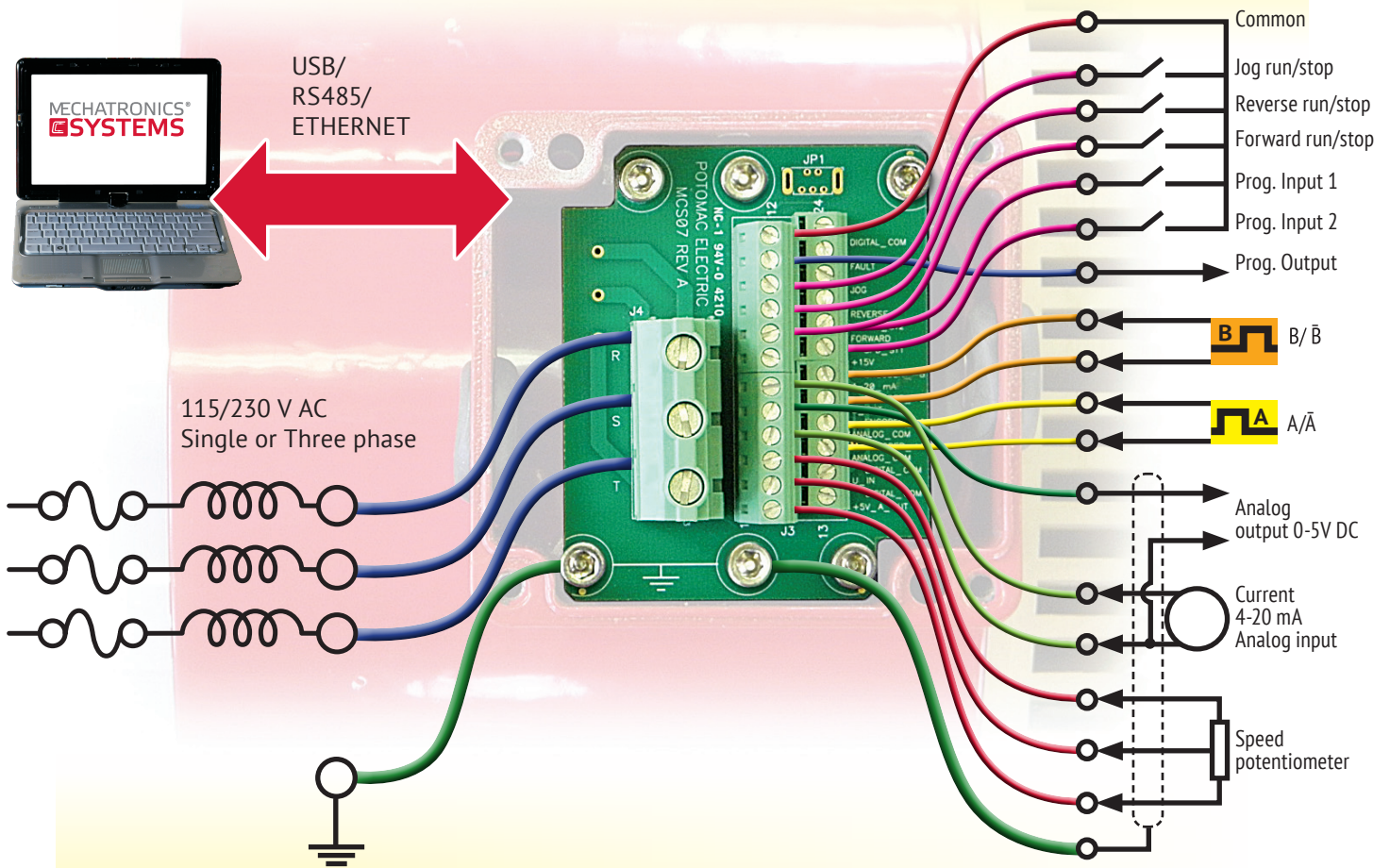
Control System	Torque Control Mode
	Velocity Control Mode
	Position Control
Rated Speed	0 - 5000 RPM
DC Braking	Built in braking circuit
Acceleration/Deceleration	0.1 – 30 seconds (linear or nonlinear profile)

