vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

Perfect customized Slotless BLDC motors, gearheads, encoders, controllers

Silent, Reliable, Efficient, Powerful

www.vishanmotor.com

Creative ideas for drive

2018/19

Content

Company profile	Page 1
Product line	Page 2 - 3
Production & quality	Page 4 - 5
Typical application	Page 6
EC series	Page 8 - 29
EC-4Pole series	Page 32 - 35
ECD series	Page 38 - 48
ECH series	Page 50 - 55
ECG series	Page 57 - 64
Vishan motor control	Page 68 - 70
Vishan encoder	Page 72

Shenzhen Vishan technology co.,ltd is a National highly professional technology enterprise specializing in research and development of industrial precision motor&control systems. We have our own reserach and development team together with strong production capability. We have many years of experience and capability in research and development through to product manufacture. we have through ISO9001-2015 quality management system certification.

After years of development, we have a wide range of products which include

- EC Series: Slotless Brushless DC Motor;
- EC-4pole Series, Vishan new 4-pole technology;
- ECD Series: Controller Built-in the Slotless Brushless DC Motor;
- ECH Series: High Speed Slotless Brushless DC Motor;
- ECG Series: Slotless Brushless Planetary Gearmotor;
- EN Series: Slotless Brushless Servo Motor;
- Slotless Brushless DC Motor Controller.

With the core production of slotless brushless motors and control techniques, taking unique advantages of more energy-saving,more environmentally-friendly, high efficiency and longer service life,we do not only provide a one-stop solution for industrial sectors who demand professional and high precision motors and control services, but also help expand its utilization for other fields such as: electric tools, pumps, robot, medical instruments, automatic production lines and testing facilities etc.

Technology oriented and Unlimited Innovation is the theory that we insist on for running our business and we are dedicated to providing more effective, more reasonable solutions and products for customers. To work with partners on the basis of mutually beneficial and development is the operation concept we are now and will always adhere to.

We have more...

Slotless BLDC motor

EC SERIES

Slotless
Controlle

ECD S

Slotless BLDC gear motor

ECG SERIES

Slotless BLDC high speed motor

ECH SERIES

BLDC
motor co

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

BLDC motors, Gearheads, Encoders, Motors with controller Integrated, External controllers are all under service

BLDC motor
er built-in
SERIES

Slotless BLDC motor
EC-4 pole Series

Encoder

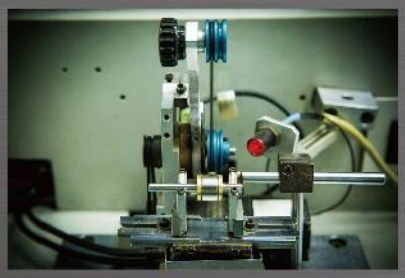
ntroller

Quality is always the first priority

Obvious, Rigorous quality control, efficient production and strict testing are favourable for producing better products

vishan 唯川

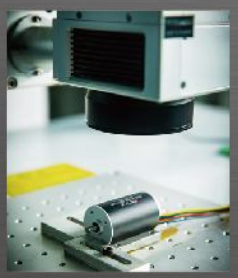
BLDC MOTOR & SERVO BLDC MOTOR



Special design equipment and well-trained workers can ensure the consistency of products and production efficiency

Equipped with precision testing machines such as the toqure measurement instrument and noise analysis system, they can supply the accurate conclusions to help engineers optimize the performance of our products

Starting from the material inspection , production process to the final products testing, the rigorous quality department will not let the undesirable products outflow from our company



Power Tools

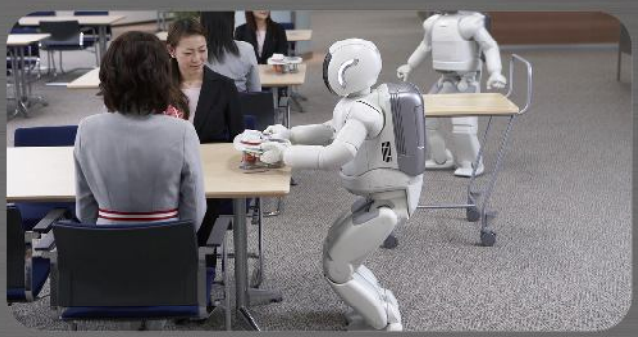
- Electric screw drivers
- Electric polishers
- Electric scissors
- Meat slicer machine

Medical Equipment

- Dental device
- Breathing machine
- Electric bone drill

Robot

- Pipeline robot
- Service robot
- Pet robot
- Transfer robot



Industrial control

- Dispensing valve
- Mini pump
- Instrument & meter

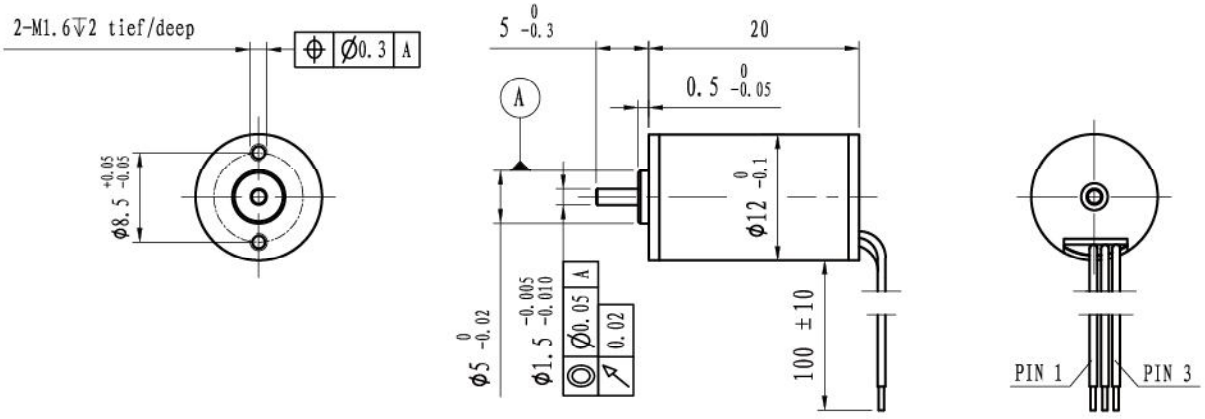
vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

Slotless BLDC motor

EC SERIES

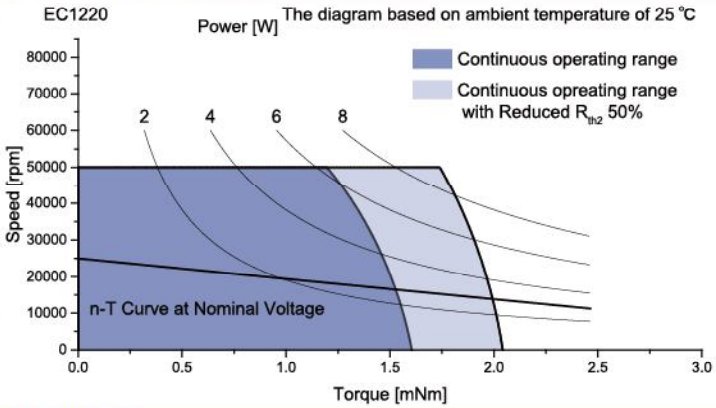
Φ12mm to Φ40mm
High power density
High efficiency
Long Life time
Low noise



M 1.5:1

Sensorless EC1220L-...		0625	0936
Motor data			
Values at nominal voltage			
1 Nominal voltage	V	6	9
2 No load speed	rpm	25000	36890
3 No load current	mA	69	83
4 Nominal speed	rpm	16536	29888
5 Nominal torque	mNm	1.5	1.3
6 Nominal current	A	0.75	0.66
7 Stall torque	mNm	4.43	6.85
8 Stall current	A	2.07	3.1
9 Max. efficiency	%	66.8	70
10 Terminal resistance	Ω	2.9	2.9
11 Terminal inductance	mH	0.19	0.19
12 Torque constant	mNm/A	2.22	2.27
13 Speed constant	rpm/V	4310	4212
14 Speed/torque gradient	rpm/mNm	5642	5386
15 Mechanical time constant	ms	10.0	9.6
16 Rotor inertia	gcm^2	0.17	0.17
17 Thermal resistance housing-ambient	38.3 K/W		
18 Thermal resistance winding-housing	9.6 K/W		
19 Thermal time constant winding	5 s		
20 Thermal time constant motor	196 s		
21 Ambient temprature	-30...+100℃		
22 Max. permissible winding temperature	+125℃		
23 Max. permissible speed	50000 rpm		
24 Axial play at axial load <0.8 N	0 mm		
>0.8 N	max. 0.3 mm		
25 Radial play	preloaded		
26 Max. axial load (dynamic)	0.3		
27 Max.force for press fits (static)	11N		
(static, shaft supported)	200 N		
28 Max. radial loading, 5mm from flange	4.3 N		
29 Number of pole pairs	1		
30 Number of phases	3		
31 Weight of motor	9.8 g		

