

EML100

Electric Linear Actuator

Applications

The Woodward EML100 electric actuator is designed to provide highly accurate, closed loop position control of steam and fuel valves that require a linear operator with a stroke length from 13 to 38 mm (0.5 to 1.5 inches). The actuator is designed to be used with the Woodward EM Digital Driver or Woodward 24 V DVP.

Description

The EML100 actuator utilizes a high performance brushless dc servomotor, a precision planetary gearbox, and a leadscrew/ballhead to produce a linear output. The use of this highly efficient gear train results in a high servo system bandwidth. Two brushless resolvers are used within the actuator, one for motor commutation, the other for output shaft position. The actuator also incorporates a clutch between the motor and gear train to prevent damage to the unit when a rigid mechanical stop is encountered.

Performance

Force Output

445 N (100 lb) continuous

Stroke Length

13, 25, or 38 mm (0.5, 1.0, or 1.5 inches) using different mechanical stops
Electrical stops provide infinite variation

Slew Time

150 ms for all stroke lengths
(10–90% slew rate on a 2–98% step)

Bandwidth

Greater than 6 Hz at –6 dB

Linearity

±0.05 mm (±0.002 inch)

Repeatability

0.05 mm (0.002 inch)

Output Resolution

0.03 mm (0.001 inch)

Hysteresis

0.05 mm (0.002 inch)



- Highly accurate electric linear actuator
- Available in stroke lengths up to 38 mm (1.5 inches)
- 445 N (100 lb) continuous force output
- Used with Woodward EM Driver
- Corrosion-resistant construction
- Certified for North American Hazardous Locations
- Compliant with applicable CE Directives—ATEX and Machinery
- Optional dual resolver feedback

Environment

Ambient Temperature	–40 to +93 °C (–40 to +200 °F)
Vibration	US MIL-STD-810C, Method 514.2, Category b.1, figure 514.2-II curve J (5 g's max. 5–2000 Hz)
Shock	US MIL-STD-810C, Method 516.2, half sine shock Basic design-ground (20 g's for 11 ms)
MTBO	50 000 hours
MTBF	100 000 hours

Electrical

The EM100L actuator is designed to be used with the Woodward EM Digital Driver (see manual 26159) or Woodward 24 V DVP (see manual 26329).

Electrical Motor Ratings

Input Voltage	28 Vdc nominal for EM Driver 24 Vdc nominal for DVP
Motor Current	37 A max phase current with an exponential decay and a time constant of 2.5 s to a maximum continuous phase current of 14.7 A

Installation

See the outline drawing for other information.

Attitude	Can be mounting in any orientation
Output Shaft	15.88 mm (0.625 inch) diameter, internally threaded 0.312-24 UNF 25 mm (1.0 inch) deep
Pilot Mounting Hole	74.68 mm (2.940 inches), 4.32 mm (0.170 inches) deep minimum
Flange Pattern	Qty 6, 10.80 mm (0.425 inches) through holes, equally spaced on a 123.82 mm (4.875 inches) bolt circle. Use M8 or 0.375 inch threaded fasteners (not included).
Conduit Connections	Four 0.500-14 NPTF female connections
External Ground	#8, 0.164-32 UNF female thread
Technical Manual	40183

Regulatory Compliance

European Compliance for CE Marking:

These listings are limited only to those units bearing the CE Marking.

ATEX – Potentially Explosive Atmospheres Directive:	Directive 2014/34/EU on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres LCIE 01 ATEX 6033 X Zone 1, Category 2, Group II G, Ex d IIB T3
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Note—The conduit entry and the connecting device must be certified for the mode of protection concerned (“d”) according to the European standards. See manual 40183 for all Special Conditions for Safe Use.

