

Turntide™ Smart Motor System: V01 (1, 1.5, 2, 3 HP)

The Turntide Smart Motor System delivers unprecedented energy efficiency in a highly reliable switched reluctance design. This software-driven motor solution includes a Smart Motor and Motor Controller, complete with networking and connection capabilities to Turntide Cloud™. The patented Turntide Motor System is proven to significantly reduce energy consumption, dramatically reducing energy costs and carbon footprint resulting from electric motor operation. The V01 motor is suitable for a range of new and retrofit HVAC, refrigeration, and pumping applications in both fixed and variable speed.

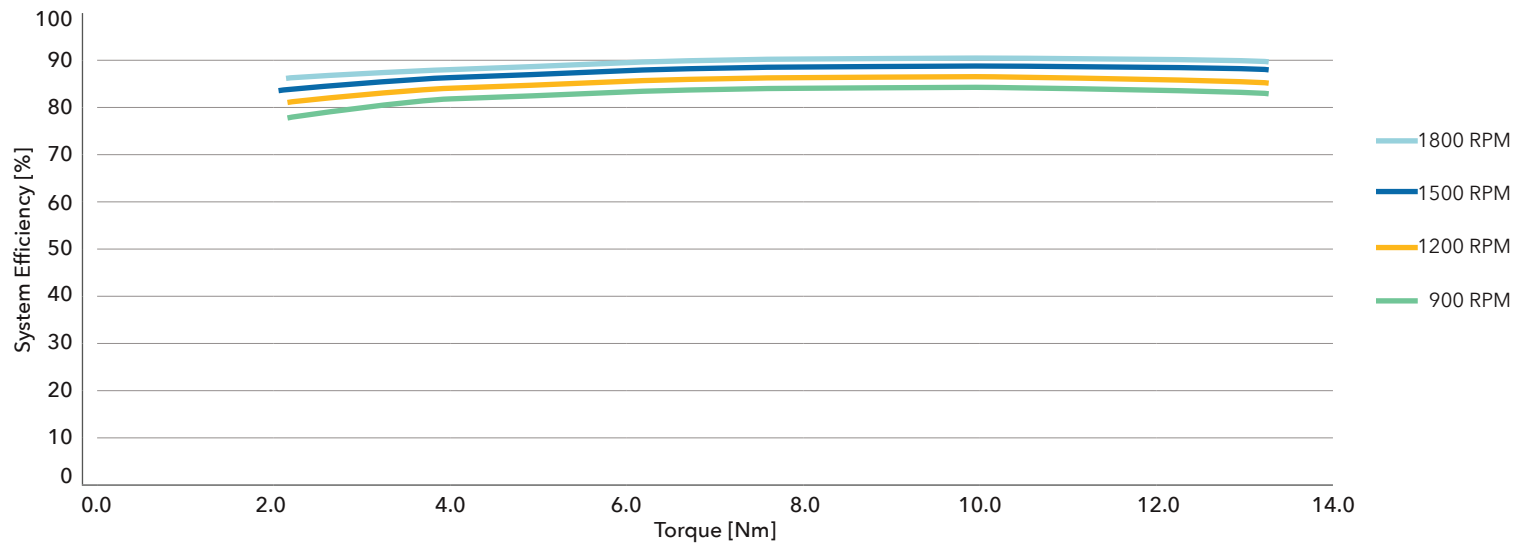


Turntide Smart Motor System

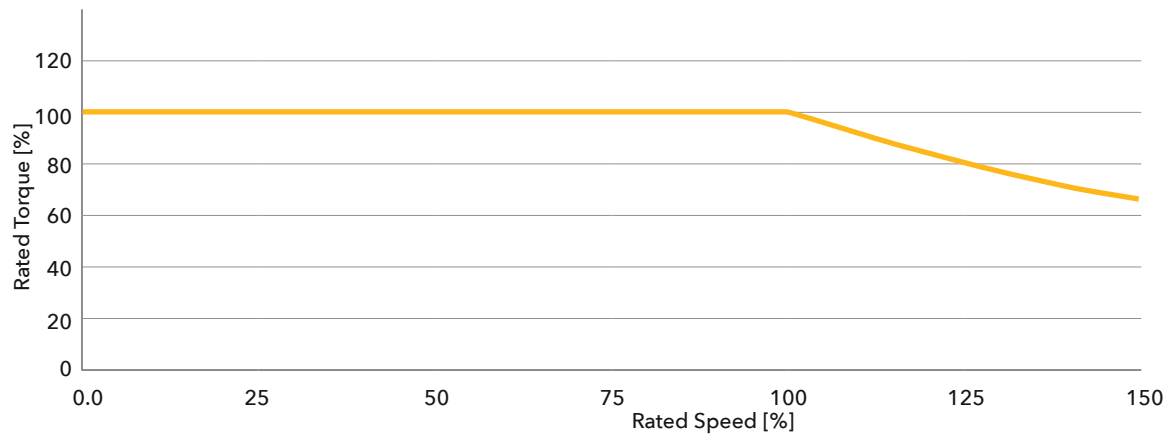
FEATURES	SMART MOTOR SYSTEM BENEFITS
Turntide Cascade® - PC graphic-based programming tool, part of the Turntide Controls Platform	Provides for customization to assure your motor control sequences can be accomplished for every application.