Operating Range



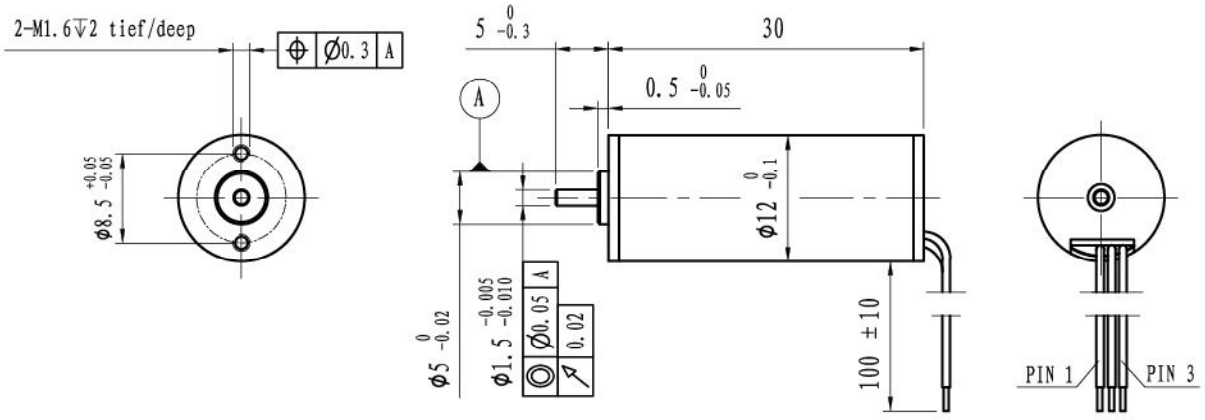
Connection

Conection PVC

Pin 1	Motor winding MA	AWG28	yellow
Pin 2	Motor winding MB	AWG28	green
Pin 3	Motor winding MC	AWG28	blue

Configuration

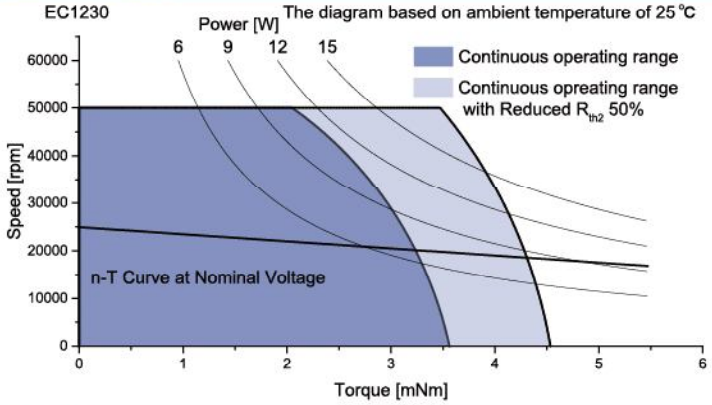
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1.5:1

Sensorless EC1230L-...		0625	0925	1225
Motor data				
Values at nominal voltage				
1 Nominal voltage	V	6	9	12
2 No load speed	rpm	25310	25100	24930
3 No load current	mA	122	90	72
4 Nominal speed	rpm	20719	20565	20449
5 Nominal torque	mNm	3	3	3
6 Nominal current	A	1.47	0.98	0.74
7 Stall torque	mNm	16.5	16.6	16.7
8 Stall current	A	7.55	5.03	3.77
9 Max. efficiency	%	76.2	75	74.3
10 Terminal resistance	Ω	0.8	1.79	3.18
11 Terminal inductance	mH	0.02	0.04	0.08
12 Torque constant	mNm/A	2.23	3.36	4.51
13 Speed constant	rpm/V	4288	2840	2118
14 Speed/torque gradient	rpm/mNm	1530	1512	1494
15 Mechanical time constant	ms	5.1	5.1	5.0
16 Rotor inertia	gcm^2	0.32	0.32	0.32
17 Thermal resistance housing-ambient	28.4 K/W			
18 Thermal resistance winding-housing	7.1 K/W			
19 Thermal time constant winding	4 s			
20 Thermal time constant motor	240 s			
21 Ambient temprature	-30...+100℃			
22 Max. permissible winding temperature	+125℃			
23 Max. permissible speed	50000 rpm			
24 Axial play at axial load <0.8 N	0 mm			
>0.8 N	max. 0.3 mm			
25 Radial play	preloaded			
26 Max. axial load (dynamic)	0.3			
27 Max.force for press fits (static)	11N			
(static, shaft supported)	200 N			
28 Max. radial loading, 5mm from flange	4.3 N			
29 Number of pole pairs	1			
30 Number of phases	3			
31 Weight of motor	16.3 g			

Operating Range



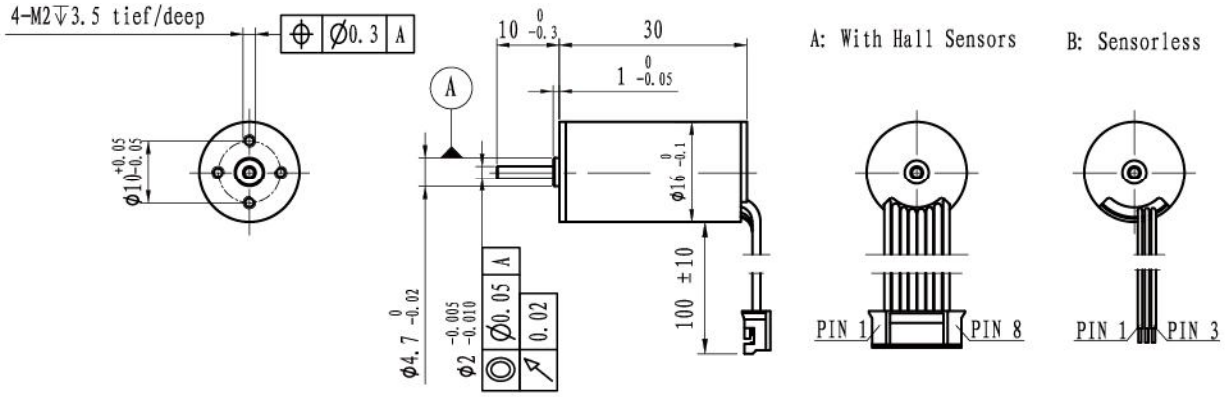
Connection

Conection PVC

Pin 1	Motor winding MA	AWG28	yellow
Pin 2	Motor winding MB	AWG28	green
Pin 3	Motor winding MC	AWG28	blue

Configuration

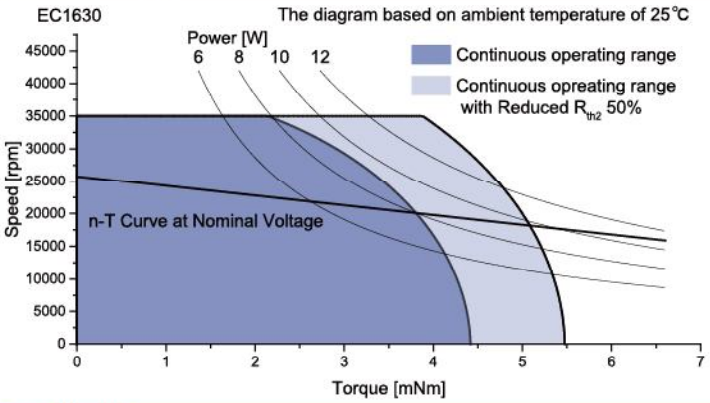
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.2