Other European Compliance:

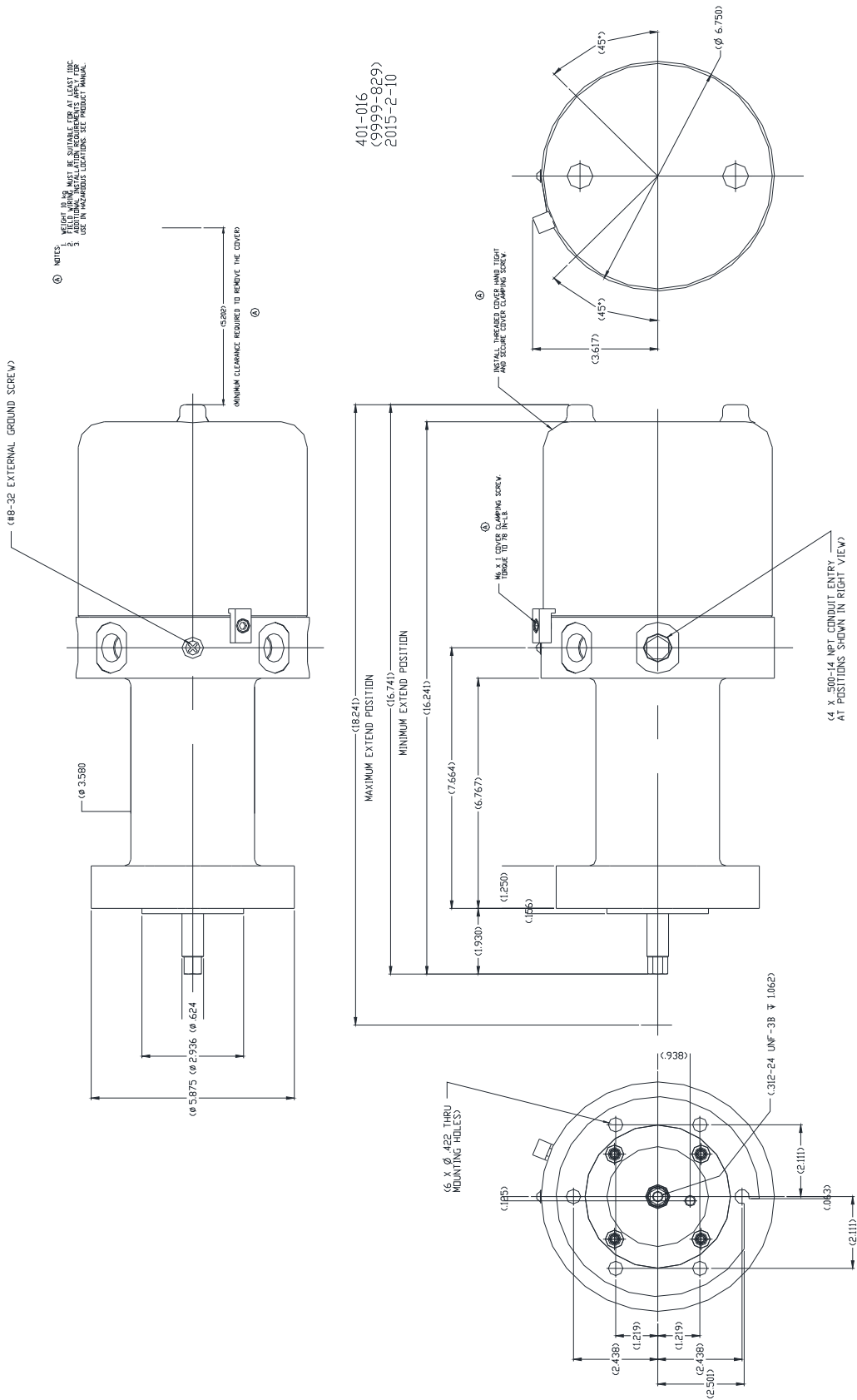
Compliance with the following European Directives or standards does not qualify this product for application of the CE Marking:

EMC Directive: Not applicable to this product. Electromagnetically, EMC, passive devices are excluded from the scope of the 2014/30/EC Directive.

Machinery Directive: Compliant as partly completed machinery with Directive 2006/42/EC of the European Parliament and the Council of 17 May 2006 on machinery.

