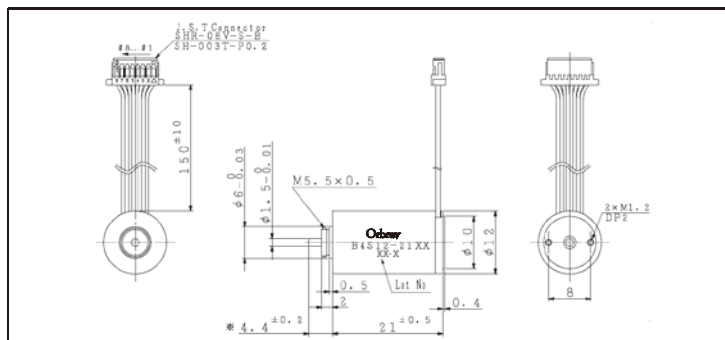


B4S12-21XX

With Hall sensors, Ball bearing

センサー内蔵、ボールベアリング

NEW R&D



For combination with gearhead: Please contact Namiki sales team

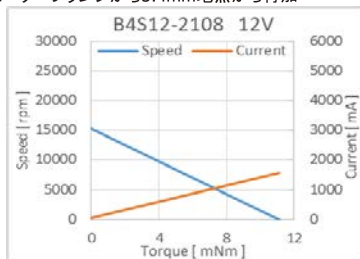
Gear (ギヤ): TBD	Encoder (エンコーダ): ETD12: need work(追加加工)	Driver (ドライバー): SHSD24-01A
Some additional work required for attaching gear/encoder. ギヤ、エンコーダ取付は追加加工が必要です。お問合せください。		

Specifications	特性データ	B4S12-2108	B4S12-2109	
1 Nominal voltage	定格電圧	12.0	15.0	V
2 No load speed	無負荷回転数	15320	19300	rpm
3 No load current	無負荷電流	55	56	mA
4 Stall torque	起動トルク	11.1	11.6	mNm
5 Stall current	起動電流	1.59	1.68	A
6 Output power	最大出力	4.5	5.9	W
7 Max efficiency	最大効率	66.3	66.8	%
8 Terminal resistance	端子間抵抗	7.54	8.94	Ω
9 Rated torque	定格トルク	1.6	1.6	mNm
10 Rated speed	定格回転数	13111	16646	rpm
11 Rated current	定格電流	277	279	mA
12 Friction torque	摩擦トルク	0.40	0.40	mNm
13 Back-EMF constant	逆起電圧定数	0.76	0.75	mV/rpm
14 Torque constant	トルク定数	7.22	7.17	mNm/A
15 Slope of N-T curve	回転数/トルク勾配	1381	1659	rpm/mNm
16 Mechanical time constant	機械的時定数	3.5	4.2	ms
17 Rotor inertia	ロータ慣性モーメント	0.23	0.23	gcm ²
18 Max torque	最大許容トルク	3.6	3.6	mNm

Mechanical data	機械的特性
19 Shaft radial play 出力軸遊び(径方向)	0.015 mm
20 Shaft axial play 出力軸遊び(軸方向)	0.2 mm
21 Max shaft radial load 出力軸最大荷重(径方向)	5(3.4mm*) N
22 Max shaft axial load 出力軸最大荷重(軸方向)	1 N
23 Max shaft axial load at standstill 出力軸最大静荷重(軸方向)	10 N
24 Operating temperature 運転温度範囲	-20 ~ 80 °C
25 Max coil temperature 最大コイル温度	90 °C
26 Weight 重量	18 g

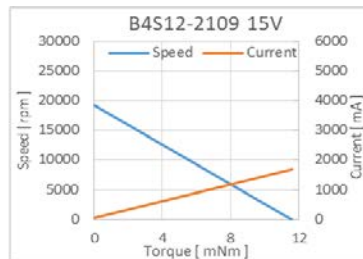
*3.4mm point from motor flange.