	Sensorless / With hall sensor		EC1630L-... / EC1630S-...	1223	1223	2423					
Motor data											
Values at nominal voltage											
1	Nominal voltage	V		12	18	24					
2	No load speed	rpm		23220	23511	23760					
3	No load current	mA		210	150	100					
4	Nominal speed	rpm		19138	19506	19203					
5	Nominal torque	mNm		3.5	3.5	3.5					
6	Nominal current	A		0.95	0.65	0.48					
7	Stall torque	mNm		19.9	20.5	18.2					
8	Stall current	A		4.44	3.1	2.09					
9	Max. efficiency	%		61.3	60.9	61					
10	Terminal resistance	Ω		2.7	5.8	11.5					
11	Terminal inductance	mH		0.08	0.17	0.33					
12	Torque constant	mNm/A		4.7	6.96	9.18					
13	Speed constant	rpm/V		2031	1373	1040					
14	Speed/torque gradient	rpm/mNm		1166	1144	1302					
15	Mechanical time constant	ms		5.8	5.7	6.5					
16	Rotor inertia	gcm^2		0.48	0.48	0.48					
17	Thermal resistance housing-ambient	20.0 K/W									
18	Thermal resistance winding-housing	8.8 K/W									
19	Thermal time constant winding	8 s									
20	Thermal time constant motor	236 s									
21	Ambient temprature	-30...+100°C									
22	Max. permissible winding temperature	+150°C									
23	Max. permissible speed	35000 rpm									
24	Axial play at axial load <1.8 N	0 mm									
	>1.8 N	max. 0.3 mm									
25	Radial play	preloaded									
26	Max. axial load (dynamic)	1.3 N									
27	Max.force for press fits (static)	15 N									
	(static, shaft supported)	350 N									
28	Max. radial loading, 5mm from flange	5 N									
29	Number of pole pairs	1									
30	Number of phases	3									
31	Weight of motor	25 g									

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

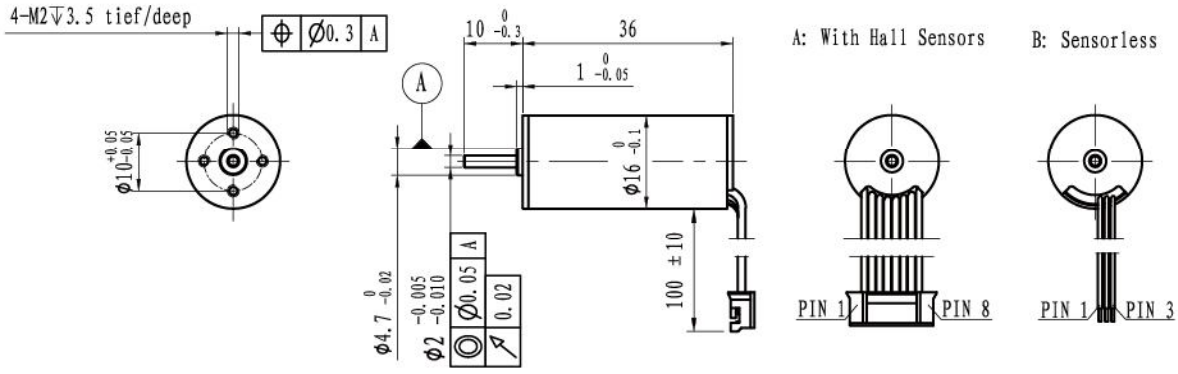
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

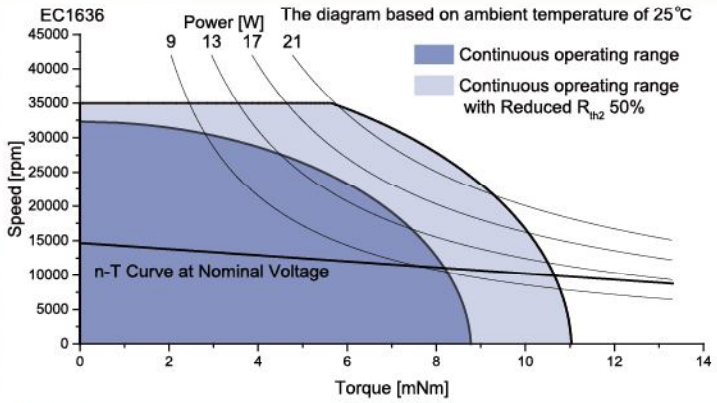
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.2

Sensorless / With hall sensor		EC1636L-... / EC1636S-...	0614	0914	1214	2414
Motor data						
Values at nominal voltage						
1 Nominal voltage	V		6	9	12	24
2 No load speed	rpm		13835	14533	14460	14668
3 No load current	mA		150	110	70	50
4 Nominal speed	rpm		11412	11930	11615	12005
5 Nominal torque	mNm		6	6	6	6
6 Nominal current	A		1.62	1.14	0.84	0.44
7 Stall torque	mNm		34.3	33.5	30.5	33
8 Stall current	A		8.57	5.88	3.99	2.21
9 Max. efficiency	%		75.3	74.5	75.3	72.2
10 Terminal resistance	Ω		0.7	1.53	3.01	10.8
11 Terminal inductance	mH		0.04	0.08	0.15	0.81
12 Torque constant	mNm/A		4.07	5.8	7.79	15.3
13 Speed constant	rpm/V		2347	1646	1227	625
14 Speed/torque gradient	rpm/mNm		404	434	474	444
15 Mechanical time constant	ms		2.6	2.8	3.1	2.9
16 Rotor inertia	gcm^2		0.62	0.62	0.62	0.62
17 Thermal resistance housing-ambient	17.1 K/W					
18 Thermal resistance winding-housing	5.3 K/W					
19 Thermal time constant winding	6 s					
20 Thermal time constant motor	252 s					
21 Ambient temprature	-30...+100°C					
22 Max. permissible winding temperature	+150°C					
23 Max. permissible speed	35000 rpm					
24 Axial play at axial load <1.8 N	0 mm					
>1.8 N	max. 0.3 mm					
25 Radial play	preloaded					
26 Max. axial load (dynamic)	1.3 N					
27 Max.force for press fits (static)	15 N					
(static, shaft supported)	350 N					
28 Max. radial loading, 5mm from flange	5 N					
29 Number of pole pairs	1					
30 Number of phases	3					
31 Weight of motor	32 g					

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

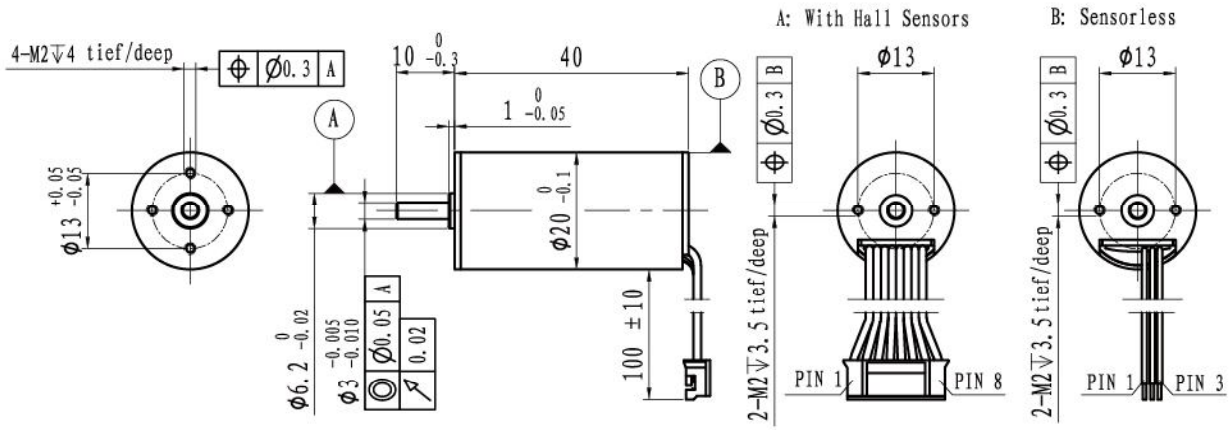
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

