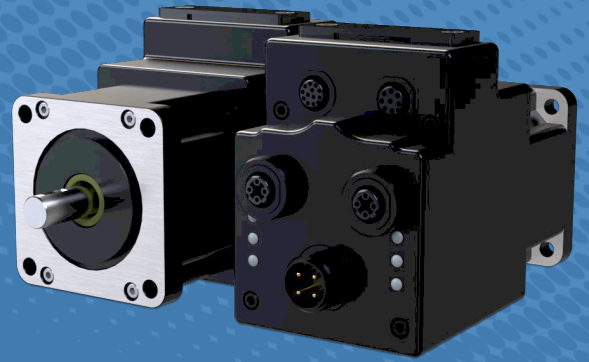


CLASS 6 M-STYLE SMARTMOTOR™ (SM23166MT2)

Fully integrated motor with smart distributed control over Industrial Ethernet



The Moog Animatics Class 6 “MT2” Industrial Ethernet SmartMotor™ is available in a 23-frame version, (SM23166MT2). The product comes equipped with two Industrial Ethernet ports, and can be ordered to support EtherNet/IP™, PROFINET® or EtherCAT® networks.

The SM23166MT2 motor provides a fully integrated drive which reduces wiring, increases reliability, simplifies installation and reduces setup time. Like the previous Class 6 design, this product includes a high-end, high-speed controller, which provides control capabilities beyond those provided by a PLC or host device. Specifically, the MT2’s onboard controls allow for distributed controls across the machine, reducing bandwidth, increasing I/O response times and freeing up PLC/host resources.

The MT2 product line introduces Combitronic™ technology over Ethernet (-EIP option only). This feature allows any SmartMotor™ to communicate with other SmartMotor™ integrated servos and share resources on the Combitronic™ network, accomplished using UDP Combitronic™ protocol in parallel with the Ethernet IP network.

This generation of Class 6 motor is IP sealed, the IP rating (IP65 or IP67) depends on other options ordered, allowing them to be used in wet, washdown or dusty environments. Additionally, both motors offer an internal brake option, making them ideal for vertical applications.

Features:

- Onboard controls allow for distributed controls across the machine
- Integrated drive and controller reduces wiring, increases reliability, simplifies installation and reduces setup time
- High-end, high-speed processor for exceptional performance
- Onboard dual-port Industrial Ethernet switch, no external switch needed
- Supports Industrial Ethernet: EtherCAT®, PROFINET® and EtherNet/IP™
- Combitronic™ technology over Ethernet (-EIP option only)
- USB port for programming, configuration and diagnostics
- SD Card slot for program storage and loading application-specific parameters
- Internal brake available, ideal for vertical applications
- IP sealing available (rating depends on options selected) for wet/washdown environments

ADVANTAGES

- Sealed IP65/IP67 protection (rating depends on other options)
- Excellent price-performance ratio
- Robust M-style connectors designed for harsh environments
- Ability to control complex tasks
- Combitronic™ technology networking, mastering and ease of addressing (available on -EIP option only)
- Ease of programming through powerful AniBasic (BASIC-like) language with over 200 commands
- Minimal cabling and space requirements due to fully integrated design
- Ability to solve difficult application problems through field-proven Class 6 features

APPLICATIONS

- Agricultural processing
- Capping, sealing, testing
- Circuit board processing
- Contact lens manufacturing
- Dispensing, spraying, coating, polishing
- Metal machining and grinding
- Marine/aerospace
- Mobile field equipment
- Slurry processing
- Ultrasonic testing
- Wafer processing

