Manufactured with hitecnology

SG33BL

Engineered and Manufactured in South Korea

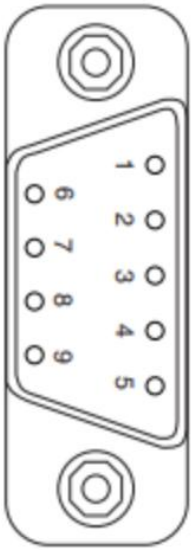
1 Performance Specification

Model	SG33BL-T-12V	SG33BL-T-24V
Control System	PWM / RS485 / TTL(Half Duplex)	
Position Type	Contactless Magnetic Encoder	
Motor Type	BLDC Motor	
Operating Voltage Range	9.0V ~ 15.0V	18.0V ~ 32.0V
aVoltage	At 12.0V	At 24.0V
No Load Speed	324 °/sec	
	0.185 sec/60°	
	54.05 RPM	
Rated Torque (At 20% Load)	2.88 N·m (29.4 kgf·cm)	
Peak Torque	14.41 N·m (147.0 kgf·cm)	
Idle Current (At Stopped)	30mA	20mA
Running Current (At No Load)	500mA	230mA
Peak Current	10,000mA	6,400mA
Operating Travel	Default : ±60º / Programmable : ±160º	
Multi-Turn	±8 Turn (±2880°)	
Continuous Mode	Enabled	
Temperature Sensing	Enabled (MCU, Motor)	
Voltage Sensing	Enabled	
Current Sensing	N/A	
Humidity Sensing	Enabled	
Servo Amplifier Type	32bit Programmable Digital	
Analog Position Feedback	Enabled	

2 Mechanical Features

Connector Type	D-sub 9
Dimensions	64.0 x 33.0 x 95.0 mm (±0.2mm) / (2.520 x 1.299 x 3.740 inch)
Weight	480.0g (16.93oz)
Housing	Rugged Aluminum Alloy With Hardcoat Anodizing (MIL-A-8625 Type III)
Gear Reduction	4 Hardened Steel Gears
Bearing	6 Ball Bearing & 2 Needle Bearing
Horn Gear Spline	Square 6.5 x 6.5
Gear Train Backlash	< 0.5°
Slip Clutch Release Momentum	N/A
Radial Load On Output Shaft	< 1729N (176.32kgf)
Push Load On Output Shaft	N/A

3 Connector

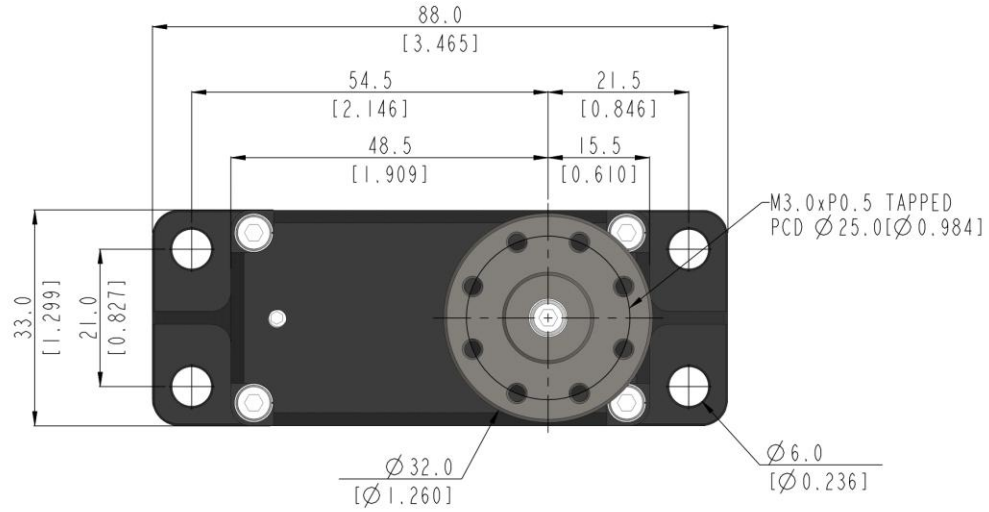
Connector Type	D-sub 9		
Manufacture	Shenzhen Signal Electronics Co.,Ltd		
Connector	D-sub 9 Male Connector		
Wire	N/A		
Mating	D-sub 9 Female Assembly Connector, etc.		
Pin Assignment		1.	RS485 A
		2.	RS485 B
		3.	Analog Feedback (+)
		4.	PWM/TTL
		5.	Case Gnd
		6.	Vcc
		7.	Gnd
		8.	Not connected
		9.	Analog Feedback (-)

