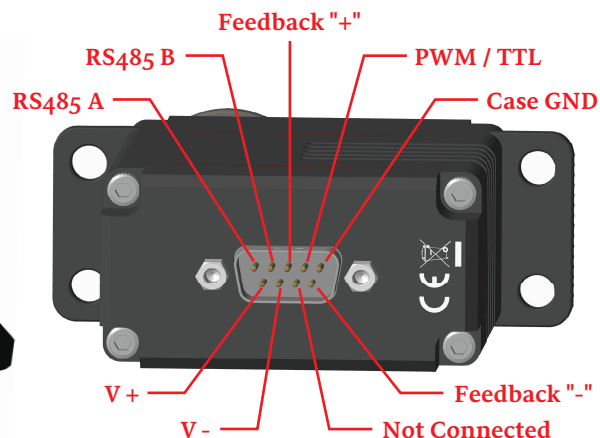


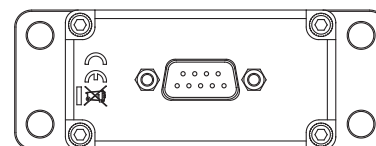
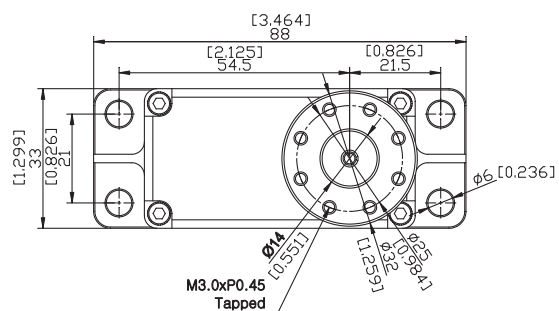
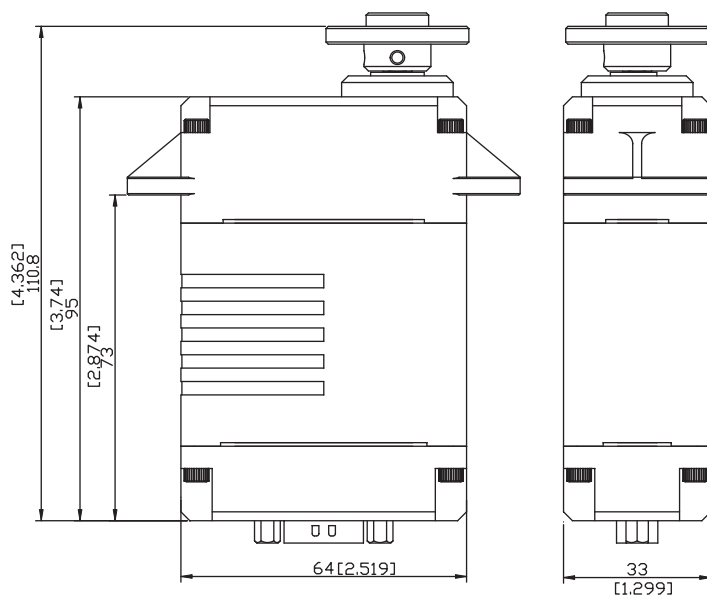
# SG33BLS/BLT - 33mm BLDC ACTUATORS

## Actuator Pin Map & Dimensions:

# SG33BL



| Pin # | Signal              |
|-------|---------------------|
| 1     | RS485 A             |
| 2     | RS485 B             |
| 3     | Analog Feedback "+" |
| 4     | RPW / TTL           |
| 5     | Case GND            |
| 6     | V +                 |
| 7     | V -                 |
| 8     | Not Connected       |
| 9     | Analog Feedback "-" |



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# SG33BLS/BLT - 33mm BLDC ACTUATORS

## SG33BL

### General Specifications:

|                         | SG33BL-S-12V                                                                 | SG33BL-T-12V               |
|-------------------------|------------------------------------------------------------------------------|----------------------------|
| Operating Voltage Range | 9.0 V ~ 15.0 V                                                               |                            |
| Test Voltage            | AT 12.0 V                                                                    |                            |
| No Load Speed           | 0.15 sec / 60° (400°/sec)                                                    | 0.185 sec / 60° (320°/sec) |
| Rated Torque            | 18.35 kgf·cm (1.8N·m)                                                        | 24.47 kgf·cm (2.4N·m)      |
| Peak Torque             | 110.12 kgf·cm (10.8N·m)                                                      | 146.84 kgf·cm (14.4N·m)    |
| Control Signal          | PWM // RS-485 // TTL (Half Duplex)                                           |                            |
| Operating Travel        | PWM : Standard : $\pm 60^\circ \pm 0.5$ / Optional : $\pm 160^\circ \pm 0.5$ |                            |
| Multi Turn              | Optional : Max $\pm 8$ Turn ( $\pm 2880^\circ$ )                             |                            |
| Motor Type              | Brushless                                                                    |                            |
| Position Type           | Contactless                                                                  |                            |

### Mechanical Features:

|                              |                                                               |
|------------------------------|---------------------------------------------------------------|
| Dimensions                   | 64.0 x 33.0 x 95.0mm ( $\pm 0.2$ mm) / (2.52 x 1.30 x 3.74in) |
| Weight                       | 400g ( $\pm 10\%$ )                                           |
| Housing                      | Rugged Aluminum Alloy                                         |
| Gear Reduction               | Durable Hardened Steel with Gear Protection System            |
| Ball Bearing                 | 2 Ball Bearing & 2 Needle Bearing                             |
| Gear Train Backlash          | $< 0.5^\circ$                                                 |
| Slip Clutch Release Momentum | $>$ Peak torque +20%                                          |

### Environmental Specifications:

|                        |                                                                                                                                |                                                                       |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Operation Temperature  | $-30^\circ\text{C}$ ( $-22^\circ\text{F}$ ) / $+70^\circ\text{C}$ ( $+158^\circ\text{F}$ )                                     | MIL-STD-810G Method 502.5                                             |
| Storage Temperature    | $-40^\circ\text{C}$ ( $-40^\circ\text{F}$ ) / $+80^\circ\text{C}$ ( $+176^\circ\text{F}$ )                                     |                                                                       |
| Humidity               | 95% @ $35^\circ\text{C}$ ~ $60^\circ\text{C}$ @300 hours                                                                       |                                                                       |
| Water & Dust Protected | IP68                                                                                                                           | IEC 60529                                                             |
| Variation              | Orthogonal Axes : $\pm X, \pm Y, \pm Z$<br>from 50 ~ 500Hz<br>Duration : Sweep 5mins<br>Acceleration 30G<br>Displacement : 5mm | MIL-STD-810G 514.6C-VII<br>EN 60068-2-6                               |
| Mechanical Shock       | Procedure 1 - Functional Shock<br>20g, 11ms, Sawtooth Waveform                                                                 | MIL-STD-810G 516.6                                                    |
| EMC                    | -                                                                                                                              | CISPR 16-1,2<br>IEC 61000-4-2,4,6                                     |
| MTBF                   | $> 500$ h                                                                                                                      | Test Condition<br>Load : 20% of Max Torque<br>0.5Hz sweep( $\pm 60$ ) |



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