Configurable sequence of operation based on internal and external sensor feedback using up to 16 integrated I/O points	Reduces hardware needed to control HVAC and other equipment, reducing overall cost of system implementation.
Turntide Cloud	Provides monitoring and remote reporting, enabling extended data logging and alerts and alarms based on selectable parameters, protecting equipment and assuring the most efficient operation.
Built-in soft start and brownout protection	Eliminates nuisance service calls and interruptions to building operation due to inadvertent circuit breaker trips, reducing maintenance costs.



System Efficiency vs Torque at Various Speeds



Torque-Speed Curve

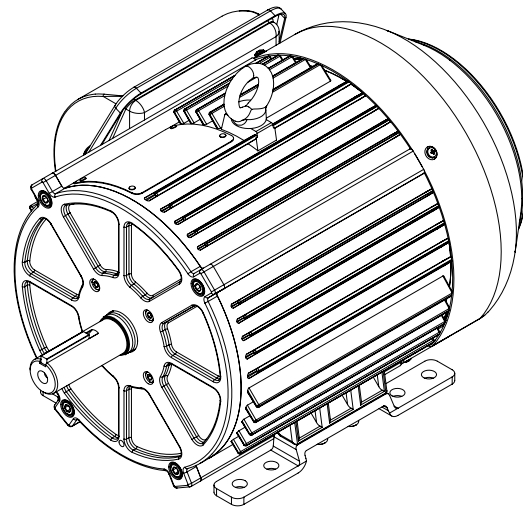
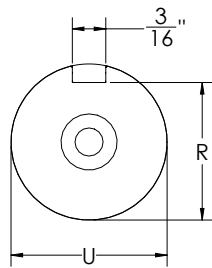
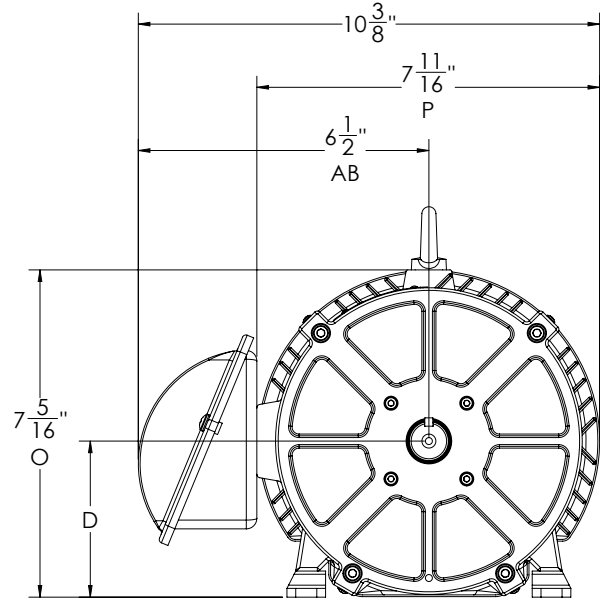
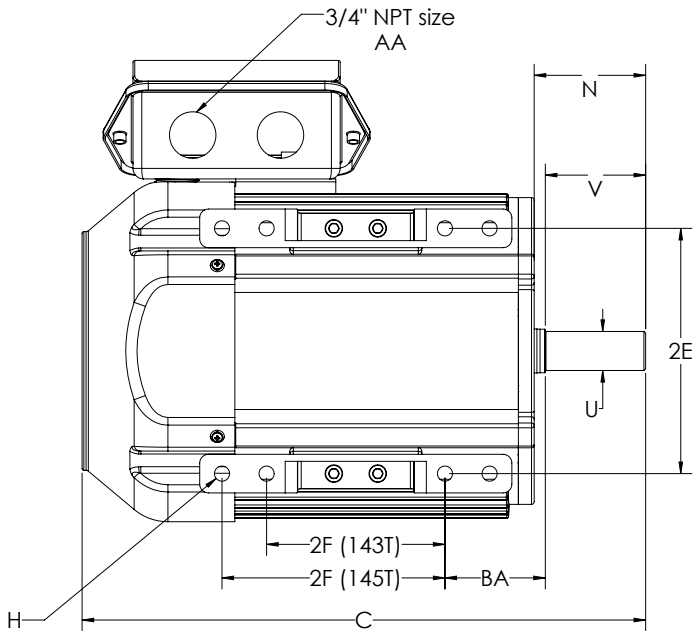