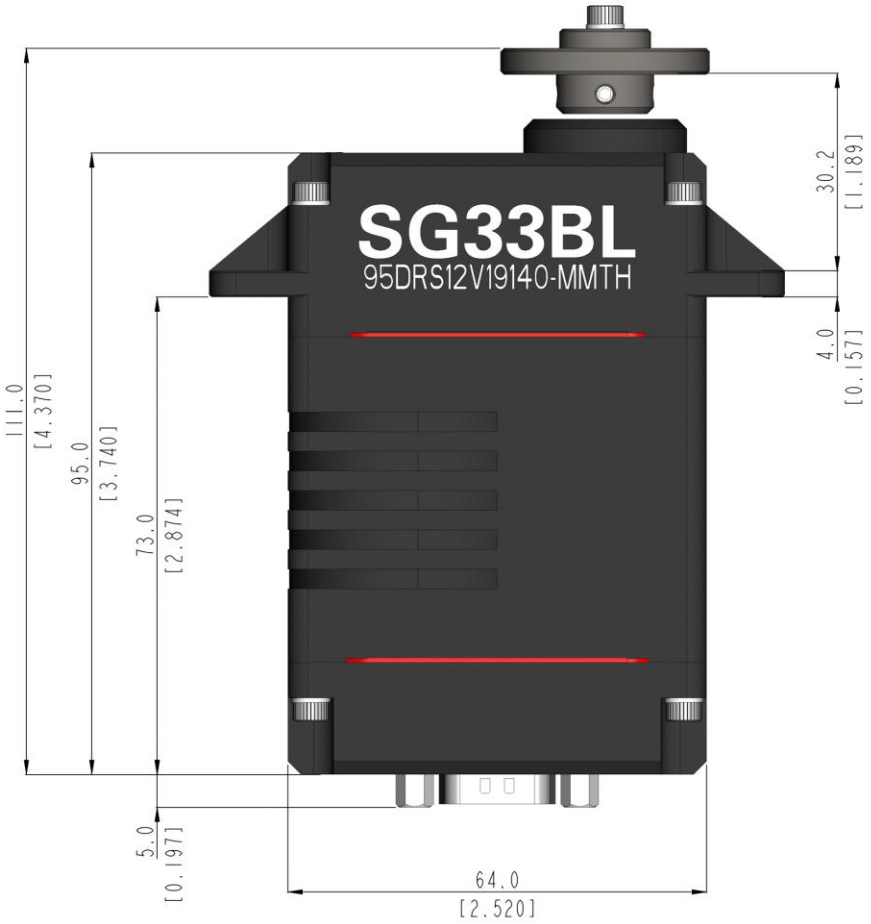
4 Environmental Specifications

Operation Temperature	-30˚C (-22˚F)	MIL-STD-810G Method 502.5
	+70˚C (+158˚F)	MIL-STD-810G Method 501.5
Storage Temperature	-40˚C (-40˚F)	MIL-STD-810G Method 502.5
	+80˚C (+176˚F)	MIL-STD-810G Method 501.5
Humidity	95% @35˚C ~ 60˚C @300hours	MIL-STD-810G Method 507.5
IP-Rating	IP68	IEC 60529
Vibration	Orthogonal axes : ±X , ±Y, ±Z from 50 ~ 500Hz Duration : sweep 5min Acceleration 30G Displacement : 5mm	MIL-STD-810G 514.6C-VII EN 60068-2-6
Mechanical Shock	Procedure 1 - Functional shock 20g, 11ms, Sawtooth Waveform	MIL-STD-810G 516.6
EMC	EN 61000-4-2 EN 61000-4-3 EN 55016-2-1 EN 55016-2-3	EN 61000-6-2:2005+Cor.:2005 EN 61000-6-3:2007+A1:2011
MTTF	>1,000h	Test Condition Load : 20% of Max Torque 0.5Hz sweep(±60)