モーターフランジから3.4mm地点から付加



Electrical connections	リード線配列
#1 Lu	Motor winding U モーター巻線 U
#2 Lv	Motor winding V モーター巻線 V
#3 Lw	Motor winding W モーター巻線 W
#4 Vcc	Input voltage 3~5V 入力電圧 3 - 5V
#5 Gnd	GND グラウンド
#6 Hu	Hall sensor output (u) ホールセンサ(u)
#7 Hv	Hall sensor output (v) ホールセンサ(v)
#8 Hw	Hall sensor output (w) ホールセンサ(w)

Available only with hall sensor (センサー付のみとなります)

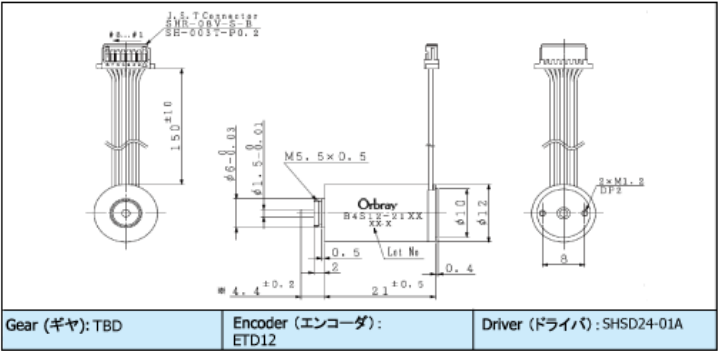
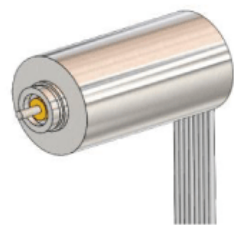


Specifications are subject to change without notice. 仕様はやむなく変更する場合があります。

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URL: <https://orbray.com/> E-mail: motor-salesjp@orbray.com

4 pole high torque brushless motor equipped with a built-in sensor and ball bearings.



Combination with Spur gear Combination with Planetary gear

B4S12-21XX Specifications

Brushless Motor B4S12-21XX02			Brushless Motor B4S12-21XX04		
1	Nomal voltage	7.4	12.0	V	
2	No load speed	22800	24300	rpm	
3	No load current	100	70	mA	
4	Stall torque	11.60	12.09	mNm	
5	Stall current	3940	2700	mA	
6	Output power	6.9	7.7	W	
7	Max efficiency	71	70	%	
8	Terminal resistance	1.88	4.44	Ω	
9	Rated torque	1.83	1.60	mNm	
10	Rated speed	19200	21100	rpm	
11	Rated current	706	418	mA	

Brushless Motor B4S12-21XX02			Brushless Motor B4S12-21XX04	
12	Friction torque	0.30	0.32	mNm
13	Back-EMF constant	0.316	0.481	mV/rpm
14	Torque constant	3.02	4.59	mNm/A
15	Slope of N-T curve	1965	2009	rpm/mNm
16	Mechanical time constant	2.71	2.77	ms
17	Rotor inertia	0.12	0.12	gcm ²
18	Max torque	5.80	6.05	mNm

Mechanical data

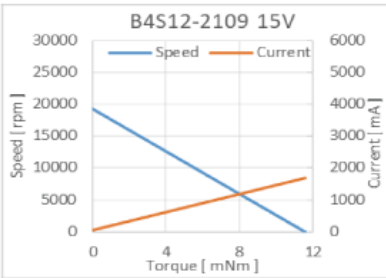
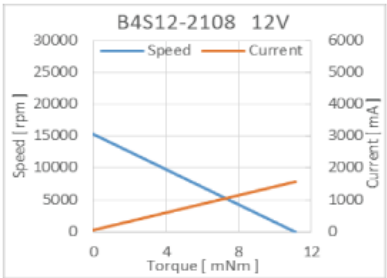
19	Shaft raddial play	0.015	mm
20	Shaft axial play	0.23	mm
21	Max shaft radial load	5 (3.4mm*)	N
22	Max shaft axial load	1	N
23	Max shaft axial load at standstill	10	N
24	Operating temperature	-20~80	°C
25	Max coil temperature	90	°C
26	Weight	18	g

*measured at () mm from flange

Environmental data

#1	Coil U	Motor winding U
#2	Coil V	Motor winding V
#3	Coil W	Motor winding W
#4	Hall Vcc	Input voltage 3~5V
#5	Hall GND	GND
#6	Hall u	Hall sensor output U
#7	Hall v	Hall sensor output V
#8	Hall w	Hall sensor output W

Sensored version available as option.



