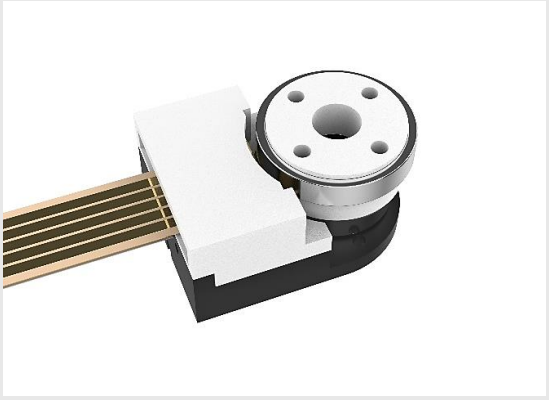
ROMO-E Series - Miniature Piezoelectric Rotary Actuators with Encoder

Introducing our new range of compact, lightweight rotary piezoelectric actuators with factory-fitted encoder, designed to deliver superior precision and expanded functionality for advanced applications.

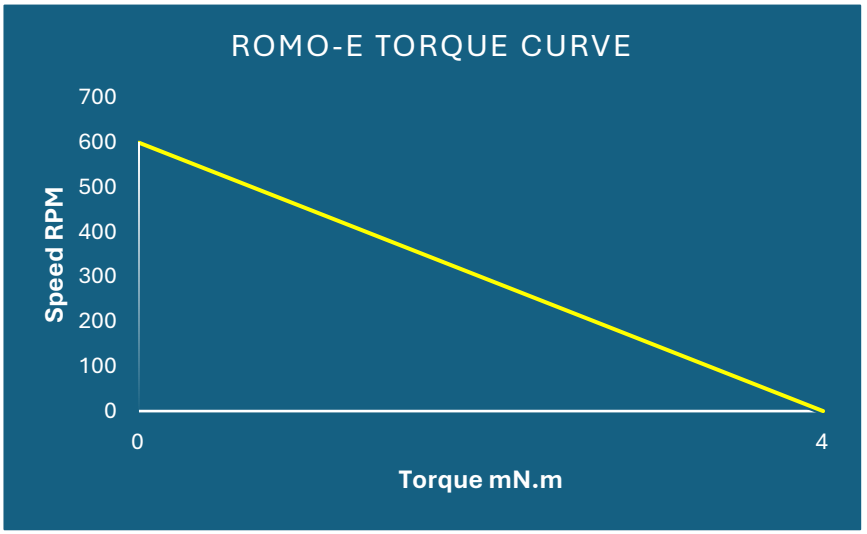
Key Advantages

- New patent-pending design.
- Superior stability of velocity control.
- Flexible pcb electrical connection facilitates system integration.
- Economical construction using thermoplastics for reliability and affordability.
- Unmatched precision and resolution.
- Ultra-fast response times and exceptional start-stop capabilities.
- High torque relative to size, optimized for direct-drive applications.
- Stepping and continuous modes of operation.
- Silent operation and low voltage.



Python API Closed-Loop Control

ROMO-E is available as a closed-loop system (using PMC's proprietary Python API). Contact your sales representative for further details.



Key Features

- Torque: >4.0 mN.m
- Resolution: > 30 µRad = 200,000 steps per rotation
- Max Speed: >600 RPM
- Fast Response Time: ≈30 µs
- Low Voltage: 5.0 to 7.5 V DC
- Low Current: 30 mA to 300 mA (max)
- Energy efficient: Zero power consumption in hold

Principle of Operation

The ROMO-E rotary piezo actuator with factory-installed optical encoder operates based on a new US patented technology. Electrical excitation of its piezoceramic body, or resonator, induces simultaneously two independent longitudinal and bending ultrasonic standing waves in two perpendicular directions. This action generates elliptical vibrations at the resonator's center, resulting in linear motion of the motor, which is passively in contact with the resonator body.

