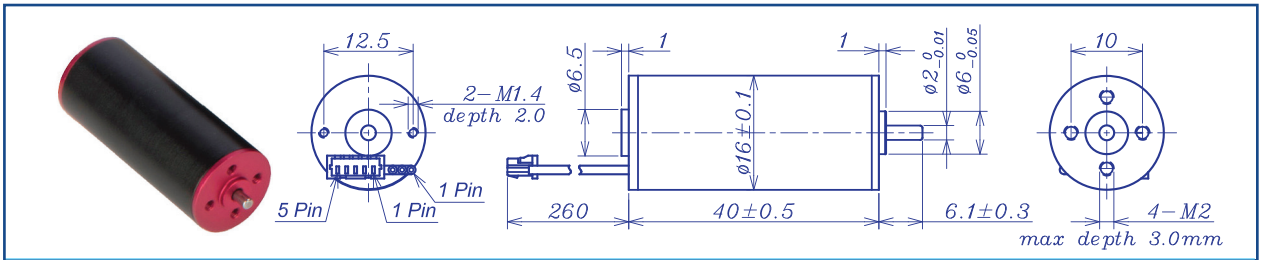
DC BRUSHLESS MOTOR

HIGH TEMPERATURE SERIES

ASSUN
DRIVING THE FUTURE

AM-BL1640AE Series



Motor Model			Brushless Motor 1231	1219	1216	Ball Bearings 1834	1819	1815	2417	2412
Nominal voltage		V	12	12	12	18	18	18	24	24
No load speed ±12%		rpm	30890	19320	15750	34300	18900	15210	17380	11690
No load current Max 150%		mA	150	90	70	120	65	55	45	38
Recommend limit for continuous operating	Max cont. torque	mN.m	7.9	8.8	8.8	7.4	8.8	8.8	9.2	9.2
	Rated Speed	rpm	27094	14984	11405	30688	14883	11034	13391	7141
	Rated Current	mA	2300	1600	1300	1600	1050	850	750	520
	Rated Power	W	22.4	13.9	10.5	23.6	13.8	10.2	12.8	6.9
Starting current		mA	17647	6818	4528	14173	4700	2951	3117	1277
Stall torque		mN.m	64	39	32	70	42	32	40	24
Maximum power output		W	52.0	19.9	13.2	62.7	20.6	12.8	18.2	7.2
Maximum Efficiency		%	82	78	77	82	78	75	77	68
Terminal resistance ±12%		Ω	0.68	1.76	2.65	1.27	3.83	6.1	7.7	18.8
Inductance (1KHz)		mH	0.036	0.11	0.17	0.075	0.27	0.42	0.58	1.25
Mechanical time constant		ms	2.1	2.1	2.1	2.1	2.0	2.0	1.9	2.1
Moment of inertia		gcm^2	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Torque constant		mN.m/A	3.7	5.9	7.2	5.0	9.0	11.1	13.0	19.0
Speed constant		rpm/V	2596	1632	1333	1922	1065	861	735	505
Speed/torque gradient		rpm/mN.m	480.0	490.6	493.2	491.2	454.7	473.6	435.5	496.2
Weight		g	42.2	42.1	41.8	42.1	42.2	41.8	41.9	41.8

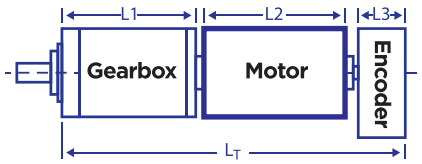
ADDITIONAL INFORMATION

Motor thermal resistance:	17.9 K/W	Motor thermal time constant:	439 S
Axial (dynamic):	1.5 N	Radial (5mm from mounting face):	6.0 N
Press-fit force (static):	40 N	Max allowable screw depth into flange:	3.0 mm
Maximum radial play (5mm from mounting face):	≤0.02 mm	Axial play:	0 (<2.0N)
Maximum winding temperature:	125ºC	Ambient temperature range:	-30 to 65ºC
Standard rear shaft diameter:	2 mm	Standard rear shaft length "L":	0/3.7/5.5 mm

Connection (AWG 26#)		Total Length: L_T=L1+L2+L3				
Cable 1: Yellow	Winding A	L1:16GP	L1:20GP	L2:BL16	L3:EN16S	L3:EN16T
Cable 2: Red	Winding B	15.9	18.8	40.0	10.7	12.0
Cable 3: Blue	Winding C	23.3	23.6			
Plug definition (AWG 28#) Molex: 51021-0500		27.0	28.4			
Plug 1: Red	Hall 3~16V					
Plug 2: Black	Hall GND					
Plug 3: Yellow	Hall A					
Plug 4: Red	Hall B					
Plug 5: Blue	Hall C					

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

AM-BL1640AE Combiniation Scheme



Recommended Gearbox:
Planetary Gearbox:
AM-16GP
AM-20GP

Recommended Encoder:
Encoder S: AM-EN1611S***
2~3 Channels
Encoder T: AM-EN1612T***
2~3 Channels

For more combination specs, visit Assun Motor website.

Motor data tested at 25ºC. Motor operation exceeding continuous limits will reduce life or result in damage.
At elevated ambient temperatures, load current must be reduced.

Download datasheet: https://assunmotor.com/documents-download

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