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Want to design a better automation machine? MDS is an important component that will help.

NEMA 56C or IEC standard Custom Configurations for OEMs



www.mechatronicssystem.com/MDS

KEY ELECTRICAL PARAMETERS

Input AC voltage:	115 V AC single phase 230 V AC single and three phase
Output Power:	0.5 HP - 3 HP
Maximum Speed:	1800 RPM and 3600 RPM
Standard Overload:	150% rated current for one minute
Speed Command:	4-20mA 0-10V analog command
Input/Outputs:	1 STO Input 5 programmable Inputs 2 programmable Outputs 1 Analog output
Acceleration/ Deceleration mode:	Single or Four Quadrant
Brake:	Built in Dynamic Brake
Communication:	Ethernet Bluetooth

State of the art AC Brushless Technology

Full Torque at zero speed, like servo performance

Power Range 0.38-2.2 kW

16 Nm peak torque

Compact size, low weight

Minimal Wiring

EtherCat, Ethernet TCP, Ethernet/IP communication or traditional hardwired control interface

SafeTorque Off

Bluetooth for easy set up

30% higher efficiency than AC Induction motor and VFD drive

IP 66 Ratings



NOT FOR PUBLIC RELEASE

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OUR LEADERSHIP

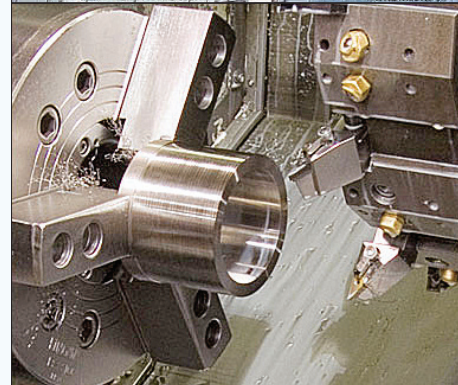
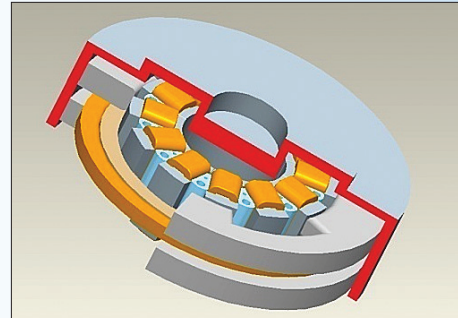
Since 1995 Mechatronics Systems has been a leader in innovative design of electromechanical components. We design and manufacture our products at corporate headquarters in Boston, Massachusetts.

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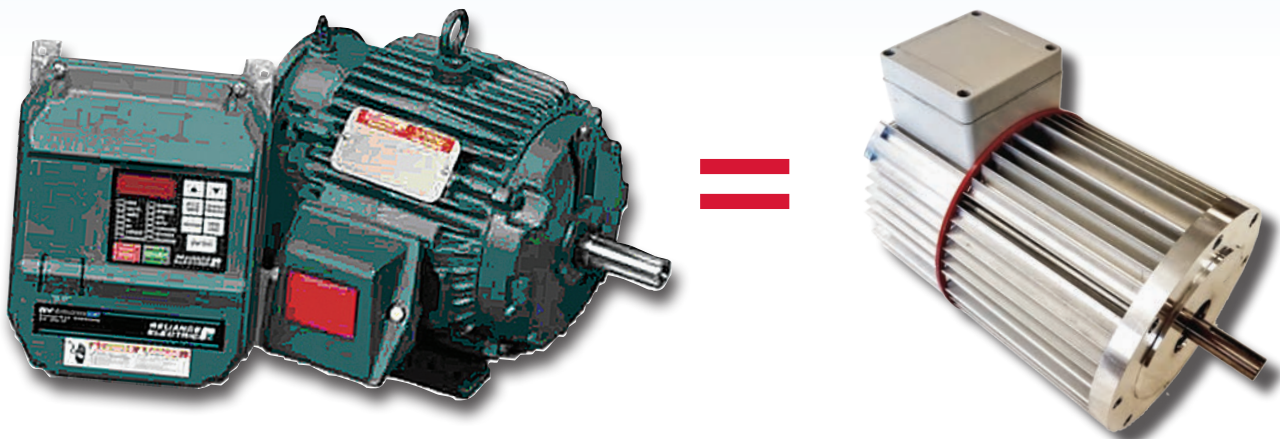
Organically combined in one compact package, Motor control System (MDS) is a new generation of variable speed system with Servo performance. MDS opens the way for engineers to design smaller and higher performance machines.

Engineers have been asking for such a product for years, but the technology was not there. 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, MDS was developed to naturally fit the footprint of the NEMA 56 size AC induction or DC brush motors. MDS can be mounted through the front plate or via NEMA standard mounting base.

MAJOR ADVANTAGES OF MDS:

- **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 MDS, connect the AC power and command, and you are ready to go. It's easier than setting up a Smart TV.
- **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 MDS 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 the AC induction motor. MDS 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. MDS employs permanent magnet with built in algorithms that allow to provide major benefits.