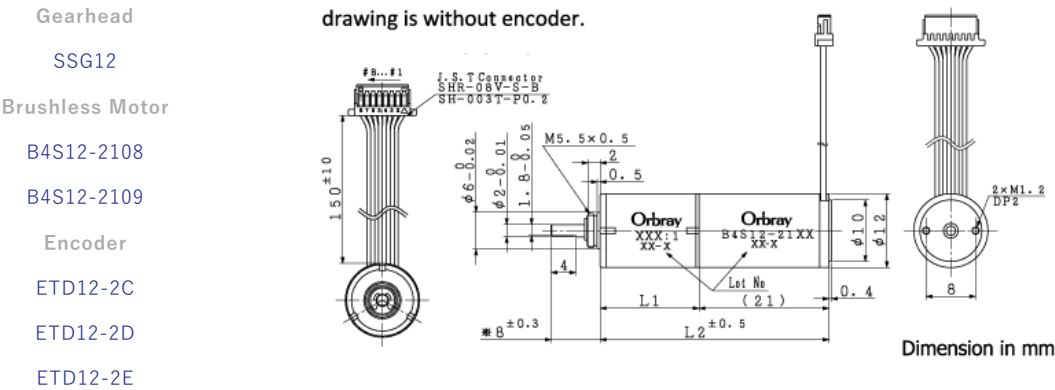
Geared Motor

B4S12-21XX with Spur gear

DC Brushless Motors B4S Series

[HOME](#) [Products](#) [Small Motor](#) [DC Coreless Motors](#) [Brushless Motor](#) [B4S12-21XX with Spur gear](#)

This is a combination of high efficiency / low noise spur gear head SSG12 and brushless motor B4S12-21XX.



SSG12 B4S12-21XX General specifications

Gear Ratio		16	25	47	74	94	175	282		
1	Reduction ratio(absolute value)	15.78:1	29.70:1	47.35:1	74.10:1	93.86:1	175.50:1	281.58:1		
2	Number of stage	3	1	4	4	4	5	5		
3	Efficiency	73	73	66	66	66	59	59	%	
4	Direction of rotation	≠	≠	=	=	=	≠	≠		
5	Length (Motor + Gear = L2)	35	35	37	37	37	39	39	mm	
	Length (Motor + Gear + Encoder)	TBD							mm	
	Length (Motor + Encoder)	TBD							mm	
6	Max allowable torque (Continuous)	12		15						mNm

7

Max allowable torque (Intermittent)

30

mNm

B4S12-2108S

Rated voltage: 12V

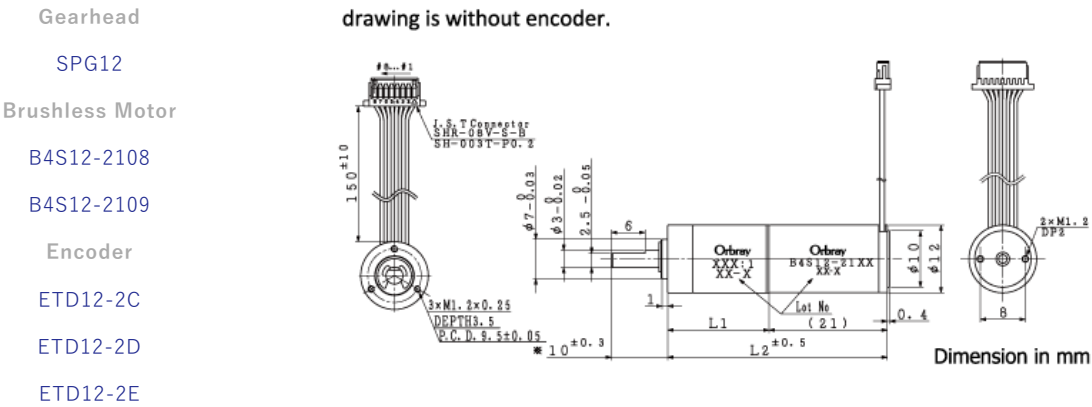
	Gear Ratio	16	25	47	74	94	175	282	
8	No load speed	969	620	323	207	163	87	54	rpm
9	No load current	58	56	57	57	56	56	56	mA
10	Stall torque	127	200	344	539	683	1149	1844	mNm
11	Stall current	1592	1592	1592	1592	1592	1592	1592	mA