SPECIFICATIONS

TECHNICAL DATA

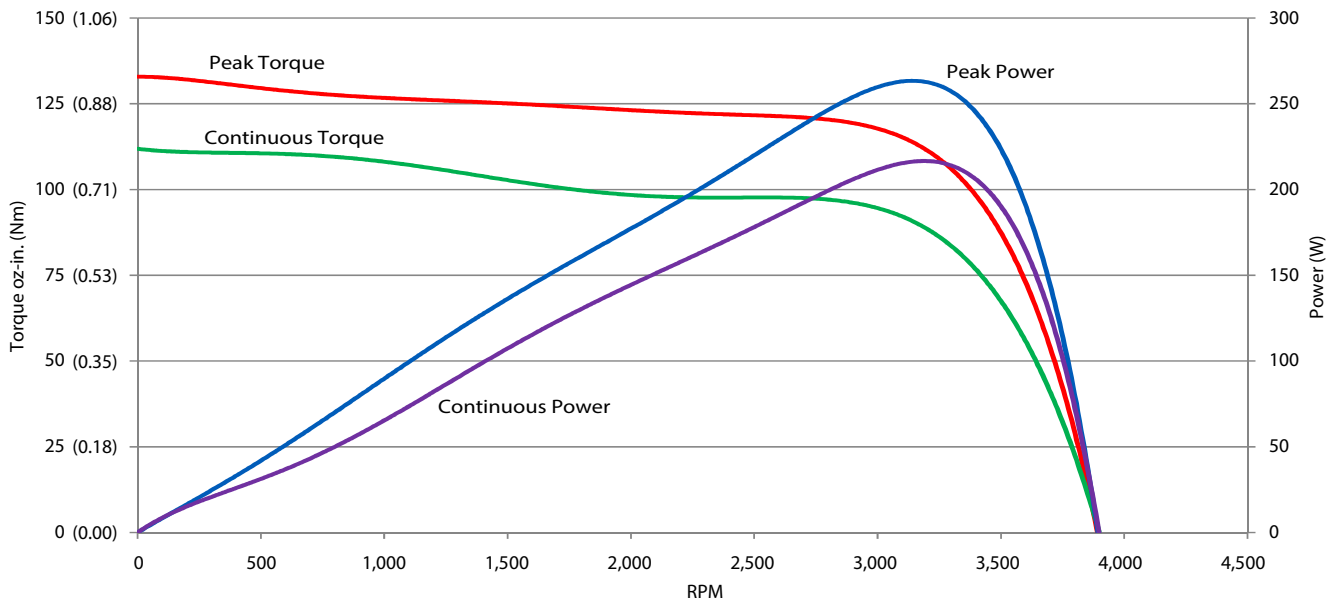
Continuous torque at 48 volts	113	oz-in
	0.80	N-m
Peak torque	133	oz-in
	0.94	N-m
Nominal continuous power	210	watts
Peak power @ 3100 rpm	255	watts
No load speed	3,900	rpm
Voltage constant	9.08	V/kRPM
Winding resistance	0.743	Ohms
Encoder resolution	4,000	counts/rev
Rotor inertia	1.03	(oz-in-sec ²)x10 ⁻³
	7.20	10 ⁻⁶ kg-m ²
Weight	2.20	lb
	1.00	kg
Shaft diameter	0.375	in
	9.53	mm
Shaft, radial load	15.00	lb
	6.80	kg
Shaft, axial thrust load	3.00	lb
	1.36	kg
EtherCAT® available	Yes	
PROFINET® available	Yes	
EtherNet/IP™ available	Yes	

Maximum temperature: 85°C at electronics, 130°C at windings.
Storage temperature range: -10°C - 85°C.

Recommended ambient temperature range: 0°C - 50°C.
Relative humidity: maximum 90%, noncondensing.