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

A GROWING NUMBER OF APPLICATIONS

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

CUSTOMIZE YOUR MACHINE WITH MDS

MDS 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

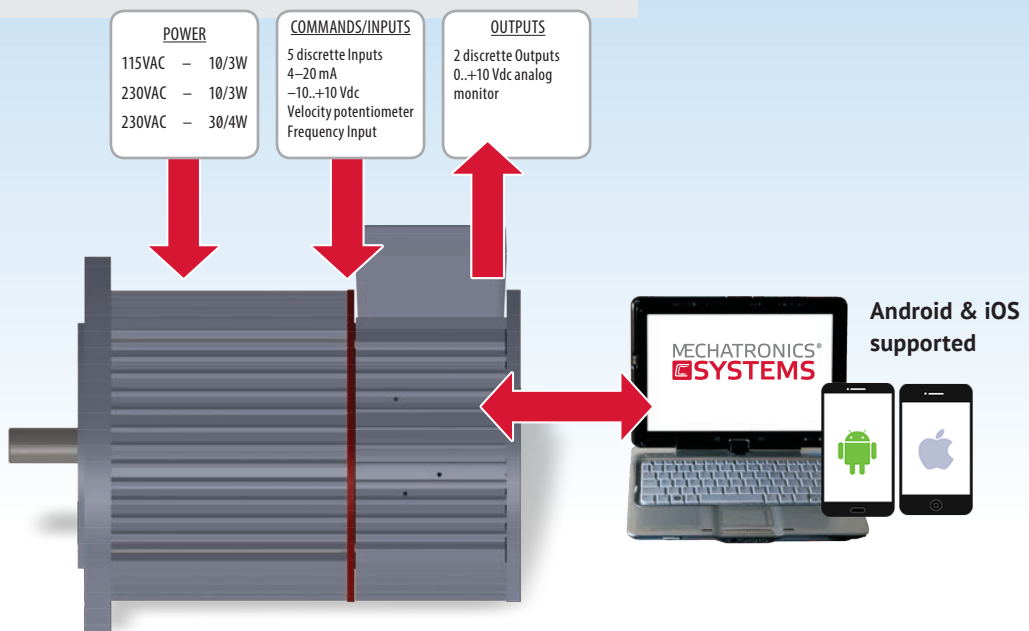
MDS SERIES TECHNICAL SPECIFICATION

CATALOG NUMBER	PHASE	VOLTAGE	OUTPUT POWER, HP	SPEED	ENCLOSURE	FRAME
MDS05	1/3	115/230	0.5	1800	Open	56C
MDS1.0	1/3	115/230	1	1800		56C
MDS1.5	3	230	1.5	1800		5C
MDS2.0	3	230	2	1800		56
MDS2.5	3	230	2.5	1800		56
MDS3.0	3	230	3	1800		56

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

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

CONNECTION DIAGRAM



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RATED POWER OPERATION

Model			MDS05/MDS1	MDS2/MDS2.5	MDS3
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]			9.0 [229]	10.0 [254]	11.0 [280]
Weight (lb [kg])			9.7 [4.4]	13.5 [6.2]	19.5 [8.9]