5 Dimensions

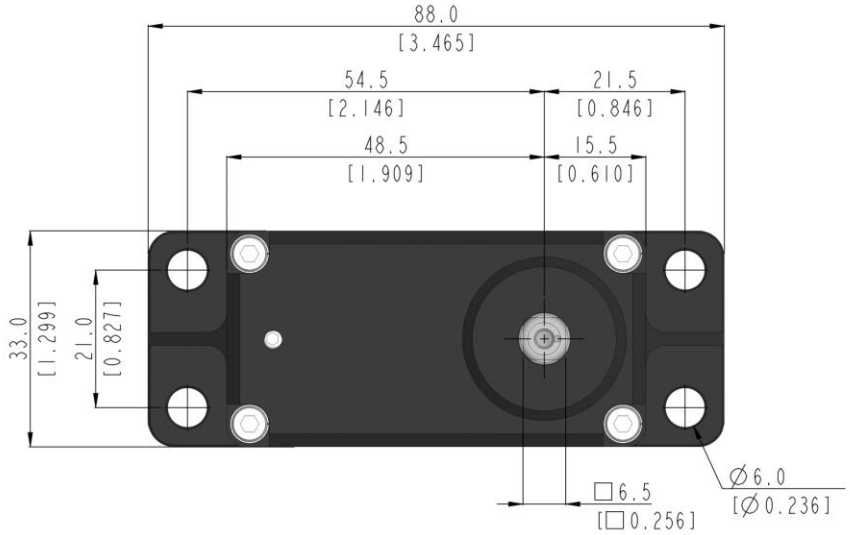
5-1 With Horn

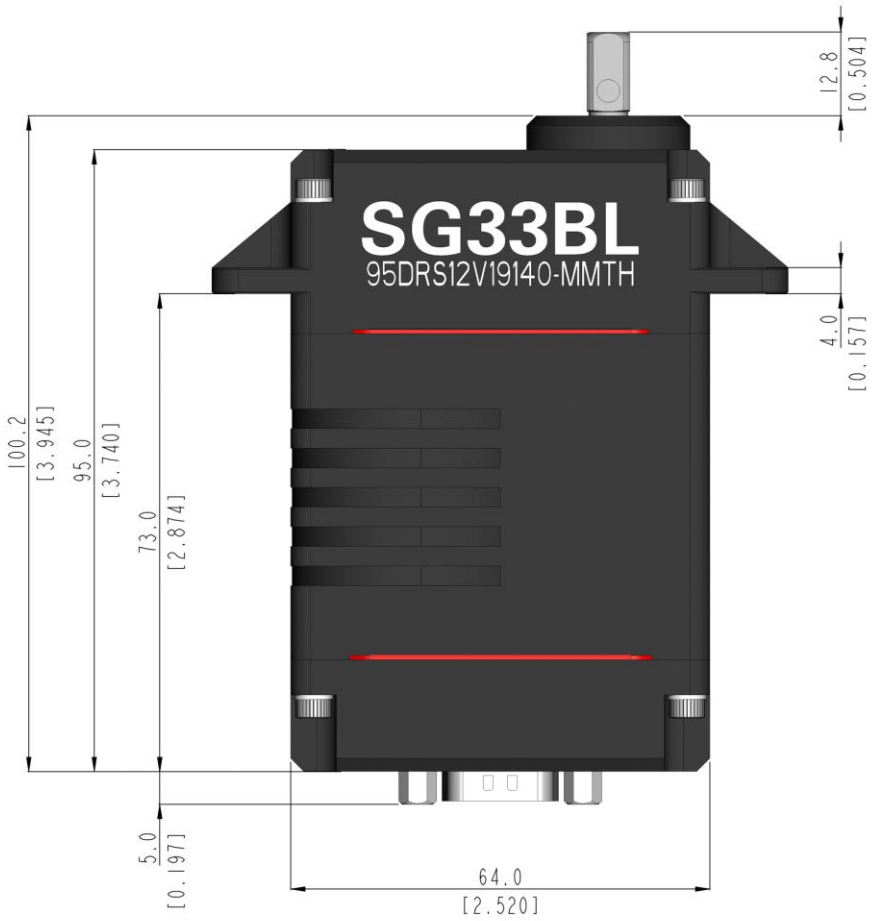




unit : mm [inch]