OPERATION SPECIFICATION

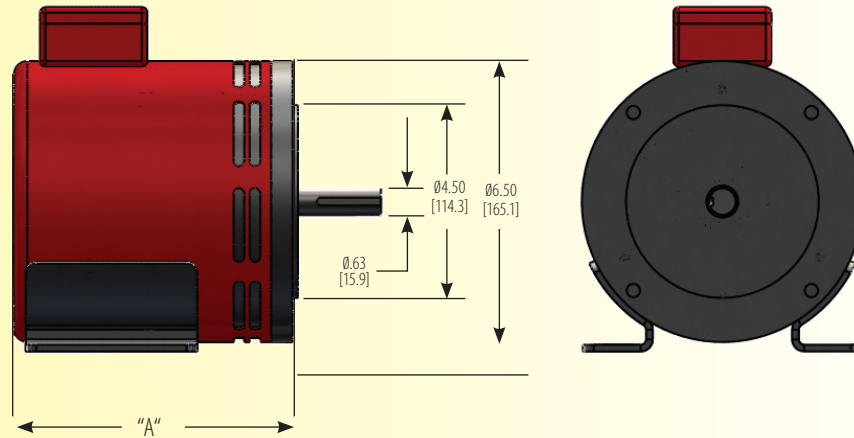
Inputs	Digital	5 inputs 5-24V DC internal pull up resistor 20K 3 inputs are used for Forward, Reverse and Jog 2 are programmable by the user Pull input low to common to Activate Motion
	Speed Command	4-20mA current input DC Potentiometer or signal 0-5V DC Digital Pulse train 5-5000HZ Digital encoder in quadrature. Built in Line Driver receiver
Outputs	Programmable Output	5-24V DC Open collector output. Built in pull up resistor 20K
	Analog Output	0-5V DC 10 mA User's defined
Operating Functions	Torque, Speed, Position Mode, Linear and S-curve acceleration, High performance PID loops, Start, Stop, Jog, Adjustable acceleration/ deceleration, Adjustable current limit	
Protective Functions	Overvoltage, Thermal protection, Overcurrent protection, Torque limiter	
Operator Interface	Hardware (using I/Os)	Jog, Forward, Reverse, Stop
	Network Control	USB, RS485, Ethernet
Environmental	Ambient Temperature	-10°C – 40°C (14°F to 104°F)
	Storage Temperature	-20°C to 60°C (-4°F to 140°F)
	Ambient Humidity	20-90%
	Vibration	9.8m/s ² (1G) less than 10Hz, 5.9m/s ² (0.6G) 10 to 60Hz
	Installation Location	Altitude 1000M or lower above sea level, keep from corrosive gas, liquid and dust
Options	Ethernet Interface, MODBUS RS485, Custom speed torque characteristics, Mechanical gearbox, Mechanical brake, Metric mounting, Custom packaging.	
Conformity	CE	Low-Voltage Directive (73/23/EEC) EMC Directive (93/68/EEC)
Approvals (Pending)	UL 508C	Power Conversion Equipment

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CONTROL WIRING DIAGRAM



DIMENSION DIAGRAM



MCS DIMENSIONS					
MODEL	MCS05	MCS1	MCS1.5	MCS2	MCS3
HP [Kw]	0.5 [.37]	1 [.75]	1.5 [1.12]	2 [1.49]	3 [2.24]
"A" inch [mm]	5.5 [140]		6.5 [165]		7.5 [191]

MCS is available with many OEM options in addition to the basic models.

Mechanical options are listed below:

- Shaft length and diameter
- Gearbox and shaft pinions and pulleys
- Metric mounting dimensions
- IP65-IP67 Enclosure
- Custom mounting brackets
- Food Grade Stainless Steel enclosure

Please contact our application engineering staff with your new challenge. Perhaps we already solved your problem!