Motor System Characteristics

Motor Model SKU	V01-0100-6-A00	V01-0150-6-A00	V01-0200-6-A00	V01-0300-6-A00	Motor Controller Model SKU	P05LC	
	V01-0100-6-C00	V01-0150-6-C00	V01-0200-6-C00	V01-0300-6-C00		Supply Voltage	208/230V~, 460V~, 575V~
	V01-0100-6-D00	V01-0150-6-D00	V01-0200-6-D00	V01-0300-6-D00		Supply Frequency	60 Hz
				V01-0300-6-F00		Supply Phase	Single (1HP) or Three-Phase (1-3HP)
Rated HP	1 HP/0.75kW	1.5HP/1.11 kW	2 HP/1.49 kW	3HP/2.23 kW	Power Factor	0.65-0.80 Across Operating Range	
Rated Service Factor	1.15						
Rated RPM	1800 RPM				Ambient Temperature Range	-10°C to +40°C	
Operating RPM	300-3600 RPM				Relative Humidity	95%, non-condensing	
Peak Motor Efficiency	90.3%	91.5%	92.1%	91.7%	Motor Duty Rating	Continuous	
Peak System Efficiency	87.2%	89.1%	89.9%	89.8%	Insulation Class	F	
Rotor Inertia	0.100 lb-ft ² (0.0042 kg-m ²)				Motor Ingress Protection	IP20 Rating	
Motor Enclosure	TEFC				Motor Controller Ingress Protection	IP65 Rating	
Motor Frame Size	56Y (-A00), 56/56H (-C00), 56Z/56HZ/143T/145T (-D00), 182T/184T (-F00)				Motor Controller Weight	10.5 lb (4.8 kg)	
Motor Weight	54 lb (24.5 kg)						



Motor Dimensions



Dimension Table (in inches)


NEMA	D	E	2F	H	BA	U	V	C
56	3 1/2	2 7/16	3	11/32 SLOT	2 3/4	58	1 7/8 or 4 1/2	12 5/8
143T	3 1/2	2 3/4	4	11/32	2 1/4	78	2 1/4	12 5/8
145T	3 1/2	2 3/4	5	11/32	2 1/4	78	2 1/4	12 5/8

Definitions:

- D - height of shaft
- E - 1/2 distance between foot holes side-to-side
- 2F - distance between foot holes front to back
- H - foot hole size
- BA - distance from front foot hole to back of shaft horizontally
- U - shaft diameter
- V - shaft length
- C - overall length



Motor Controller Name Plate



TURNTIDE™

MODEL P05LC

MOTOR V01/V02

VOLTS 3PH	CURRENT	
	1-3HP (V01)	5HP (V02)
208/230 VAC 60Hz	3-10.5A	14-16A
460 VAC 60Hz	1.5-6.5A	9A
575 VAC 60Hz	1-3.5A	6A

OUTPUT 3PH 280-850VDC
MAX HP 5.0

**P05LC Motor Controller
HR-SRM Motors**

www.turntide.com


Made in China

Conforms to UL STD 61800-5-1 and 61800-5-2
Certified to CSA STD C22.2#274

WARNING: This Turntide Motor Controller will only operate stated Turntide Smart Motor.