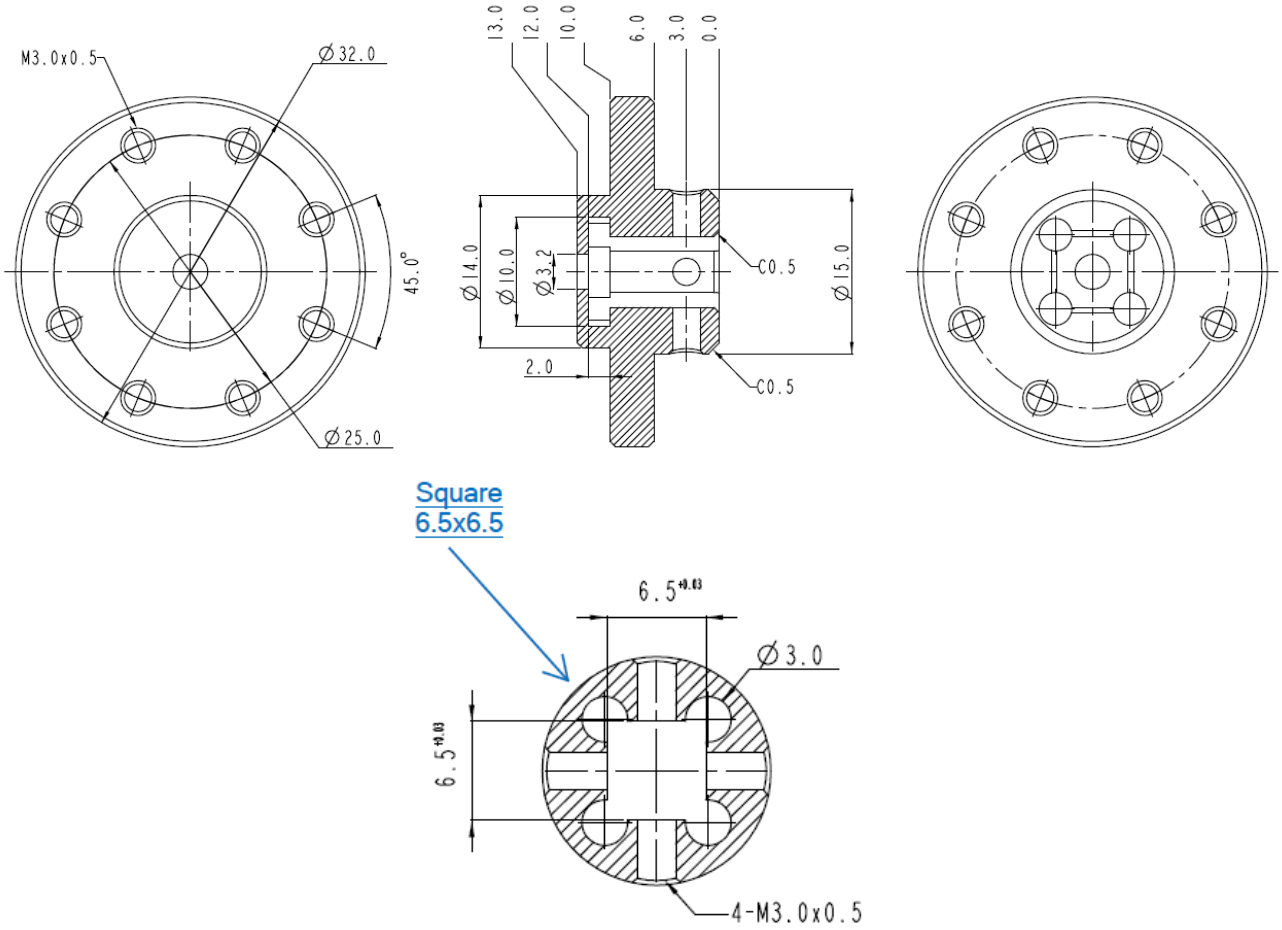
5-2 Without Horn





unit : mm [inch]

