Final Control Elements

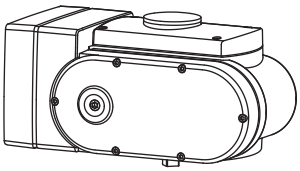
Lloyd's Register approved

SERVO-TOP II ELECTRONIC ACTUATOR

(Lloyd's Register approved,
rotary type; max. torque 200 N·m)

General Functions

- Lloyd's Register approved (Environmental categories ENV3)
- Control valve actuator drive
- High resolution stepping motor



MODEL: PRP–[1][2]–[3]/LR

ORDERING INFORMATION

- Code number: PRP-[1][2]-[3]/LR

Specify a code from below for each of [1] through [3].
(e.g. PRP-01A-L3/LR)

Use Ordering Information Sheet (No. ESU-4823).

PARAMETER	FACTORY SETTING
Action	Reverse
Operation at input failure	Hold position at input failure
Output stem position at full-closed	0°
Output stem position at full-open	90°
Ex-factory stem position	90°
Opening/closing speed	01: 100 N·m, 12 sec./90° 03: 100 N·m, 24 sec./90° 11: 200 N·m, 16 sec./90° 13: 200 N·m, 24 sec./90°
Deadband	0.5%
Restart limiting timer	2 sec.
Resolution	1/200

[1] TORQUE, OPERATION TIME

01: 100 N·m, 12 sec./90°
03: 100 N·m, 24 sec./90°
00: Refer to the instruction manual for torque.
Use specified operation time.
11: 200 N·m, 16 sec./90°
13: 200 N·m, 24 sec./90°
10: Refer to the instruction manual for torque.
Use specified operation time.

[2] INPUT

Current
A: 4 – 20 mA DC (Input resistance 250 Ω)
Voltage
6: 1 – 5 V DC (Input resistance 1 MΩ min.)

[3] POWER INPUT

AC Power
K3: 100 – 120 V AC
(Operational voltage range 90 – 132 V, 47 – 66 Hz)
L3: 200 – 240 V AC
(Operational voltage range 180 – 264 V, 47 – 66 Hz)

OPTIONS

Standards & Approvals
/LR: Lloyd's Register approved
(Environmental categories ENV3)

RELATED PRODUCTS (Products sold separately)

- Programming Unit (model: PU-2x)

GENERAL SPECIFICATIONS

Degree of protection: IP66
Action: Reverse or direct (In "reverse" action, the output stem turns counterclockwise (seen from the indicator) with an input signal increase.)
Field selectable with DIP switches
Wiring conduits: G 1/2 female thread (two)
Terminal block: 7.62 mm pitch; M3 screw terminals (torque 0.8 N·m)
Housing material: Diecast aluminum
Coating: Baked acrylic resin
Drive: Stepping motor
Insulation class: E
Full-open and full-closed positions: -5 to +95°; minimum span 45°; field adjustable with control buttons
Deadband adjustment: 0.1 – 5.0 % (Deadband width affects the resolution. See Resolution in Performance section.)
Isolation: Signals to power to sequential signals to metallic housing
Fuse: 3 A (replaceable)
Manual operation: Available (10 turns/90°)

INPUT SPECIFICATIONS

■ **DC Current**: Input resistor incorporated (250 Ω)
■ **Forced Operation**: External contact signal input terminals provided for compulsory opening or closing operation
Rating: 5 V DC @ 2.5 mA

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OUTPUT SPECIFICATIONS

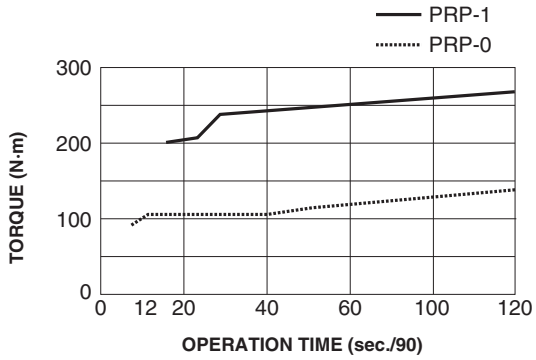
■ **Position Signal**: 4 – 20 mA DC

Load resistance: ≤ 300 Ω

• **Sequential Control Signal**: "Full-open", "full-closed" and "alarm"

Open collector: 30 V DC @ 100 mA max.

• **Speed & torque**



Note: Operational torque for PRP-0 is 100 N·m.
Operational torque for PRP-1 is 200 N·m.

INSTALLATION

Power consumption: Approx. 180 VA

Stand-by consumption: Approx. 18 VA

Operating temperature: 5 to 70°C (From Environmental categories ENV3)

Operating humidity: 30 to 85 %RH (non-condensing)

Vibration: Test condition (From Environmental categories ENV3)

1. Acceleration: 0.7 G (6.9 m/s^2)
2. Frequency: 30 Hz
3. Endurance: 90 min. for each direction
4. Direction: X, Y, Z

Passed above tests.