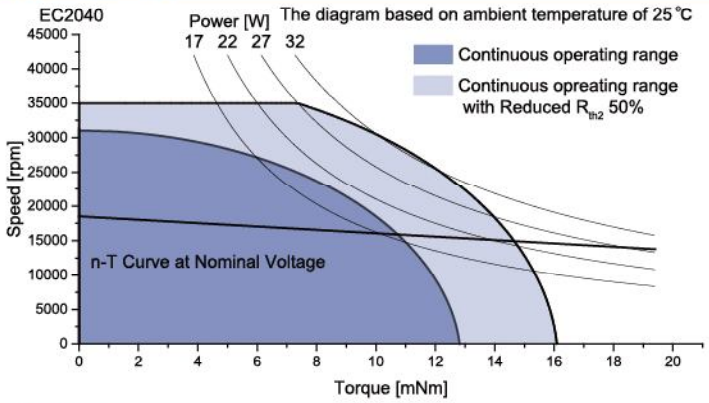


M 1:1.2

Sensorless / With hall sensor		EC2040L-... / EC2040S-...	1218	1818	2418	3618
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	12	18	24	36
2	No load speed	rpm	17780	18360	18500	18880
3	No load current	mA	149	137	105	83
4	Nominal speed	rpm	15083	16171	16042	16164
5	Nominal torque	mNm	10	10	10	10
6	Nominal current	A	1.72	1.22	0.93	0.64
7	Stall torque	mNm	65.9	83.9	75.3	69.5
8	Stall current	A	10.5	9.23	6.28	3.98
9	Max. efficiency	%	77.6	77.1	75.8	73.2
10	Terminal resistance	Ω	1.14	1.95	3.82	9.04
11	Terminal inductance	mH	0.08	0.17	0.30	0.62
12	Torque constant	mNm/A	6.35	9.22	12.2	17.8
13	Speed constant	rpm/V	1503	1035	784	536
14	Speed/torque gradient	rpm/mNm	270	219	246	272
15	Mechanical time constant	ms	6.4	5.2	5.8	6.4
16	Rotor inertia	gcm^2	2.3	2.3	2.3	2.3

17	Thermal resistance housing-ambient	13.8 K/W
18	Thermal resistance winding-housing	4.3 K/W
19	Thermal time constant winding	8 s
20	Thermal time constant motor	366 s
21	Ambient temprature	-30...+100℃
22	Max. permissible winding temperature	+150℃
23	Max. permissible speed	35000 rpm
24	Axial play at axial load <4 N	0 mm
	>4 N	max. 0.3 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	3.5 N
27	Max.force for press fits (static)	44 N
	(static, shaft supported)	1200 N
28	Max. radial loading, 5mm from flange	15 N
29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor	56 g

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

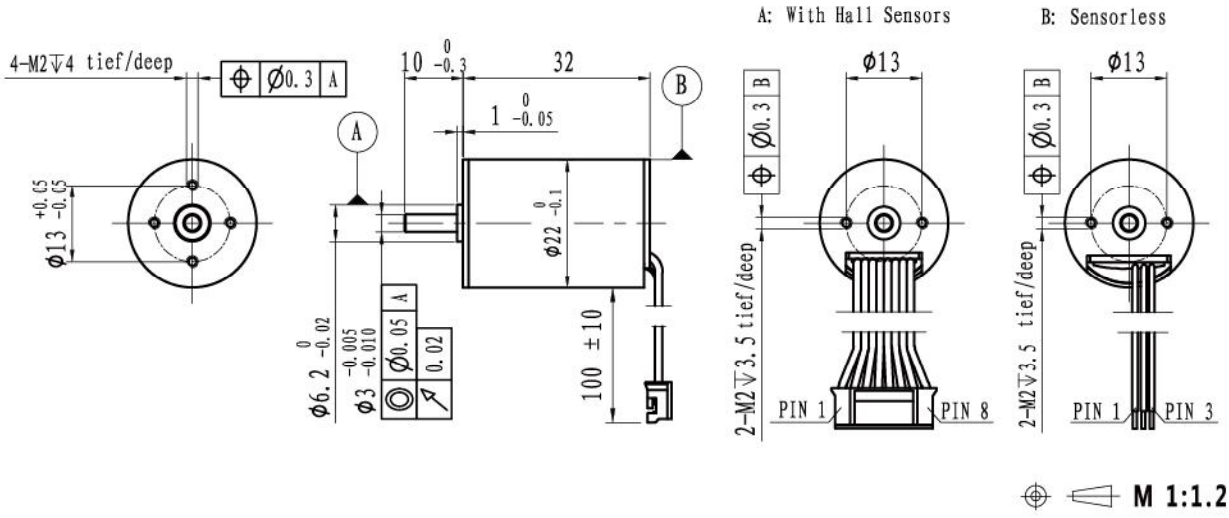
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

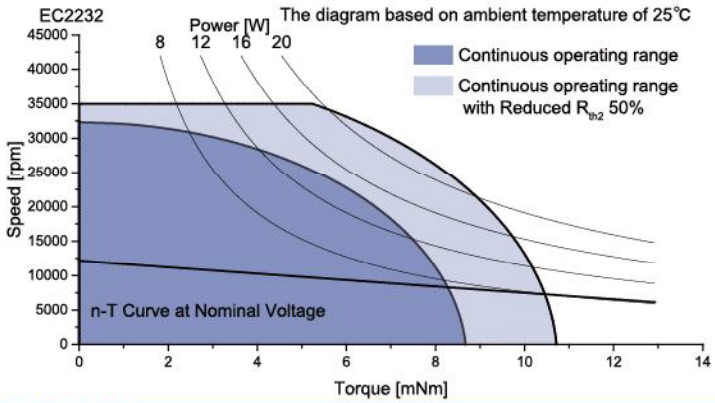
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless With hall sensor		EC2232L-... EC2232S-...	0612	1212	1812	2412
Motor data							
Values at nominal voltage							
1	Nominal voltage		V	6	12	18	24
2	No load speed		rpm	11700	11184	12080	12164
3	No load current		mA	230	150	86	60
4	Nominal speed		rpm	9585	9023	9937	9358
5	Nominal torque		mNm	6	6	6	6
6	Nominal current		A	1.5	0.76	0.52	0.39
7	Stall torque		mNm	33.2	31.1	33.8	26
8	Stall current		A	7.23	3.32	2.55	1.5
9	Max. efficiency		%	67.5	62	66.6	64
10	Terminal resistance		Ω	0.83	3.61	7.07	16
11	Terminal inductance		mH	0.08	0.28	0.66	1.72
12	Torque constant		mNm/A	4.74	9.78	13.7	18.1
13	Speed constant		rpm/V	2014	976	695	528
14	Speed/torque gradient		rpm/mNm	353	360	357	468
15	Mechanical time constant		ms	5.5	5.6	5.6	7.3
16	Rotor inertia		gcm^2	1.5	1.5	1.5	1.5
17	Thermal resistance housing-ambient		15.2 K/W				
18	Thermal resistance winding-housing		6.0 K/W				
19	Thermal time constant winding		11 s				
20	Thermal time constant motor		383 s				
21	Ambient temprature		-30...+100℃				
22	Max. permissible winding temperature		+150℃				
23	Max. permissible speed		35000 rpm				
24	Axial play at axial load	<4 N	0 mm				
		>4 N	max. 0.3 mm				
25	Radial play		preloaded				
26	Max. axial load (dynamic)		3.5 N				
27	Max.force for press fits (static)		44 N				
	(static, shaft supported)		1200 N				
28	Max. radial loading, 5mm from flange		15 N				
29	Number of pole pairs		1				
30	Number of phases		3				
31	Weight of motor		48 g				