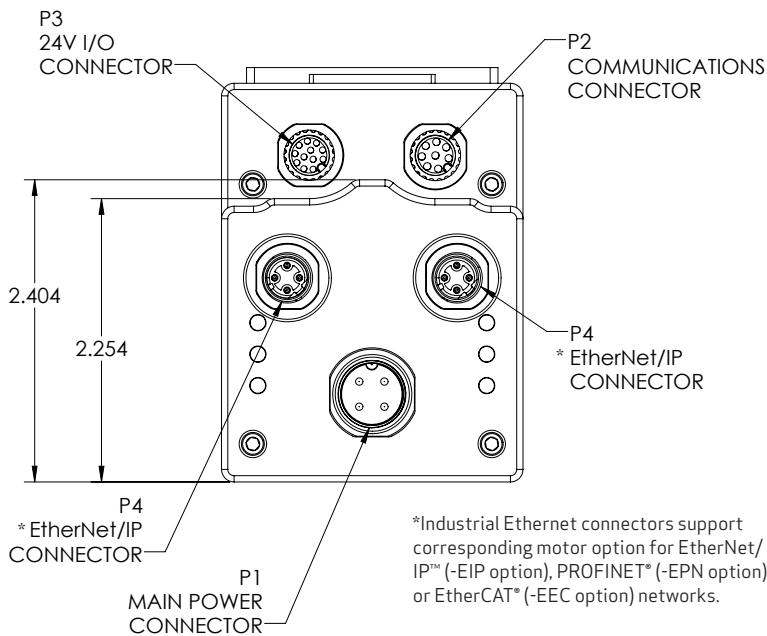
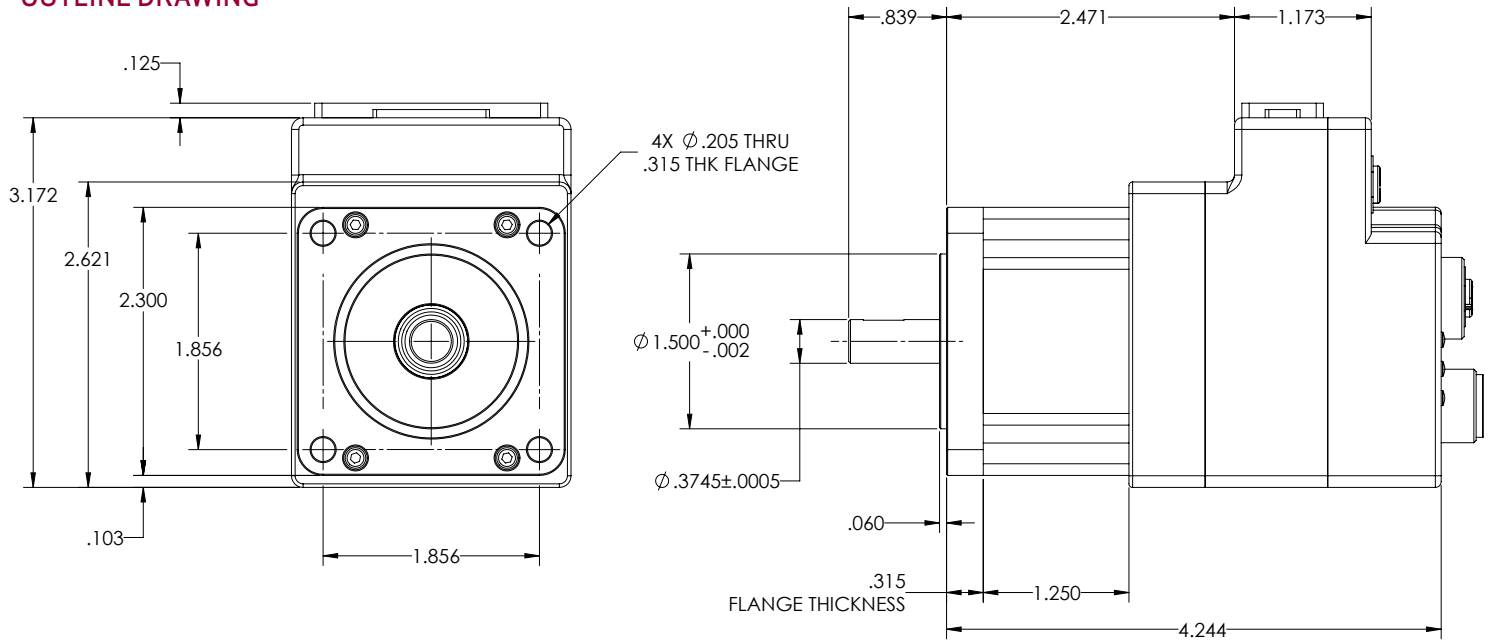
PERFORMANCE TORQUE AND POWER CURVE

SM23166MT2-EXX motor torque versus speed, 48 volts, MDC commutation, 25 °C ambient (curves are derated at higher ambient).



SPECIFICATIONS

OUTLINE DRAWING



CONNECTORS

P1 Main Power	
Pin	Description
1	Control power in
2	Chassis ground
3	Control, com, I/O and amplifier ground
4	Amplifier power in

P2 Communications	
Pin	Description
1	Control, com, I/O and amplifier ground
2	RS-485 B, com ch. 0
3	RS-485 A, com ch. 0
4	Encoder A+ input/output
5	Encoder B- input/output
6	Encoder A- input/output
7	+5 V out
8	Encoder B+ input/output

P3 24 V I/O	
Pin	Description
1	IN0 GP, discrete or analog input
2	IN1 GP, discrete or analog input
3	IN2 positive limit or GP
4	IN3 negative limit or GP
5	IN/OUT4 GP or ext. enc. index capture
6	IN/OUT5 GP or int. enc. index capture
7	IN6 GP, G cmd
8	IN7 drive enable
9	OUT8 brake or GP
10	OUT9 not fault
11	+24 VDC OUT (supplied from PI, Pin I)
12	Ground common

P4 Industrial Ethernet	
Pin	Description
1	+TX
2	+RX
3	-TX
4	-RX

Moog has offices around the world. For more information or the office nearest you, contact us online.
animatics_sales@moog.com

Moog is a registered trademark of Moog Inc. and its subsidiaries. All trademarks as indicated herein are the property of Moog Inc. and its subsidiaries.
 ©2019 Moog Inc. All rights reserved. All changes are reserved.

SM23166MT2 SmartMotor™ Technical Data Sheet
 MA1027 02/19

For product information, visit
www.animatics.com

This technical data is based on current available information and is subject to change at any time. Specifications for specific systems or applications may vary.

