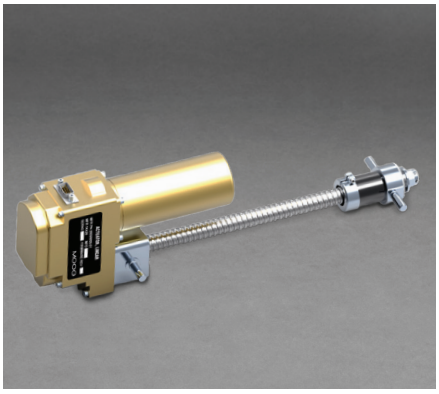
MODEL 290
LINEAR SERVO ACTUATOR



The Model 290 is one of the highest performance linear servo actuators available on the market. We offer this actuator with a digital communications interface. It provides 1,500 lbf at 0.26 inches / second for up to 7.75 inch strokes. It has a homing sequence that determines end of travel on startup, thus, ensuring proper positioning along its stroke. These features allow our customer flexibility to have a drop-in servo actuator for their system.

TYPICAL APPLICATIONS

- Unmanned air vehicles — tactical, medium altitude, long endurance (MALE), and high altitude long endurance (HALE) vehicles
  - Flight control surface actuation
- Optionally piloted air vehicles (OPV)
- Utility actuation — throttle control, doors, spoilers
- Electric aircraft, eVTOL, eSTOL, air taxis and urban air mobility vehicles — propeller pitch control, tilting mechanism, flight control, landing gear

MOOG

MODEL 290 LINEAR SERVO ACTUATOR

FEATURES

- Integrated position servo loop control utilizing Moog RS-485 digital communications protocol
- Non-jamming mechanical stops
- Stainless steel gear train
- Precision ball screw and nut assembly
- Brush-type permanent magnet motor design with integrated holding brake
- Electrical stops software controlled
- High resolution magnetic encoder
- Telemetry is composed of position, temperature, voltage and current
- Low latency
- Custom tunable performance parameters

BENEFITS

- Robust structural design
- Mechanical stops
- Low weight to power performance
- Customizable

ELECTRONICS DESIGN AND CONSTRUCTION

- IPC-6012, Class 3
- J-STD-001B, Class 3
- IPC-A-610, Class 3

*ENVIRONMENTAL SPECIFICATIONS

RTCA DO-160G Test

Description	Details
Operating Temperature	-40° to +71° C
Altitude	Up to 38,000 ft
Temperature and Altitude	Section 4, Category B1
Temperature Variation	Section 5, Category A
Humidity	Section 6, Up to 100% condensing
Power Input	Section 16, Category B, 28 VDC
Voltage Spike	Section 17
Waterproofness	Section 10, Category Y
Sand and Dust	Section 12, Category S
Random Vibration (Helicopter)	Section 8, Category U2
Operating Shock	Section 7, Category A
Salt Fog	Section 14
Induced Signal Susceptibility	Section 19
Radio Frequency Susceptibility	Section 20
Electrostatic Discharge (ESD)	Section 25, ≥ 2 kV pulse discharge

*Designed to meet these environmental specifications, testing not completed.

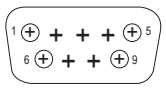
MODEL 290 LINEAR SERVO ACTUATOR

INPUT VOLTAGE / POWER DATA SPECIFICATIONS

Specification	Model 29000000-01
Operating Voltage	18 to 32 VDC
Weight	6.0 lb nom
Motor Type	24 VDC permanent magnet brush-type
Brake Type	24 VDC permanent magnet static
Output Shaft	Ball screw 0.2 inches / turn
Free Play	0.012 inches (0.3 mm) with 50 lbf
Mechanical Stroke	8.0 inches
Electrical Stroke	7.75 inches
No Load Current	800 mA
No Load Current with Brake	1.1 A
No Load Speed @ 28 VDC	0.6 inches / sec
Rated Current	5.75 A
Rated Torque and Speed	1,500 lbf (6,670 N) @ 0.26 inches / sec with a 10% duty cycle
Maximum Static Load	2,500 lbf (11,120 N)
Electrical Command Interface	Isolated half duplex RS-485[2]

Notes:
[1]With ±10 in-lbf reversing load applied to shaft.
[2]Contact Moog sales to receive detailed protocol information.