Operating Range



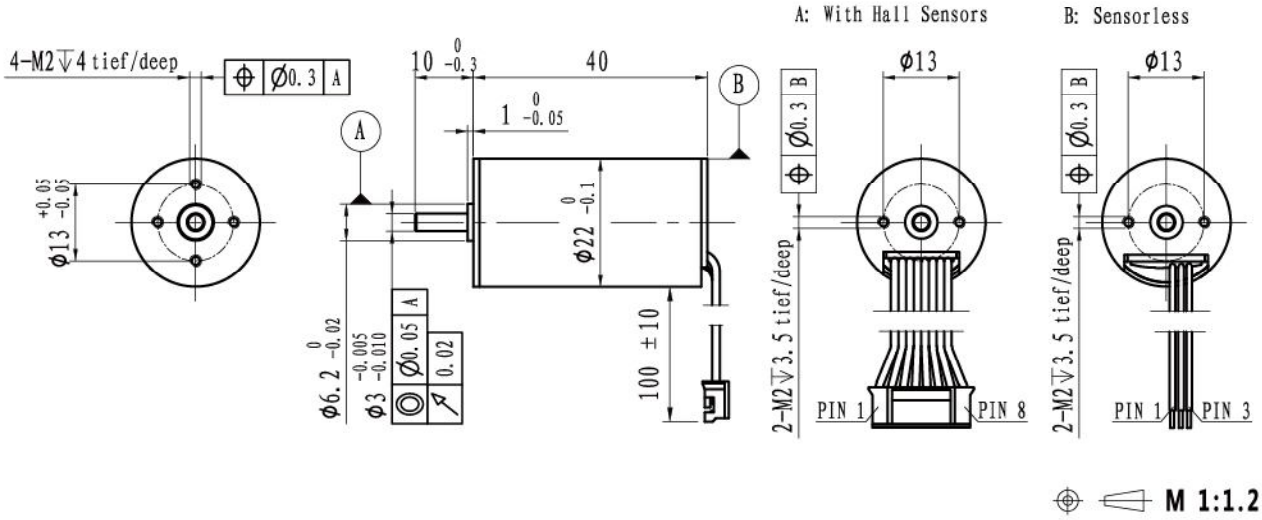
Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST	PH2.0-8P		

Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

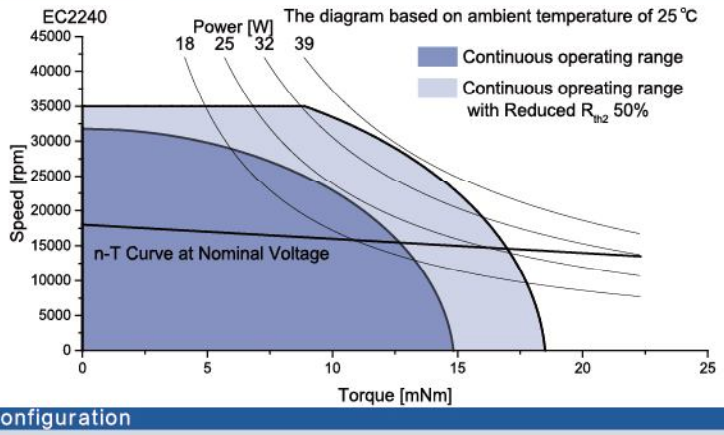
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.2

Sensorless / With hall sensor		EC2240L-... / EC2240S-...	1216	2416	3016	3616				
Motor data										
Values at nominal voltage										
1	Nominal voltage	V	12	24	30	36				
2	No load speed	rpm	16748	16768	16713	16679				
3	No load current	mA	183	115	87	73				
4	Nominal speed	rpm	14354	14337	14360	14128				
5	Nominal torque	mNm	12	12	12	12				
6	Nominal current	A	1.96	1.01	0.8	0.67				
7	Stall torque	mNm	83.9	82.8	85.2	78.5				
8	Stall current	A	12.6	6.28	5.15	3.95				
9	Max. efficiency	%	77.4	74.8	75.7	74.7				
10	Terminal resistance	Ω	0.95	3.82	5.83	9.11				
11	Terminal inductance	mH	0.07	0.28	0.44	0.64				
12	Torque constant	mNm/A	6.74	13.4	16.9	20.2				
13	Speed constant	rpm/V	1416	712	567	472				
14	Speed/torque gradient	rpm/mNm	200	203	196	213				
15	Mechanical time constant	ms	4.7	4.8	4.7	5.1				
16	Rotor inertia	gcm^2	2.3	2.3	2.3	2.3				
17	Thermal resistance housing-ambient	12.7 K/W								
18	Thermal resistance winding-housing	5.0 K/W								
19	Thermal time constant winding	12 s								
20	Thermal time constant motor	420 s								
21	Ambient temprature	-30...+100℃								
22	Max. permissible winding temperature	+150℃								
23	Max. permissible speed	35000 rpm								
24	Axial play at axial load <4 N	0 mm								
	>4 N	max. 0.3 mm								
25	Radial play	preloaded								
26	Max. axial load (dynamic)	3.5 N								
27	Max.force for press fits (static)	44 N								
	(static, shaft supported)	1200 N								
28	Max. radial loading, 5mm from flange	15 N								
29	Number of pole pairs	1								
30	Number of phases	3								
31	Weight of motor	64 g								

Operating Range

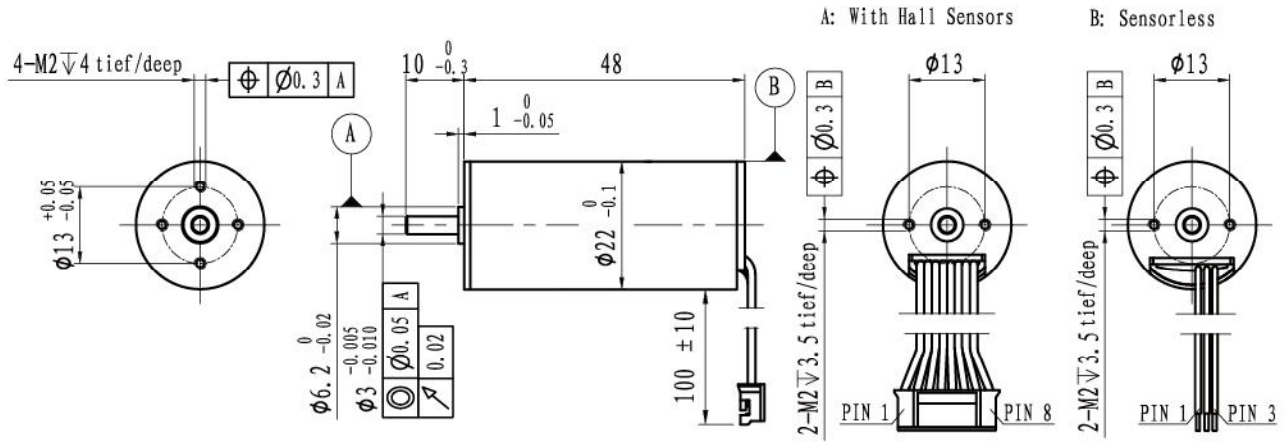


Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST PH2.0-8P			
Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

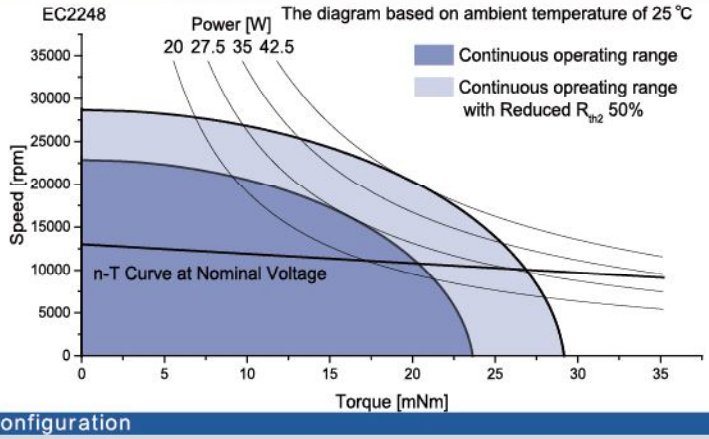


M 1:1.2

Sensorless EC2248L-... / With hall sensor EC2248S-...		1213	2413	3613	4813
Motor data					
Values at nominal voltage					
1 Nominal voltage	V	12	24	36	48
2 No load speed	rpm	13004	12930	13390	13641
3 No load current	mA	179	102	82	69
4 Nominal speed	rpm	11426	11413	11749	12159
5 Nominal torque	mNm	18	18	18	18
6 Nominal current	A	2.24	1.13	0.79	0.61
7 Stall torque	mNm	148	153	147	166
8 Stall current	A	17.2	8.86	5.88	5.07
9 Max. efficiency	%	80.6	79.7	77.8	78
10 Terminal resistance	Ω	0.7	2.71	6.12	9.47
11 Terminal inductance	mH	0.07	0.28	0.58	0.97
12 Torque constant	mNm/A	8.72	17.5	25.3	33.1
13 Speed constant	rpm/V	1095	545	377	288
14 Speed/torque gradient	rpm/mNm	87.7	84.3	91.2	82.3
15 Mechanical time constant	ms	2.9	2.8	3.0	2.7
16 Rotor inertia	gcm^2	3.1	3.1	3.1	3.1