B4S12-2109S

Rated voltage:15V

	Gear Ratio	3.5	4.8	12	23	58	107	509	
8	No load speed	1221	781	407	260	206	110	69	rpm
9	No load current	59	57	58	58	57	57	57	mA
10	Stall torque	134	209	361	565	716	1205	1934	mNm
11	Stall current	1678	1678	1678	1678	1678	1678	1678	mA

This is a combination of the planetary gear head SPG12, which has excellent durability under high loads / capable of transmitting high torque, and brushless motor B4S12-21XX.



SPG12 B4S12-21XX General specifications

Gear Ratio		3.5	4.8	12	23	58	107	509		
1	Reduction ratio(absolute value)	3.50:1	4.75:1	12.25:1	22.56:1	58.19:1	107.17:1	509.07:1		
2	Number of stage	1	1	2	2	3	3	4		
3	Efficiency	85	85	72	72	61	62	52	%	
4	Direction of rotation	=	=	=	=	=	=	=		
5	Length (Motor + Gear = L2)	35.2	35.2	39	39	42.8	42.8	46.7	mm	
	Length (Motor + Gear + Encoder)						TBD			
	Length (Motor + Encoder)						TBD			
6	Max allowable torque (Continuous)						100			
7	Max allowable torque (Intermittent)						200			

B4S12-2108P
Rated voltage:12V

Gear Ratio 3.5 4.8 12 23 58 107 509

8	No load speed	4333	3160	1238	673	261	141	30	rpm
9	No load current	70	70	70	69	70	71	71	mA
10	Stall torque	33	45	97	179	393	723	2917	mNm
11	Stall current	1592	1592	1592	1592	1592	1592	1592	mA

B4S12-2109P

Rated voltage:15V

Gear Ratio		3.5	4.8	12	23	58	107	509	
8	No load speed	5454	3977	1558	847	328	178	37	rpm
9	No load current	74	74	74	72	74	74	74	mA
10	Stall torque	34	47	102	188	411	757	3057	mNm
11	Stall current	1678	1678	1678	1678	1678	1678	1678	mA

B4S12-21XXB with Spur gear
B4S12-21XXB + スパーギヤ組合せ仕様

[illegible][illegible]

Gear Ratio ギヤ比※1	Rated 定格		No-Load 無負荷		Stall 起動	
	Torque トルク [mNm]	Speed 回転数 [rpm]	Speed 回転数 [rpm]	Current 電流 [mA]	Torque トルク [mNm]	Speed 回転数 [rpm]
16	12	1,111	1,221	59	134	1,592
25	12	736	781	57	209	1,592
47	15	390	407	58	361	1,592
74	15	253	260	58	565	1,592
94	15	201	206	57	716	1,592
176	15	109	110	57	1,205	1,592
222	15	86	87	57	1,527	1,592
282	15	68	69	57	1,934	1,592

※1 Underline : Non-standard gear 下線：非標準ギヤ

$$\text{B4S12-2108B} + \text{SSG12-16(15.78:1)} \rightarrow \text{B4S12-2108BS16}$$

Orbray