AVERTISSEMENT: Ce contrôleur de moteur Turntide doit être utilisé qu'avec moteur de la série de intelligent Turntide.

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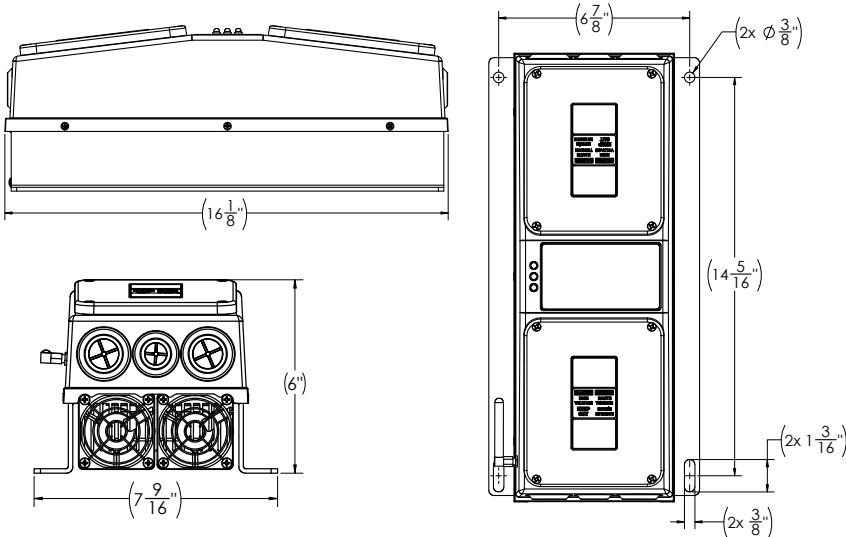


Intertek
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Motor Controller I/O

QTY	Description
7	Programmable digital inputs
1	Programmable voltage output: 0-10V, 10mA limit
4	Relay outputs: 1A, 125VAC limit
4	Universal inputs, individually selectable as: <ul style="list-style-type: none"> • Voltage Mode: 0-10V • Current Mode: 0-20mA; or 4-20mA • Resistive Mode • External Logic Mode

Motor Controller Dimensions



Motor Controller Mounting

Securely install the motor controller to a solid mounting surface with 3/8 inch bolts using the four screw holes and slots in tabs on the base.

Indemnity

The information in this document is subject to change without notice and should not be construed as a commitment by Turntide Technologies or Software Motor Company. Turntide Technologies assumes no responsibility for any errors that may appear in this document. In no event shall Turntide Technologies be liable for incidental or consequential damages arising from use of this document or the software and hardware described in this document.

Turntide Motor Controller

The Turntide Motor Controller controls all operations of the Smart Motor and is required for motor operation. Its internal program assures that the motor is operating at the highest efficiency at any speed in any application. It does this by monitoring the internal sensors and feedback from the Smart motor and adjusting control signals for optimization. The Motor Controller provides physical connection for 16 input and output connections for control and monitoring of associated equipment such as RTUs, AHUs and pumps. The Motor Controller can be configured with Cascade software to operate under an infinite number of control scenarios. When connected with the Turntide supervisor, remote configuration, updates, alerts, alarms, and system data logging can be delivered through Turntide Cloud or a BMS system.



Turntide Technologies (formerly Software Motor Company) has developed the world's most efficient and intelligent electric motor system. The revolutionary Smart Motor System is based on proven switched reluctance technology, now managed with advanced cloud software and connected to precise controls via IoT. Turntide's vision is to eliminate the 25% of global electricity consumption that is wasted by legacy motors, thus accelerating the world's transition from fossil fuels. Turntide is based in Sunnyvale, Calif., with offices in San Francisco; Arlington, Wash.; and Kennesaw, Ga. Turntide has installed Smart Motor Systems with dozens of customers, reducing their motor electricity consumption by an average of 64%, and is powering the systems of leading OEMs. For further information, visit www.turntide.com.