info@biopac.com
support@biopac.com
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## BSL ROBOT GRIPPER AND SERVOS (BSL-GRIPKIT)

This Robot Gripper with 2 x Robot Servos is used for the EMG-Controlled Robotic Arm created with BSL *PRO* Lesson Set H40 (10 labs).

- The two Servo motors are used in tandem to perform "twist" and "grasp" movements to manipulate objects with the gripper.
- The potentiometer is used to optimize robotic control for each student's unique EMG output. The potentiometer is easily accessed since the circuit board is separate from the motor.
- The servos can control the gripper to open to 3.3 cm (1.3″) from closed and can rotate the gripper approximately 180 degrees. A Phillips screwdriver is required for assembly. It also includes two clamp cushions that adhere to the inner sides of the gripper.
- Both motors use Pulse Width Control.
- The output shaft is supported on the bottom and top with bronze bushings and the potentiometer is indirect drive.

BSL-GRIPKIT is included in BSLBME-ROBOT-HW, BSLBME-ROBOT-TA, and BSL-BME-ARM-TA.

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## Servo Specifications:

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|---|---|
| Control System: | +Pulse Width Control 1500 usec Neutral |
| Required Pulse: | 3-5 V Peak to Peak Square Wave |
| Operating Voltage: | 4.8-6.0 V |
| Operating Temperature Range: | -20 to +60 Degree C |
| Operating Speed (4.8 V): | 0.21 sec/60° at no load |
| Operating Speed (6.0 V): | 0.16 sec/60° at no load |
| Stall Torque (4.8 V): | 45.82 oz/in. (3.3 kg/cm) |
| Stall Torque (6.0 V): | 56.93 oz/in. (4.1 kg/cm) |
| Operating Angle: | 45° one side pulse traveling 400 usec |
| 360 Modifiable: | Yes |
| Direction: | Clockwise/Pulse Traveling 1500 to 1900 usec |
| Current Drain (4.8 V): | 8 mA/idle and 150 mA no load operating |
| Current Drain (6.0 V): | 8.8 mA/idle and 180 mA no load operating |
| Dead Band Width: | 8 usec |
| Motor Type: | 3 Pole Ferrite |
| Potentiometer Drive: | Indirect Drive |
| Bearing Type: | Dual Oilite Bushing |
| Gear Type: | Nylon |
| Connector Wire Length: | 11.81" (300 mm=11.81 in) |
| Dimensions: | See Schematics |
| Weight: | 1.6 oz (45.5 g) |

## Gripper Specifications:

| | |
|---|---|
| Max clamp width: | 3.3 cm (1.3") |
| Size: | 57 x 65 x 30 mm (2.24"x 2.56"x 1.18") |
| Weight: | 25 g |