



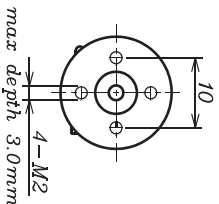
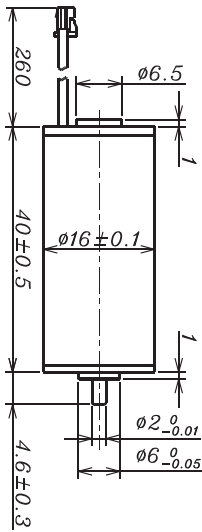
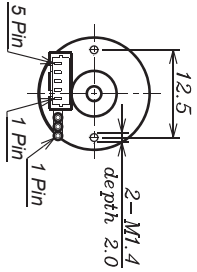
# DC Brushless Motor AM-BL1640A/B Series

**ASSUN MOTOR**

2015 edition. Specifications are subject to change without notice.

## BRUSHLESS MOTOR

## BALL BEARING



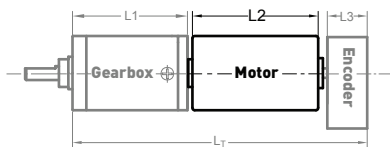
MOTOR MODEL		1231	1219	1216	1834	1819	1815	2417	2412	
<b>NOMINAL VOLTAGE</b>	<b>V</b>	12	12	12	18	18	18	24	24	
<b>NO LOAD SPEED ±12%</b>	<b>rpm</b>	30890	19320	15750	34300	18900	15210	17380	11690	
<b>NO LOAD CURRENT Max 150%</b>	<b>mA</b>	150	90	70	120	65	55	45	38	
Recommend Limit for Continuous Operating	<b>MAX CONT. TORQUE</b>	<b>mN.m</b>	6.1	7.1	6.7	4.9	6.6	7.0	6.9	
	<b>RATED SPEED</b>	<b>rpm</b>	27977	15845	12465	31908	15903	12085	14353	8273
	<b>RATED CURRENT</b>	<b>mA</b>	1800	1300	1000	1100	800	650	580	400
	<b>RATED POWER</b>	<b>W</b>	17.8	11.8	8.7	16.3	11.0	8.4	10.5	6.0
	<b>STARTING CURRENT</b>	<b>mA</b>	17647	6818	4528	14173	4700	2951	3117	1277
<b>STALL TORQUE</b>	<b>mN.m</b>	64	39	32	70	42	32	40	24	
<b>MAXIMUM POWER OUTPUT</b>	<b>W</b>	52.0	19.9	13.2	62.7	20.6	12.8	18.2	7.2	
<b>MAXIMUM EFFICIENCY</b>	<b>%</b>	82	78	77	82	78	75	77	68	
<b>TERMINAL RESISTANCE PHASE TO PHASE ±12%</b>	<b>Ω</b>	0.68	1.76	2.65	1.27	3.83	6.1	7.7	18.8	
<b>INDUCTANCE (1kHz)</b>	<b>mH</b>	0.036	0.11	0.17	0.075	0.27	0.42	0.58	1.28	
<b>MECHANICAL TIME CONSTANT</b>	<b>ms</b>	2.1	2.1	2.1	2.1	2.0	2.0	1.9	2.1	
<b>MOMENT OF INERTIA</b>	<b>gcm<sup>2</sup></b>	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	
<b>TORQUE CONSTANT</b>	<b>mN.m/A</b>	3.7	5.9	7.2	5.0	9.0	11.1	13.0	19.0	
<b>SPEED CONSTANT</b>	<b>rpm/V</b>	2596	1632	1333	1922	1065	861	735	505	
<b>SPEED/TORQUE GRADIENT</b>	<b>rpm/mN.m</b>	480.0	490.6	493.2	491.2	454.7	473.6	435.3	496.2	
<b>WEIGHT</b>	<b>g</b>	42.2	42.1	41.8	42.1	42.2	41.8	41.9	41.8	

## ADDITIONAL INFORMATION

MAXIMUM ROLLING BEARING LOADS

<b>AXIAL (DYNAMIX)</b>	1.5 N	<b>RADIAL ( 5MM FROM HEAD FACE)</b>	6.0 N
<b>PRESS-FIT FORCE (STATIC)</b>	40 N	<b>L: MAX ALLOWABLE SCREW DEPTH INTO FLANGE</b>	3.0 mm
<b>MAXIMUM RADIAL PLAY</b>	≤0.02mm	<b>AXIAL PLAY</b>	0 (<2.0N)
<b>MAXIMUM WINDING TEMPERATURE</b>	85°C	<b>AMBIENT TEMPERATURE RANGE</b>	-30 to 65°C

### AM-BL1640A/B COMBINATION SCHEME



Recommend Gearbox:  
Planetary Gearbox:  
AM-16P

Recommend Encoder:  
Encoder S: AM-EN16-S\*\*\*  
2-3 Channels  
Encoder T: AM-EN16-T\*\*\*  
2-3 Channels

For more gearbox specs, see Assun Motor website.

### CONNECTION (AWG26#)

**CABLE 1: WINDING A**

**CABLE 1: WINDING B**

**CABLE 1: WINDING C**

**PLUG DEFINATION**

MOLEX: 51021 - 0500

**PLUG 1 HALL V<sub>CC</sub>**

**PLUG 2 HALL GND**

**PLUG 3 HALL A**

**PLUG 4 HALL B**

**PLUG 5 HALL C**

### TOTAL LENGTH (GEARBOX AND MOTOR): L<sub>T</sub> = L<sub>1</sub> + L<sub>2</sub> + L<sub>3</sub>

**L1:16P**      **L2:BL16**      **L3:EN16-S**      **L3:EN16-T**

17.9      40.0      10.7      10.0

21.8                12.0

25.2

28.6

32.0

## REMARKS

Clients can choose gearbox and encoder to match with this motor. Some combinations are listed here for reference.

Motor Data Tested at 25°.

Motor Operation exceeds continuous limits of operating range will compromise the life of the device.

**ASSUN MOTOR**

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