Mounting position: All directions

Do not mount the actuator with its output stem on the upside if the actuator is to be exposed to dripping water.

Weight: Approx. 10.8 kg (23.8 lb)

PERFORMANCE

Resolution: 1/200 with 0.5 % deadband (factory setting); 1/1000 with 0.1 % deadband

Insulation resistance: ≥ 100 MΩ with 500 V DC (signal to power to sequential signals to metallic housing)

Dielectric strength: 2000 V AC @ 1 minute
(signal or metallic housing to power to sequential signals)
500 V AC @ 1 minute (signal to metallic housing)

STANDARDS & APPROVALS

Approval: Lloyd's Register approved
Lloyd's Register Type Approval System, Test Specification Number 1, 2021
Environmental categories ENV 3

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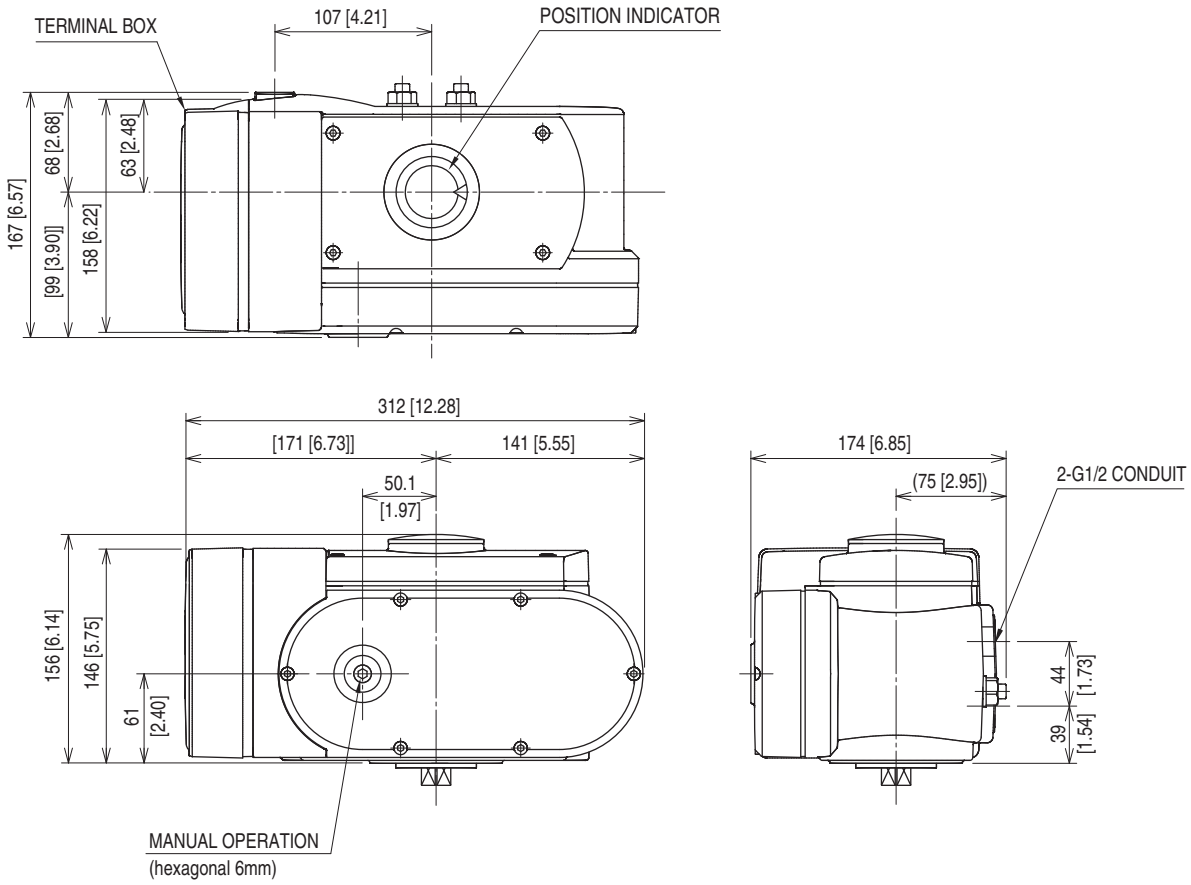
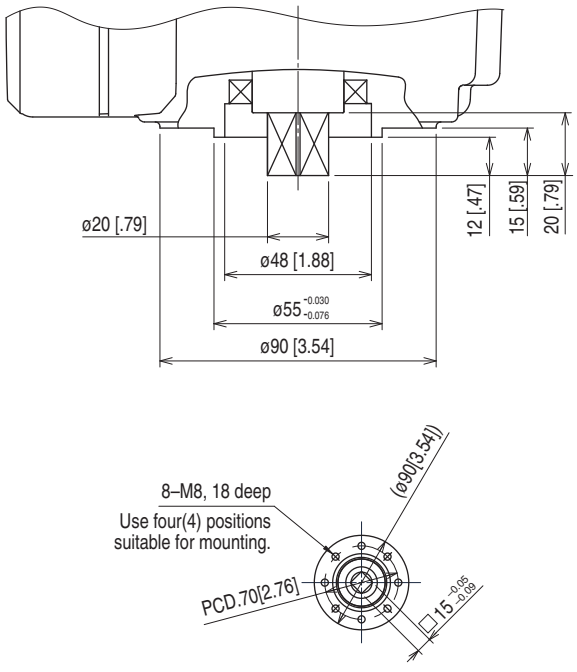
EXTERNAL DIMENSIONS unit: mm [inch]