17 Thermal resistance housing-ambient	11.8 K/W	
18 Thermal resistance winding-housing	4.7 K/W	
19 Thermal time constant winding	21 s	
20 Thermal time constant motor	504 s	
21 Ambient temprature	-30...+100℃	
22 Max. permissible winding temperature	+150℃	
23 Max. permissible speed	30000 rpm	
24 Axial play at axial load <4 N	0 mm	
>4 N	max. 0.3 mm	
25 Radial play	preloaded	
26 Max. axial load (dynamic)	3.5 N	
27 Max.force for press fits (static)	44 N	
(static, shaft supported)	1200 N	
28 Max. radial loading, 5mm from flange	15 N	
29 Number of pole pairs	1	
30 Number of phases	3	
31 Weight of motor	85 g	

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

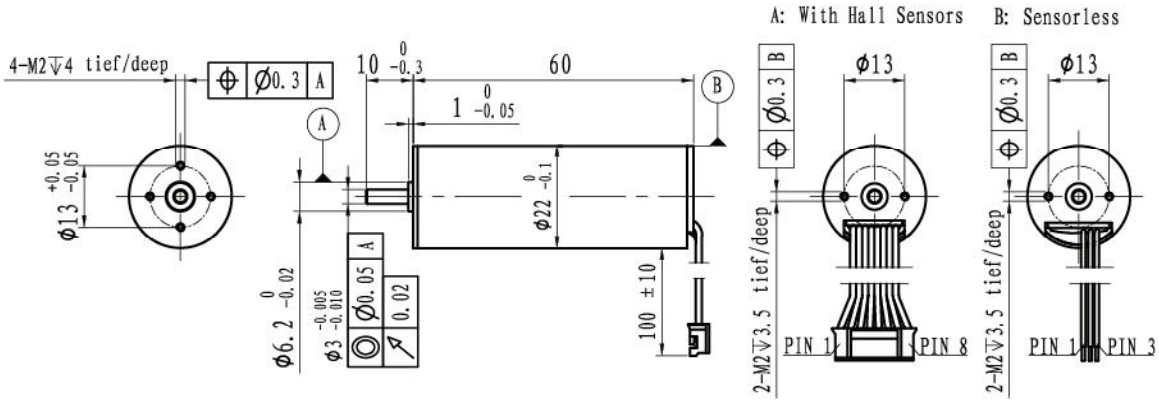
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

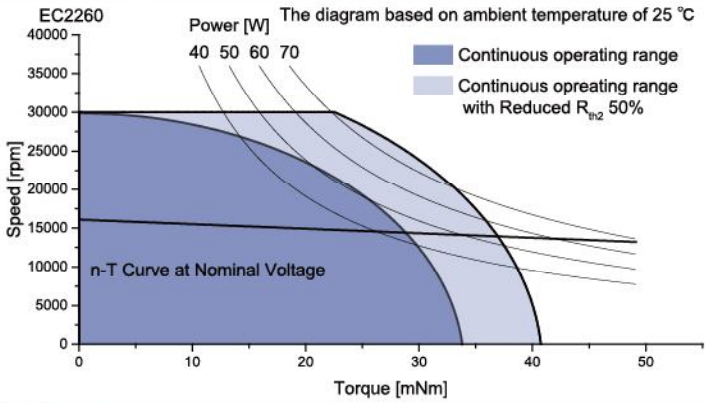


M 1:1.5

Sensorless / With hall sensor		EC2260L-... / EC2260S-...	1216	2416	3616	4816
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	12	24	36	48
2	No load speed	rpm	16360	16086	16030	16200
3	No load current	mA	440	230	170	110
4	Nominal speed	rpm	14517	14441	14364	14530
5	Nominal torque	mNm	28	28	28	28
6	Nominal current	A	4.49	2.22	1.49	1.11
7	Stall torque	mNm	249	274	269	272
8	Stall current	A	36.4	19.7	12.9	9.82
9	Max. efficiency	%	79.2	79.5	78.4	79.9
10	Terminal resistance	Ω	0.33	1.22	2.79	4.89
11	Terminal inductance	mH	0.03	0.13	0.30	0.52
12	Torque constant	mNm/A	6.92	14.1	21.2	28
13	Speed constant	rpm/V	1380	678	451	341
14	Speed/torque gradient	rpm/mNm	65.8	58.8	59.5	59.7
15	Mechanical time constant	ms	3.1	2.8	2.8	2.8
16	Rotor inertia	gcm^2	4.5	4.5	4.5	4.5

17	Thermal resistance housing-ambient	7.6 K/W
18	Thermal resistance winding-housing	4.6 K/W
19	Thermal time constant winding	29 s
20	Thermal time constant motor	533 s
21	Ambient temprature	-30...+100℃
22	Max. permissible winding temperature	+150℃
23	Max. permissible speed	30000 rpm
24	Axial play at axial load <4 N	0 mm
	>4 N	max. 0.3 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	3.5 N
27	Max.force for press fits (static)	44 N
	(static, shaft supported)	1200 N
28	Max. radial loading, 5mm from flange	15 N
29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor	122 g

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

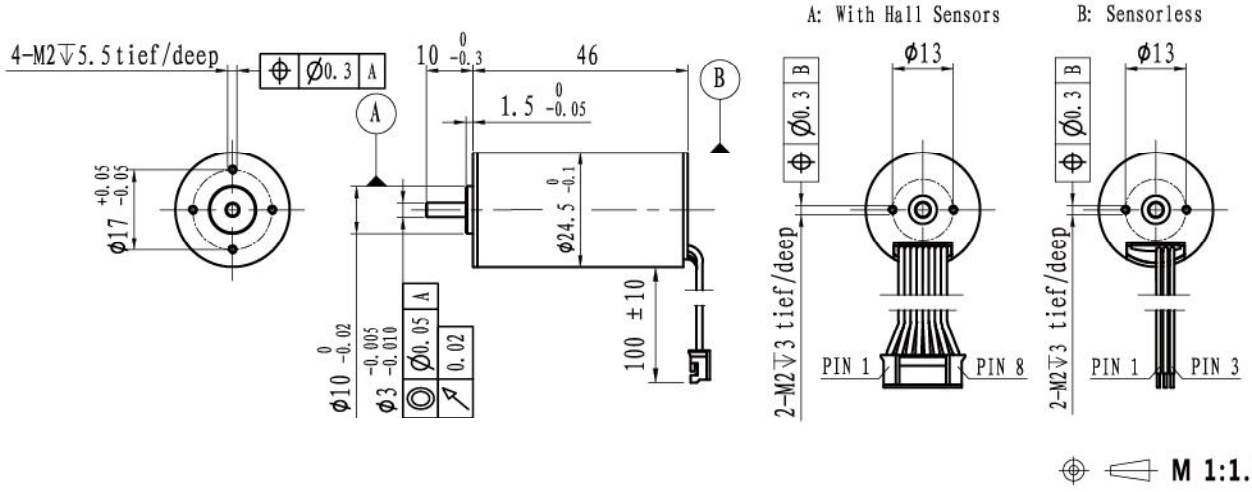
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

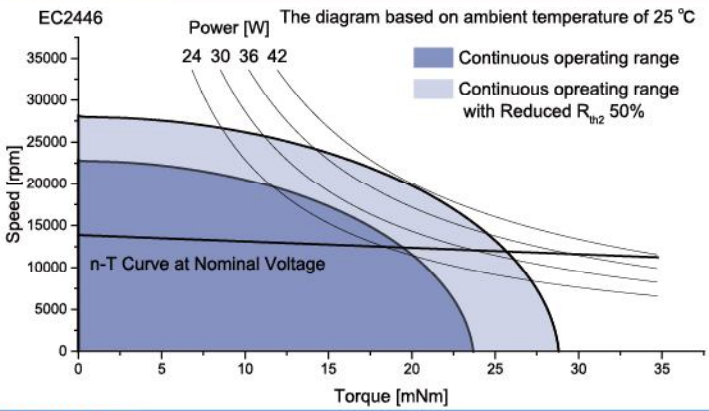
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.5