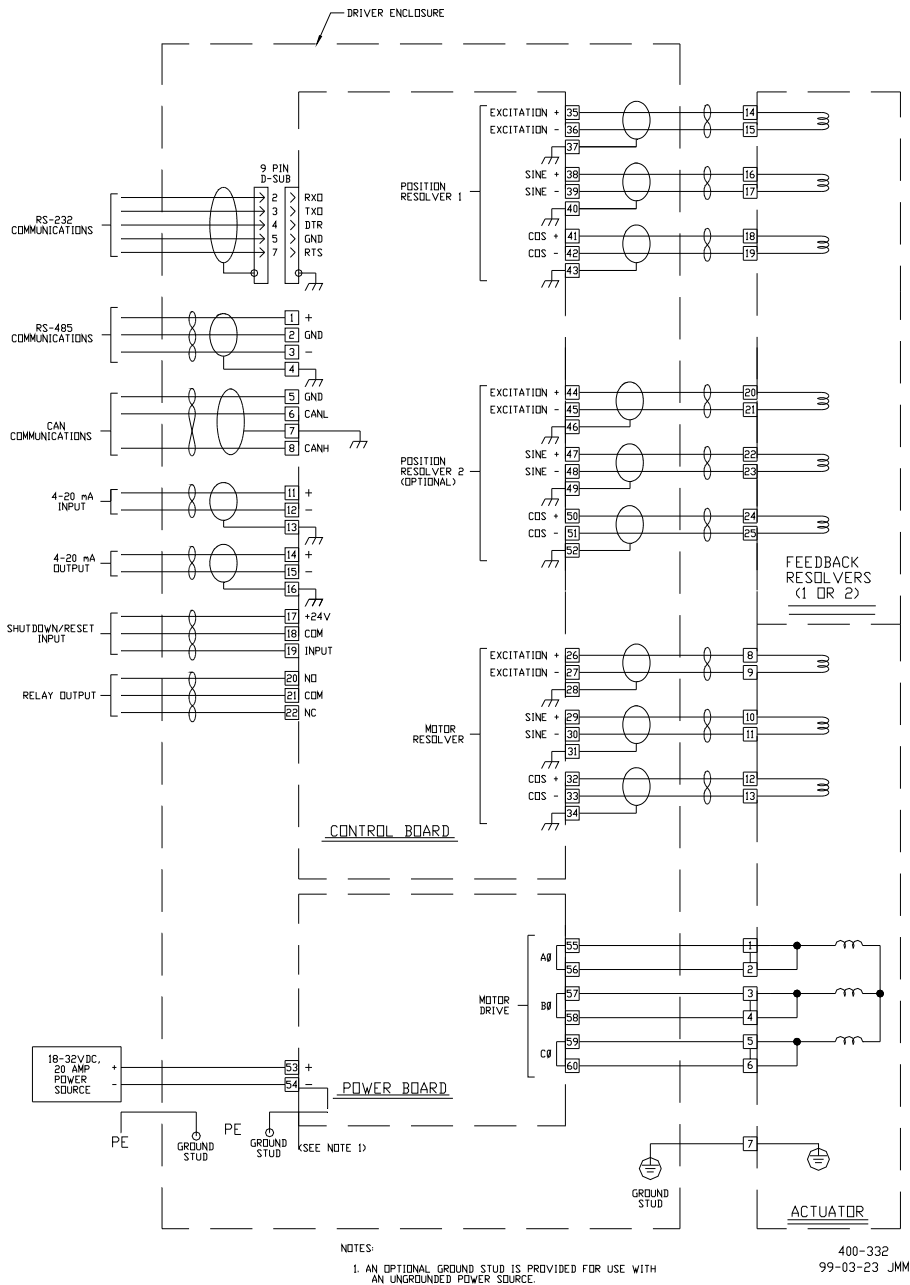
North American Compliance:

CSA: CSA Certified for Class I, Division 1, Groups C and D and Division 2, Groups B, C, D, T3C at 93 °C Maximum Ambient for use in Canada and the United States. Certificate 1018524



401-016
(9999-829)
2015-2-10

Outline Drawing
(Do not use for construction)



Wiring Diagram (EM Driver shown)



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