

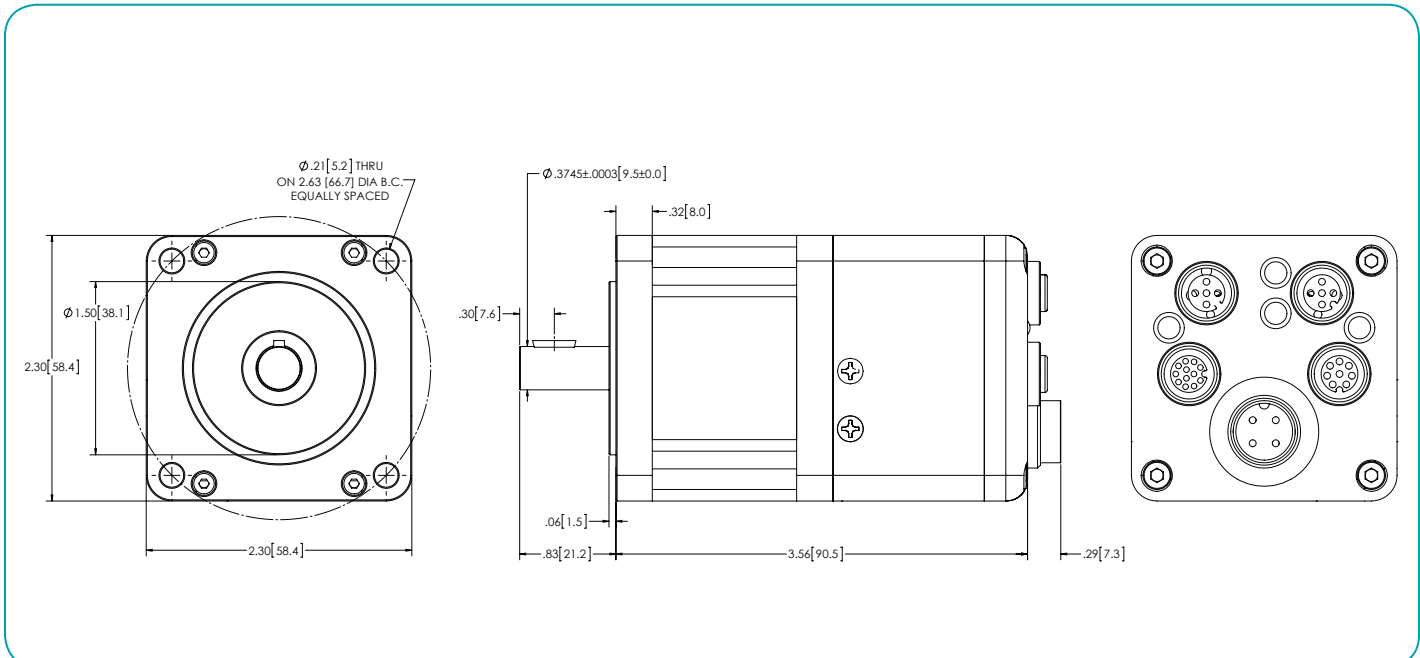
SmartMotor™ Series	SM23165MT
Continuous Torque @ 48V	4.25 in-lb
	68 oz-in
	0.48 N-m
Peak Torque	9.45 in-lb
	151 oz-in
	1.07 N-m
Nominal Continuous Power	189 Watt
No Load Speed	5,000 RPM
Max. Continuous Current* @ 3700 RPM	6.4 Amps
Peak Power @ 2800 RPM	255 Watts
Voltage Constant	9.6 V/kRPM
Inductance	2.01 mH
Encoder Resolution	4,000 Counts/Rev
Rotor Inertia	0.001 oz-in-sec ²
	0.706 10 ⁻⁵ Kg-m ²
Weight	1.5 lb
	0.68 kg
Shaft Diameter	0.375 in
	9.53 mm
Shaft, Radial Load	15 lb
	6.80 kg
Shaft, Axial Thrust Load	3 lb
	1.36 kg
DeviceNet Available	Firmware Option
PROFIBUS Available	
CANopen Available	Standard



Operating temperature range: 0°C–85°C
 Storage temperature range: -10°C–85°C, noncondensing
IP rating depends on motor options. IP rating may affect motor performance.
NOTE: Motor specifications are subject to changes without notice. Consult website and factory for latest data.