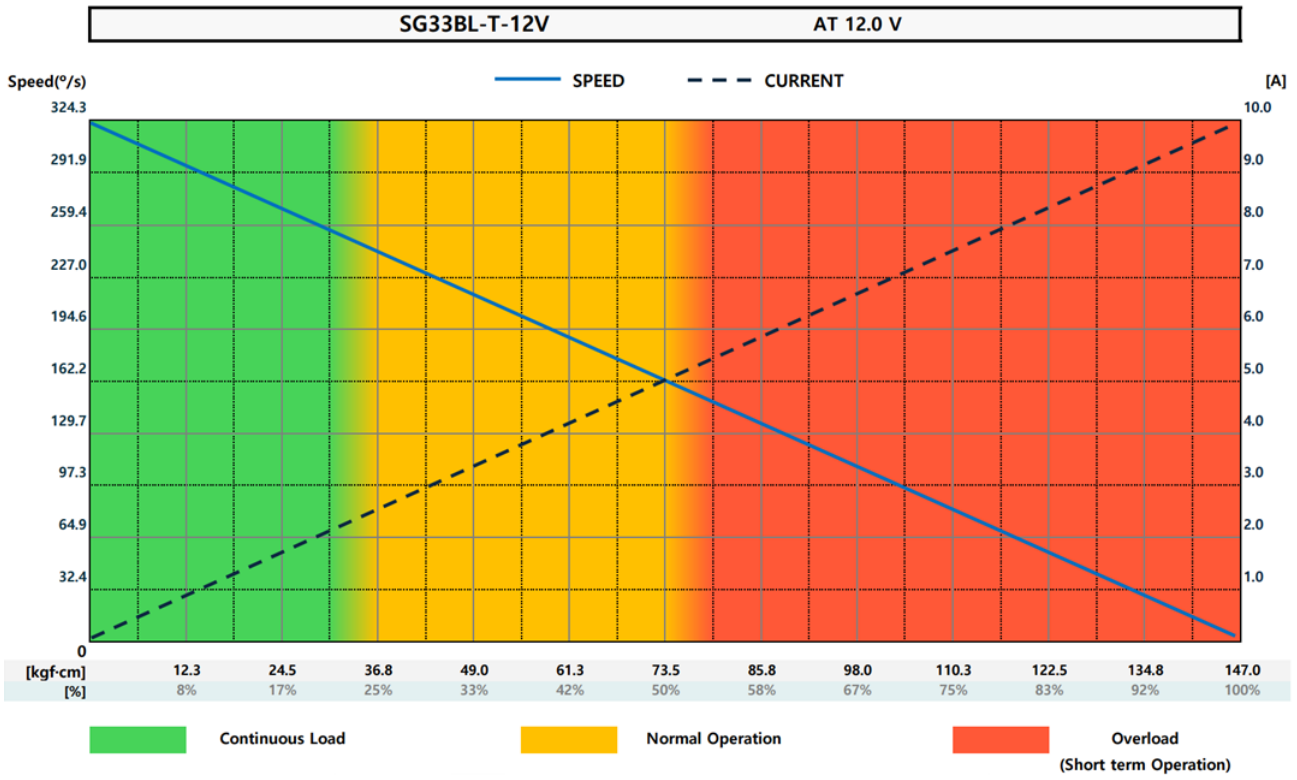
6 Dimensions – Accessory



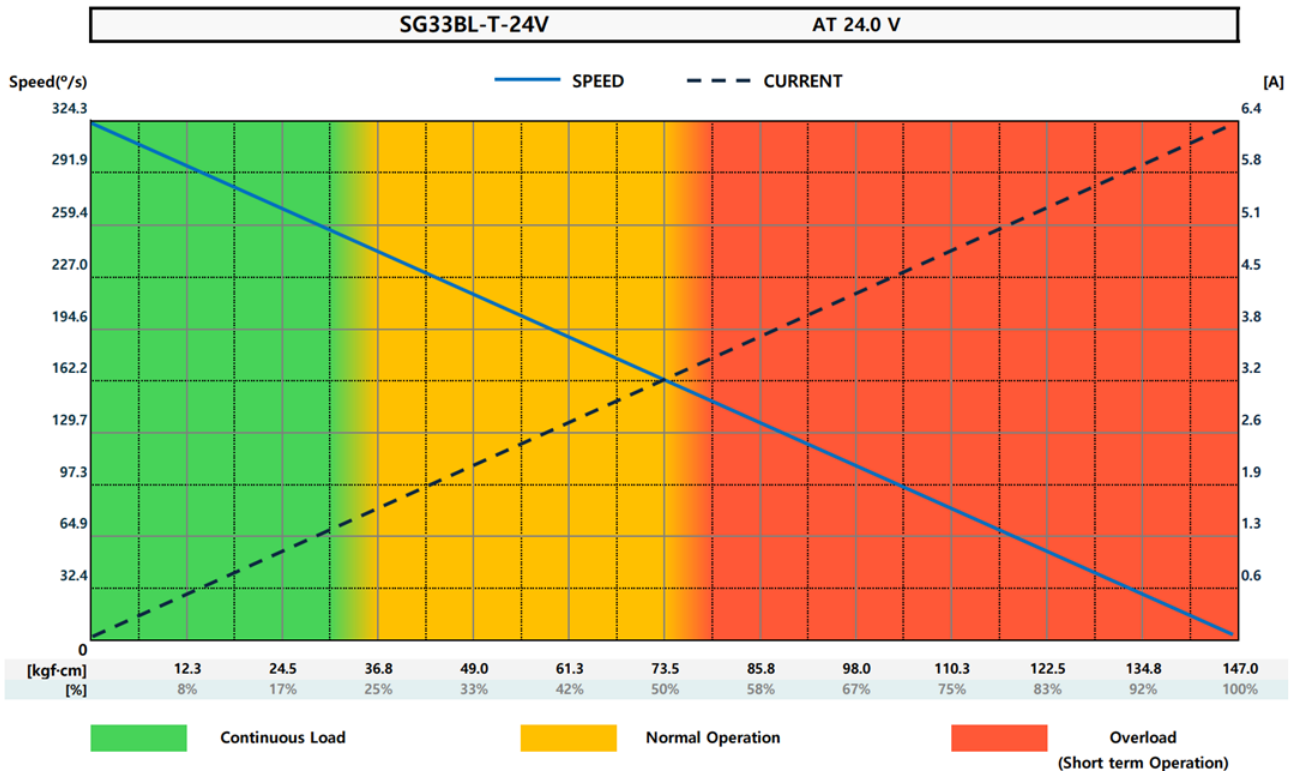
unit : mm

7 Performance Graph

Ver 2.0



Ver 2.0



8 Changes

Data	Version	Updates
2023-06	2.00	-
2023-11	2.01	Modify the 'Radial Load On Output Shaft' value. Add information about anodizing to Housing. Fix document formatting errors. Delete Speed Version information.
2024-01	2.02	Add text regarding References. Fix 'Radial Load On Output Shaft' error value. Fixe performance graph error.
2025-01	2.03	Modify the 'Operating Voltage Range' value. Changed the phrase 'Able' to 'Enabled' and fixed a typo. Fix performance graph error.
2025-03	2.04	Change the performance graph format.

REFERENCES

- ✓ For the protocol manuals of CAN, DroneCAN, RS485 and TTL, please contact Hitec RCD Korea. (industrial.sales@hitecrcd.net)
- ✓ If you would like to purchase additional industrial servos, please contact Hitec Network or local Hitec distributors in your place. (https://hitecrcd.com/contact-us/international-distributors)
- ✓ This product should not be used directly on the human body for medical purposes.
- ✓ This product should not be used for war weapons.
- ✓ All specifications are subject to change without notice.
- ✓ Be careful as strong magnetic fields may cause malfunction of the product.