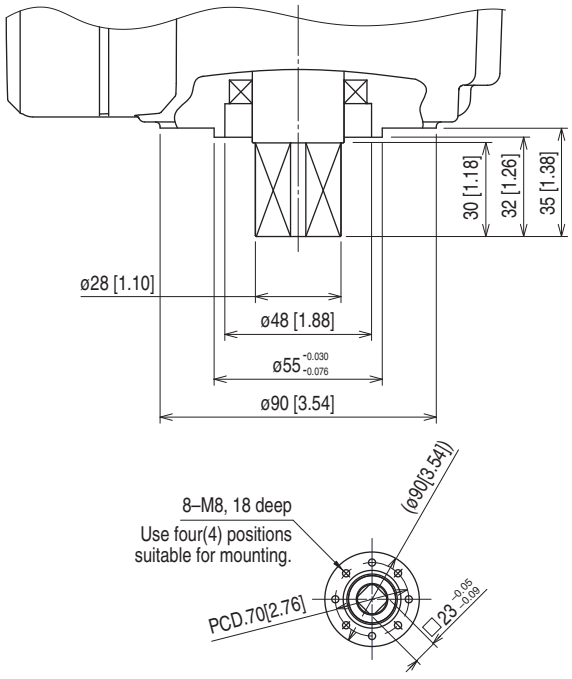


■ OUTPUT STEM DETAIL

• PRP-0



• PRP-1 [Compliant with ISO 5211 Table 1, 2 F07]



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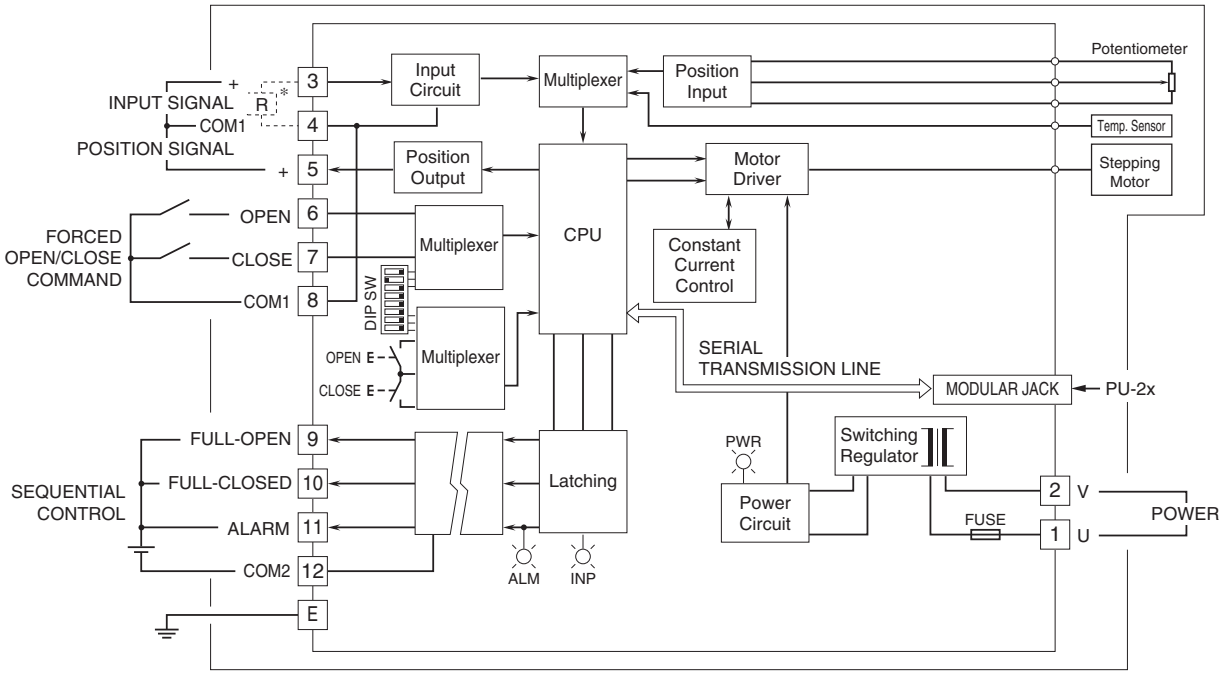
SCHEMATIC CIRCUITRY



*Input resistor attached for a current input.

⚠ Specifications are subject to change without notice.

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