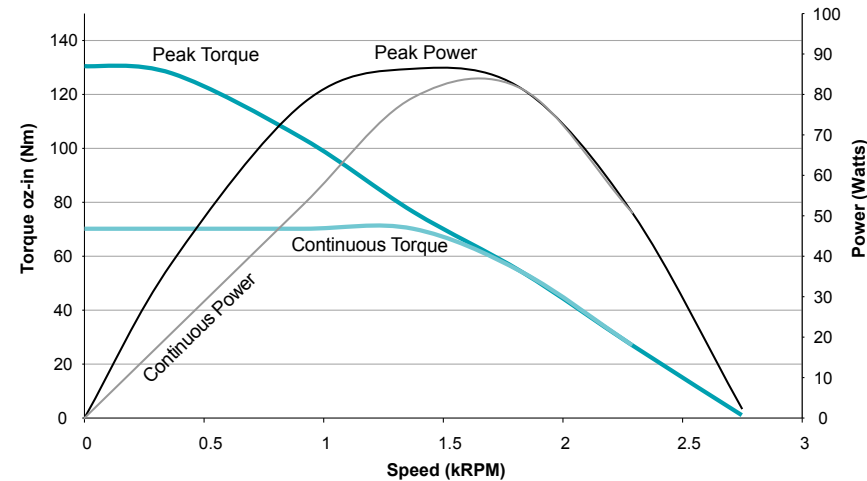
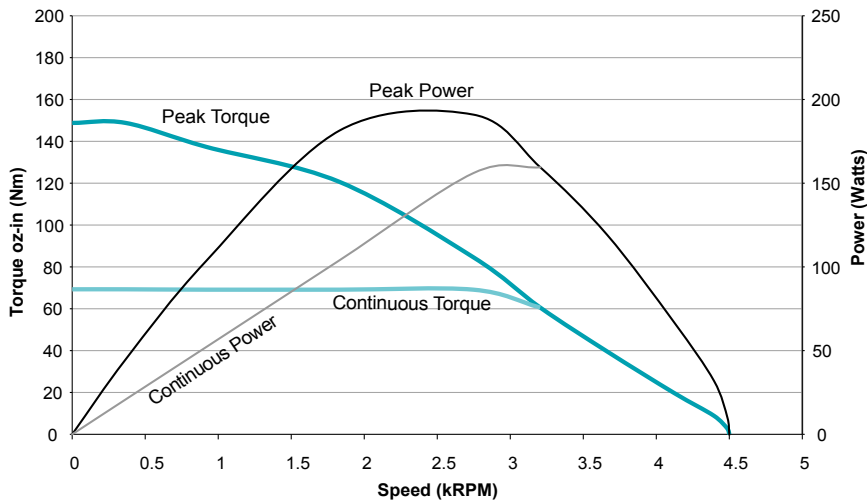
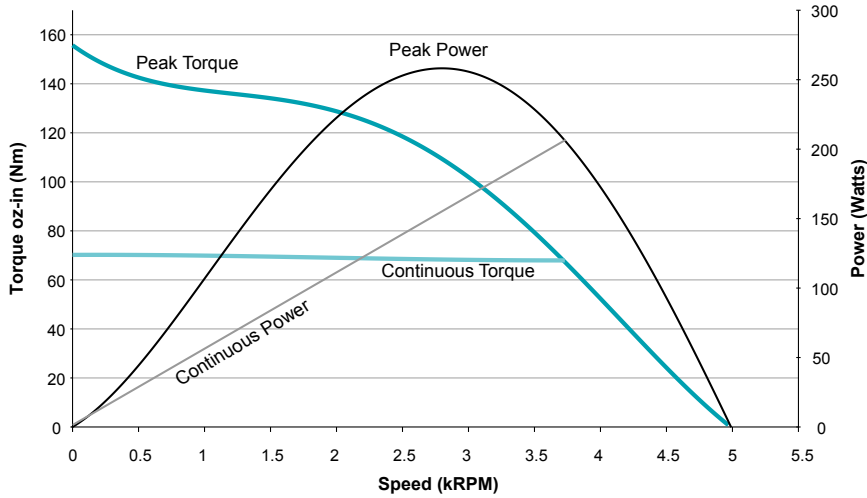


Moog Animatics SmartMotor SM23165MT (No Options) CAD Drawing



Drive Power and Control Power are Separate Inputs. Control Power is rated to a range of 18 to 32VDC max. Drive Power is from 18 to 48VDC max.