Sensorless / With hall sensor			EC2446L-... / EC2446S-...	1214	2414	3614	4814
Motor data							
Values at nominal voltage							
1	Nominal voltage	V		12	24	36	48
2	No load speed	rpm		14150	13872	13920	13870
3	No load current	mA		249	124	106	79
4	Nominal speed	rpm		12678	12487	12662	12446
5	Nominal torque	mNm		18	18	18	18
6	Nominal current	A		2.5	1.23	0.84	0.63
7	Stall torque	mNm		173	180	199	175
8	Stall current	A		21.9	11.2	8.28	5.46
9	Max. efficiency	%		79.8	80	78.6	77.4
10	Terminal resistance	Ω		0.55	2.15	4.35	8.79
11	Terminal inductance	mH		0.07	0.29	0.62	1.14
12	Torque constant	mNm/A		8.01	16.3	24.4	32.6
13	Speed constant	rpm/V		1193	584	392	293
14	Speed/torque gradient	rpm/mNm		81.8	76.9	69.9	79.1
15	Mechanical time constant	ms		3.6	3.4	3.1	3.5
16	Rotor inertia	gcm^2		4.2	4.2	4.2	4.2
17	Thermal resistance housing-ambient	11.6 K/W					
18	Thermal resistance winding-housing	5.6 K/W					
19	Thermal time constant winding	30 s					
20	Thermal time constant motor	557 s					
21	Ambient temprature	-30...+100℃					
22	Max. permissible winding temperature	+150℃					
23	Max. permissible speed	30000 rpm					
24	Axial play at axial load <4 N	0 mm					
	>4 N	max. 0.3 mm					
25	Radial play	preloaded					
26	Max. axial load (dynamic)	3.5 N					
27	Max.force for press fits (static)	44 N					
	(static, shaft supported)	1200 N					
28	Max. radial loading, 5mm from flange	15 N					
29	Number of pole pairs	1					
30	Number of phases	3					
31	Weight of motor	92 g					

Operating Range



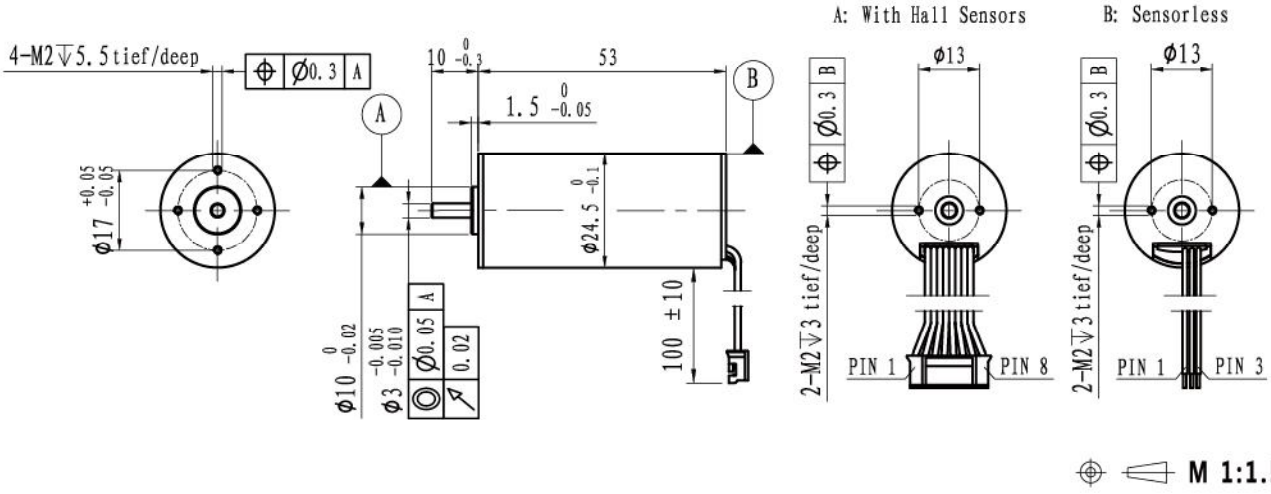
Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST PH2.0-8P			

Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

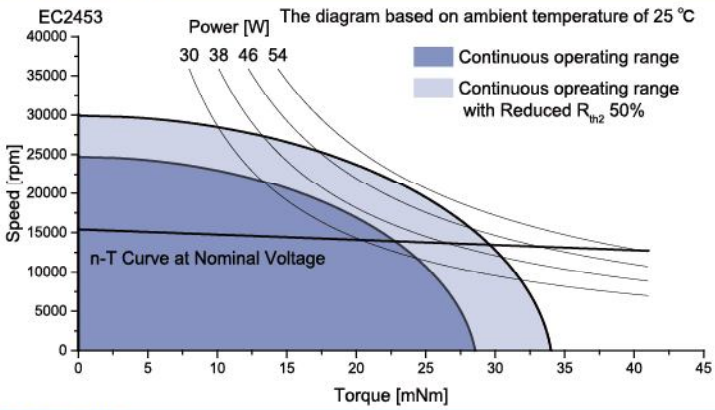
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless EC2453L-... / With hall sensor EC2453S-...		1215	2415	3615	4815
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	12	24	36	48
2	No load speed	rpm	15083	15398	15202	15310
3	No load current	mA	308	156	115	94
4	Nominal speed	rpm	13938	14347	14211	14263
5	Nominal torque	mNm	20	20	20	20
6	Nominal current	A	2.96	1.51	1.01	0.77
7	Stall torque	mNm	263	293	307	293
8	Stall current	A	35.3	20	13.8	9.96
9	Max. efficiency	%	82.2	83.1	82.6	81.5
10	Terminal resistance	Ω	0.34	1.2	2.61	4.82
11	Terminal inductance	mH	0.05	0.19	0.44	0.76
12	Torque constant	mNm/A	7.53	14.8	22.4	29.7
13	Speed constant	rpm/V	1268	647	426	322
14	Speed/torque gradient	rpm/mNm	57.2	52.5	49.6	52.3
15	Mechanical time constant	ms	3.5	3.2	3.1	3.2
16	Rotor inertia	gcm^2	5.9	5.9	5.9	5.9
17	Thermal resistance housing-ambient	10.2 K/W				
18	Thermal resistance winding-housing	6.4 K/W				
19	Thermal time constant winding	36 s				
20	Thermal time constant motor	555 s				
21	Ambient temprature	-30...+100℃				
22	Max. permissible winding temperature	+150℃				
23	Max. permissible speed	30000 rpm				
24	Axial play at axial load <4 N	0 mm				
	>4 N	max. 0.3 mm				
25	Radial play	preloaded				
26	Max. axial load (dynamic)	3.5 N				
27	Max.force for press fits (static)	44 N				
	(static, shaft supported)	1200 N				
28	Max. radial loading, 5mm from flange	15 N				
29	Number of pole pairs	1				
30	Number of phases	3				
31	Weight of motor	110 g				

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

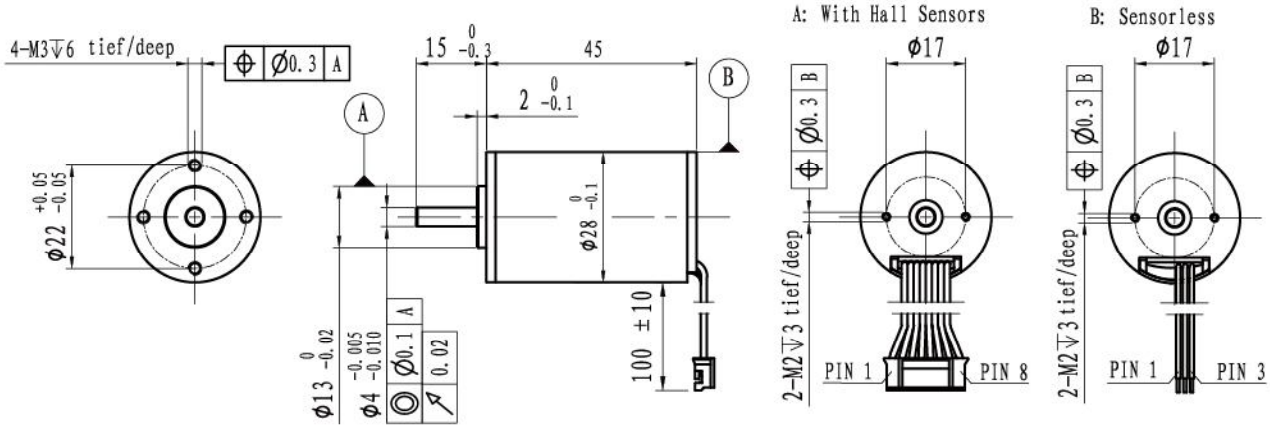
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

