

Force Drive™ Electric Drive Solutions

AC24LS Motor (& Optional AT1200 Gearbox) with DMOC445 Controller



Overview

The Azure Dynamics AC24LS with DMOC445 Drive System features Azure's AC24LS motor with an optional AT1200 gearbox with internal differential. This drive system is designed with front wheel compact sedans in mind. Vehicle conversions are fast and easy, because this motor/gearbox assembly will replace the engine and transmission of many compact front wheel drive vehicles. If direct drive or connection to an existing gearbox or transmission is desired, the AC24LS is available without the AT1200 gearbox and with a NEMA C-face.

Applications & Features

In battery EV applications, the AC24LS with DMOC445 drives are designed for use in vehicles weighing from 1,000 to 3,500 lbs. The optional gearbox provides an 11:1 or 12:1 overall vehicle drive ratio with differential included. Mating halfshafts are also available.

AC24LS Motor

- High-efficiency air-cooled AC induction motor
- Sealed motor and gearbox casings
- Compact, lightweight construction
- Low rotating losses and motor electrical resistance

Optional AT1200 Gearbox

- Precision ground helical gears for quiet operation and long system life

DMOC445 Digital Motor Controller

Azure's DMOC445 is a DSP-controlled, rugged, waterproof (except for cooling fans) inverter for controlling 3-phase AC motors and generators. Liquid-cooling is available.

- DSP-based control
- Regenerative braking
- Space Vector PWM and Field Oriented Control
- Internal contactor with pre charge circuitry
- Lightweight aluminum chassis
- Waterproof, rugged construction
- Trenchgate IGBTs for maximum efficiency
- Over voltage and under voltage protection
- Three-level over current protection:
 - > 10kHz DSP-based current control
 - > Analog over current watchdog
 - > "Desat" protection at gate level
- Inverter over temperature protection
- Motor over temperature protection
- Over speed torque limit
- Diagnostics and data visualization via Controller Area Network (CAN) or RS232
- CAN control with upper/lower torque limits and speed setpoint commands, plus DMOC status messages over CAN. (Note, customers must provide their own CAN interface for both.)

Specifications

		@156VDC	@312VDC
		delta	wye
Motor Winding Configuration			
Peak Torque	Nm	87	92
Continuous Torque	Nm	36@4000 rpm	42@4700 rpm
Nominal Speed	rpm	3750	4600
Maximum Speed Powered	rpm	11000	11000
Maximum Mechanical Speed	rpm	12000	12000
Maximum DC Current	A DC	268	165
Maximum Motor Phase Current	Apk AC	400	250
Continuous Shaft Power at 30°C	kW	15@4000 rpm	20@4700 rpm
Peak Efficiency	%	85	87
Peak Shaft Power	kW	35	47
Weight AC24LS	kg	40	
Weight DMOC445	kg	15	
Weight AT1200	Kg	18	
Diameter AC24LS	mm	244	
Length AC24LS with Cface (Cface mating surface to endbell)	mm	345	
Length AC24LS with gearbox (endbell to endbell)	mm	319	
Length AT1200	mm	438	
Width AT1200	mm	216	
Height AT1200	mm	150	
Length DMOC445	mm	450	
Width DMOC445	mm	226	
Height DMOC445	mm	238	
Minimum Recommended Nominal Battery Voltage	VDC	144	288
Maximum Recommended Nominal Battery Voltage	VDC	240	336
Maximum Operational Voltage	VDC	400	
Maximum Voltage "On Charge"	VDC	450	
Minimum Operational Voltage	VDC	100	
Minimum/Maximum Operating Temperatures	°C	-40 to 55	

Testing performed at 30°C

System design and application affect performance. These specifications are guidelines to help facilitate system design and application and are not guaranteed in any particular application. All specifications are subject to change without notice.



Driving a *World* of difference

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