GENERAL SPECIFICATON

CONTROL CHARACTERISTICS

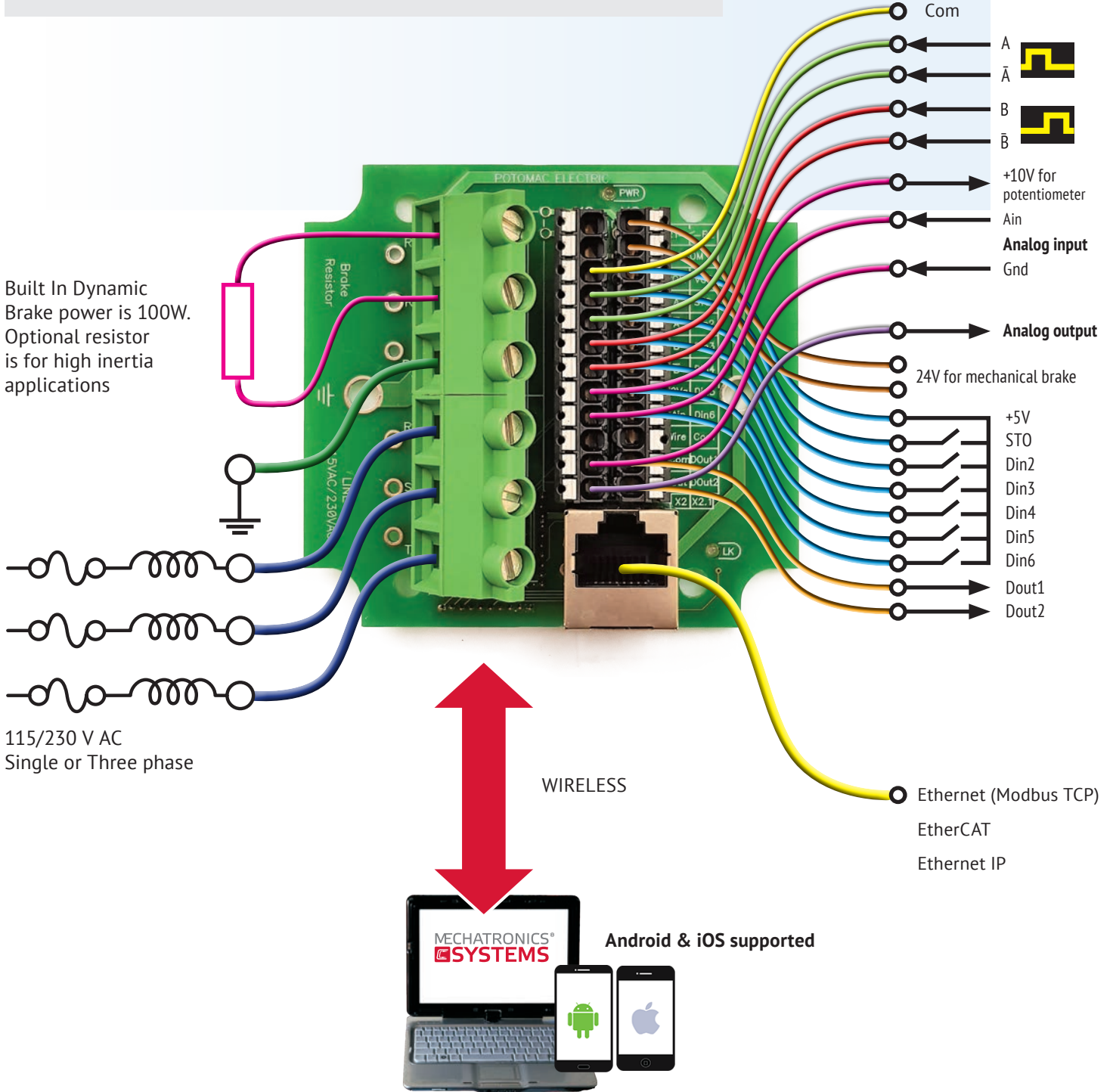
Control System	Torque Control Mode
	Velocity Control Mode
	Position Control
Rated Speed	0 - 5000 RPM
DC Braking	Built in braking resistor
Acceleration/ Deceleration	0.1 – 30 seconds (linear or nonlinear profile)

OPERATION SPECIFICATION

Inputs	Digital	1 STO Input. Pull input high to enable motion 5 inputs 5-24V DC internal pull down resistor >20K 3 inputs are used for Forward, Reverse and Jog 2 are programmable by the user High pull input to Activate Motion
	Speed Command	4-20mA current input DC Potentiometer 0-10V DC or signal -10...+10V DC Digital Pulse train 5-5000HZ Digital encoder in quadrature. Built in Line Driver receiver
Outputs	Programmable Output	Two 5-24V DC Open collector outputs. Built in pull up resistor 1K to 15V DC
	Analog Output	0-10V DC 10mA 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	Ethernet, Bluetooth
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, 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

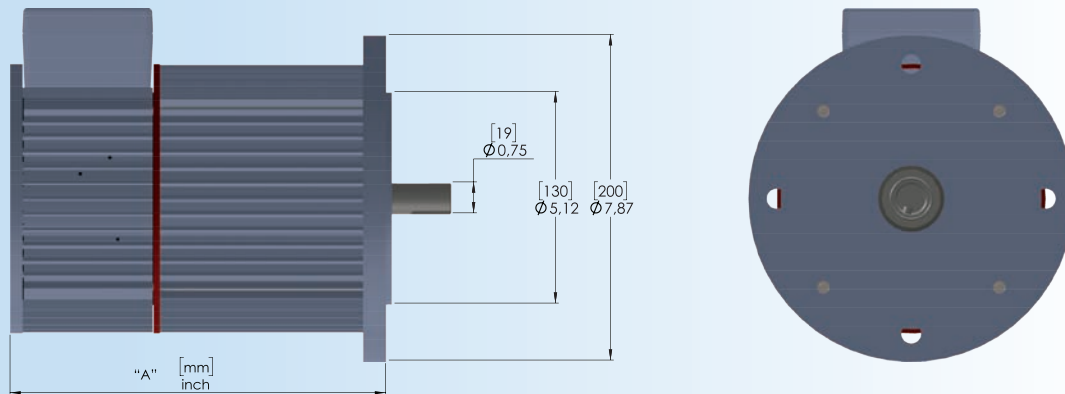
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CONTROL WIRING DIAGRAM



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DIMENSION DIAGRAM



MDS DIMENSIONS					
MODEL	MDS05	MDS1	MDS2	MDS2.5	MDS3
HP [kW]	0.5 [0.38]	1 [0.745]	2 [1.5]	2.5 [1.8]	3 [2.2]
"A" inch [mm]	9.0 [229]		10.0 [254]		11.0 [280]

MDS 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!