Electronic Driver Board Interface Supports UART & I2C

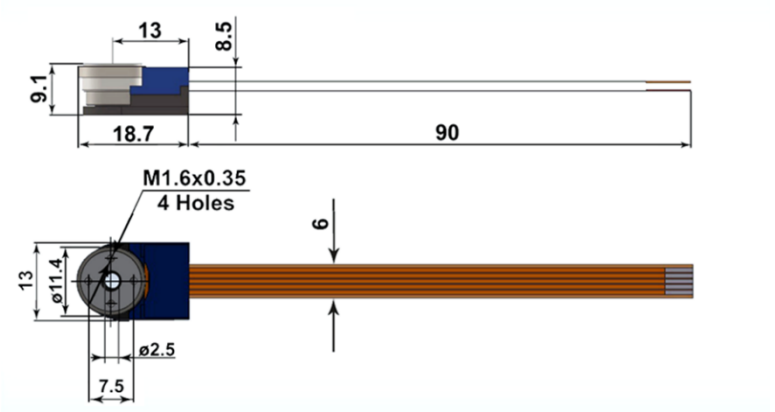
The electronic driver is designed to offer an economical interface for user control. Motion of the motor is achieved via PWM (Pulse Width Modulation) control signals via the J1 connector on the driver. The driver PCB also supports UART and I2C interfaces. Each driver PCB is pre-programmed for the specific motor model and allows for software configurability, optimizing drive signals and integrating controls. Motor operation can be finely regulated through closed-loop control using an optional encoder factory-installed on the actuator.

Piezo Motor Company, LLC.
Boca Raton
Florida 33431, USA
Email. info@piezomotorco.com

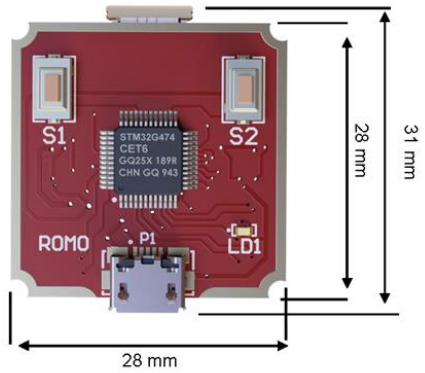
Technical Specifications

Power Supply Voltage*	5.0 to 7.5 V DC
Stall Torque	≥ 4 mNm
Self-Braking Torque	≥ 5 mNm
Actuator Response Time	≈30 µs
Max Speed	> 600 rpm
Minimum Angular Step	≈30 µrad
Encoder Resolution (after quadrature) *	1,024 ppr
Minimum Controlled Angular Step*	6.1 mrad
Uni-directional Repeatability*	6.1 mrad
Angular Backlash	30 µrad
Angular Hysteresis	30 µrad
Frequency Response	4 kHz
Operating Temperature	-20 °C to 80 °C
Maximum Axial Load	200 g
Maximum Radial Load	200 g
Moment of Inertia	29.2 g·mm^2
Max Current over velocity range	300 mA
Rotor Runout	≤50 µm
Actuator Weight	6.3 g
Actuator Dimensions (no shaft)	13 x 18.7 x 9.1 mm
Driver PCB Dimensions	28 X 31 X 9.6 mm
Driver PCB Weight	6.8 g

*At 5 V DC power - specifications for torque and speed will be approximately 25% lower compared to 7.5 V DC.
**Encoder Model (Model # ROMO-E)



ROMO-E with factory-fitted encoder. Dimensions (mm)



ROMO-E Electronic Driver PCB

ORDERING INFORMATION	
Part Number	**Description**
ROMO-010-0370	Rotary motor without encoder
ROMO-010-0371	Rotary motor evaluation kit*
ROMO-010-1370	Rotary motor with encoder
ROMO-010-1371	Rotary motor with encoder evaluation kit*
ROLR-PCB	Electronic Driver Board (5.0 – 7.5 VDC) for use with ROMO & LROM motors

Piezo Motor Company, LLC.
Boca Raton
Florida 33431, USA
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