OVERVIEW
SOFTWARE
D-STYLE MOTORS
D-STYLE CONNECTIVITY
PERIPHERALS
M-STYLE MOTORS
M-STYLE CONNECTIVITY
LINEAR SYSTEMS
POWER SUPPLIES & SHUNTS
GEAR HEADS
APPENDIX



All torque curves based on 25°C ambient.

Motors were operated using MDE (Enhanced Drive Mode) Commutation.

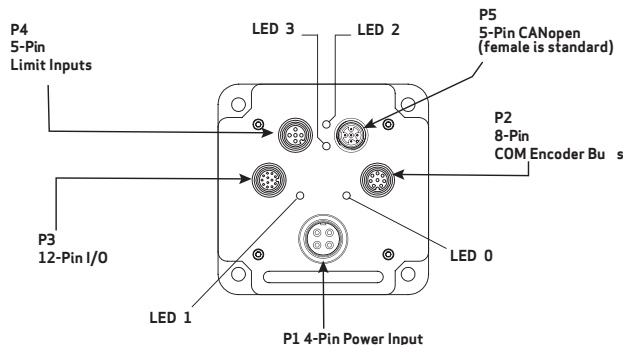
For ambient temperatures above 25°C, Continuous Torque must be linearly derated to 0% at 85°C.

Class 5 M-Style Connector Pinouts

This table shows the pinouts for the connectors on the Class 5 M-style SmartMotors.

PIN	Main Power	Specifications:	Notes:	P1
1	Control Power In	+12.5V Min, 32V Max	Also Supplies I/O	
2	Chassis Ground	Chassis Ground Only	Not Connected to Common	
3	Control, Com, I/O and Amplifier Ground	Common Ground (Req'd. Ground)	Nonisolated	
4	Amplifier Power In	+12.5V Min, 48V Max	Powers Amplifier Only	
PIN	Communications Connector	Specifications:	Notes:	P2
1	Control, Com, I/O and Amp Ground	Common Ground	Nonisolated	
2	RS-485 B, Com ch. 0	115.2 Kbaud Max		
3	RS-485 A, Com ch. 0			
4	Encoder A+ Input/Output	1.5 MHz Max as Encoder or Step Input	Configurable as Encoder Output	
5	Encoder B- Input/Output	1.5 MHz Max as Encoder or Direction Input	Configurable as Encoder Output	
6	Encoder A- Input/Output	1.5 MHz Max as Encoder or Step Input	Configurable as Encoder Output	
7	+5V Out	250 mA Max		
8	Encoder B+ Input/Output	1.5 MHz Max as Encoder or Direction Input	Configurable as Encoder Output	
PIN	24V I/O Connector	Specifications:	Notes:	P3
1	I/O - 0 GP	150 mAmps Max	These I/O ports also support analog input	
2	I/O - 1 GP			
3	I/O - 4 GP			
4	I/O - 5 GP or Index			
5	I/O - 6 GP or "G" Command	300 mAmps Max		
6	I/O - 7 GP			
7	I/O - 8 GP or Brake Line Output	150 mAmps Max		
8	I/O - 9 GP			
9	Not Fault Out	12.5V Min, 28V Max		
10	Drive Enable Input			
11	+24 Volts Out	Common Ground	Nonisolated	
12	Ground Common			
NOTE: I/O ports input impedance > 10 kohms				
PIN	24V I/O Connector	Specifications:	Notes:	P4
1	+24 Volts Out	150 mAmps Max	From Control Pwr In	
2	I/O - 3 GP -Limit		Configurable (supports analog in)	
3	Ground	Common Ground	Nonisolated	
4	I/O - 2 GP +Limit	150 mAmps Max	Configurable (supports analog in)	
5	I/O - 10 GP			
Note: I/O ports input impedance > 10 kohms				
PIN	CAN Connector	Specifications:	Notes:	P5
1	NC	NC	Input current < 10 mA	
2	+V	NC except DeviceNet		
3	-V (ground)	Common Ground		
4	CAN-H	1 Mbaud Max		
5	CAN-L			

NOTE: All specifications are subject to change without notice. Consult the factory for the latest information.



CAUTION: Exceeding 32 VDC into control power on any of the +24V pins may cause immediate damage to the internal electronics. Exceeding a sustained voltage of 48V to pin 4 of the P1 Power Input may cause immediate damage to the internal electronics. Exceeding these voltage limits will void the warranty.

CAUTION: M-style connectors must be finger tightened only! DO NOT use a tool. Doing so can cause overtightening of the connection, which may damage the connector and will void the warranty.