CONNECTOR PIN ASSIGNMENT

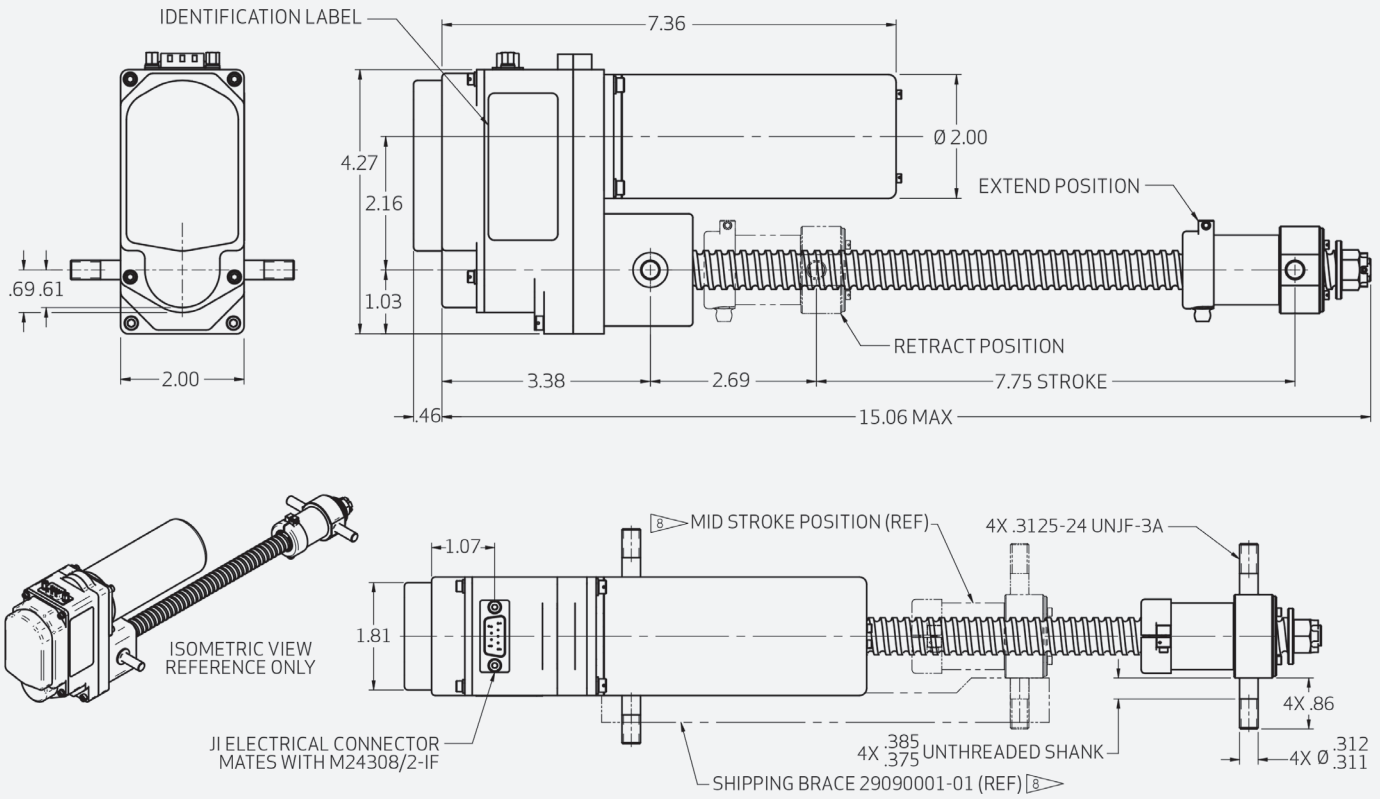
Pin Number	RS-485 Half Duplex Model 29000000-01	*Pin Diagram
1	RS-485A / interface I	 Shell size E (9 position)
2	RS-485B / interface I	
3	RS-485 signal RTN	
4	+ 28 VDC	
5	Case Ground	
6	+ 28 VDC	
7	Power return	
8	Power return	
9	Spare	

*For reference only, Amphenol® catalog pin arrangement.

MODEL 290 LINEAR SERVO ACTUATOR

MECHANICAL DIMENSIONS (INCHES)

Note: 29000000-01 series shown



MOOG
SPACE AND DEFENSE GROUP

Americas
1501 North Main Street, Blacksburg, Virginia 24060
+1 (540) 552 3011 poweranddata@moog.com
www.moog.com

Europe
30 Suttons Business Park, Reading Berkshire, RG6 1AW
+44 (0) 118 966 6044 poweranddata@moog.com
www.moog.com

Moog Space and Defense @MoogSDG @MoogSDG @MoogSDG @MoogInc

Form 500-1297 0522