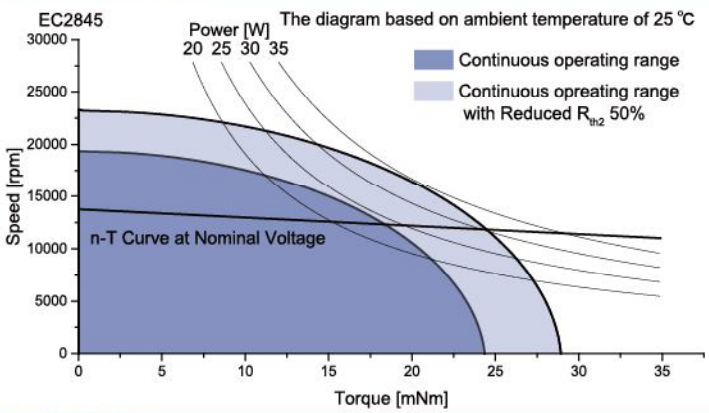
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.5

	Sensorless / With hall sensor	EC2845L-... / EC2845S-...	1213	2413	3613	4813
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	12	24	36	48
2	No load speed	rpm	13737	13756	13783	13400
3	No load current	mA	202	128	84	79
4	Nominal speed	rpm	12232	12342	12432	11903
5	Nominal torque	mNm	18	18	18	18
6	Nominal current	A	2.38	1.22	0.81	0.61
7	Stall torque	mNm	164	175	184	161
8	Stall current	A	20.1	10.8	7.53	4.87
9	Max. efficiency	%	81	79.4	80	76.1
10	Terminal resistance	Ω	0.6	2.23	4.78	9.86
11	Terminal inductance	mH	0.08	0.34	0.73	1.47
12	Torque constant	mNm/A	8.26	16.5	24.7	33.7
13	Speed constant	rpm/V	1156	580	387	284
14	Speed/torque gradient	rpm/mNm	83.6	78.6	75	83.1
15	Mechanical time constant	ms	4.5	4.3	4.1	4.5
16	Rotor inertia	gcm^2	5.2	5.2	5.2	5.2
17	Thermal resistance housing-ambient	9.6 K/W				
18	Thermal resistance winding-housing	6.3 K/W				
19	Thermal time constant winding	37 s				
20	Thermal time constant motor	584 s				
21	Ambient temprature	-30...+100℃				
22	Max. permissible winding temperature	+150℃				
23	Max. permissible speed	25000 rpm				
24	Axial play at axial load <8 N	0 mm				
	>8 N	max. 0.3 mm				
25	Radial play	preloaded				
26	Max. axial load (dynamic)	7.5 N				
27	Max.force for press fits (static)	100 N				
	(static, shaft supported)	2000 N				
28	Max. radial loading, 5mm from flange	25 N				
29	Number of pole pairs	1				
30	Number of phases	3				
31	Weight of motor	120 g				

Operating Range



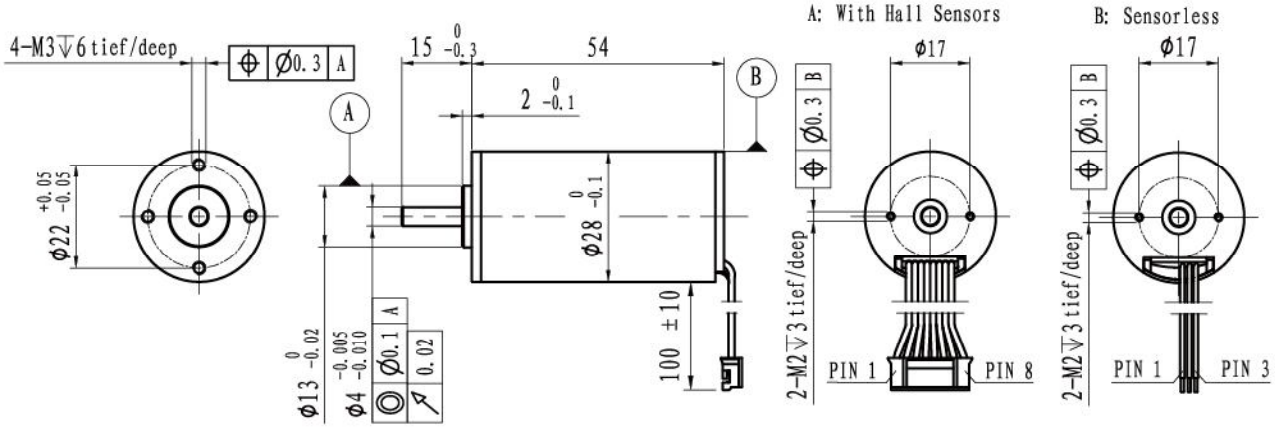
Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST PH2.0-8P			

Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

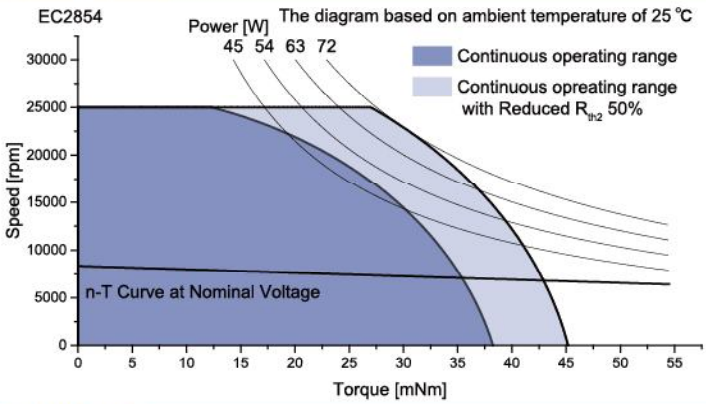
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.5

	Sensorless With hall sensor		EC2854L-... EC2854S-...	1208	2408	3608	4808
Motor data							
Values at nominal voltage							
1	Nominal voltage	V		12	24	36	48
2	No load speed	rpm		8031	8336	8175	8325
3	No load current	mA		142	94	65	51
4	Nominal speed	rpm		6646	7084	6891	6805
5	Nominal torque	mNm		35	35	35	35
6	Nominal current	A		2.62	1.38	0.91	0.7
7	Stall torque	mNm		203	233	223	192
8	Stall current	A		14.5	8.66	5.43	3.58
9	Max. efficiency	%		81.2	80.3	79.3	77.6
10	Terminal resistance	Ω		0.83	2.77	6.63	13.4
11	Terminal inductance	mH		0.16	0.61	1.41	2.56
12	Torque constant	mNm/A		14.1	27.2	41.5	54.3
13	Speed constant	rpm/V		676	351	230	176
14	Speed/torque gradient	rpm/mNm		39.6	35.8	36.7	43.4
15	Mechanical time constant	ms		3.5	3.2	3.3	3.9
16	Rotor inertia	gcm^2		8.5	8.5	8.5	8.5
17	Thermal resistance housing-ambient	7.1 K/W					
18	Thermal resistance winding-housing	5 K/W					
19	Thermal time constant winding	51 s					
20	Thermal time constant motor	552 s					
21	Ambient temprature	-30...+100℃					
22	Max. permissible winding temperature	+150℃					
23	Max. permissible speed	25000 rpm					
24	Axial play at axial load <8 N	0 mm					
	>8 N	max. 0.3 mm					
25	Radial play	preloaded					
26	Max. axial load (dynamic)	7.5 N					
27	Max.force for press fits (static)	100 N					
	(static, shaft supported)	2000 N					
28	Max. radial loading, 5mm from flange	25 N					
29	Number of pole pairs	1					
30	Number of phases	3					
31	Weight of motor	156 g					

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

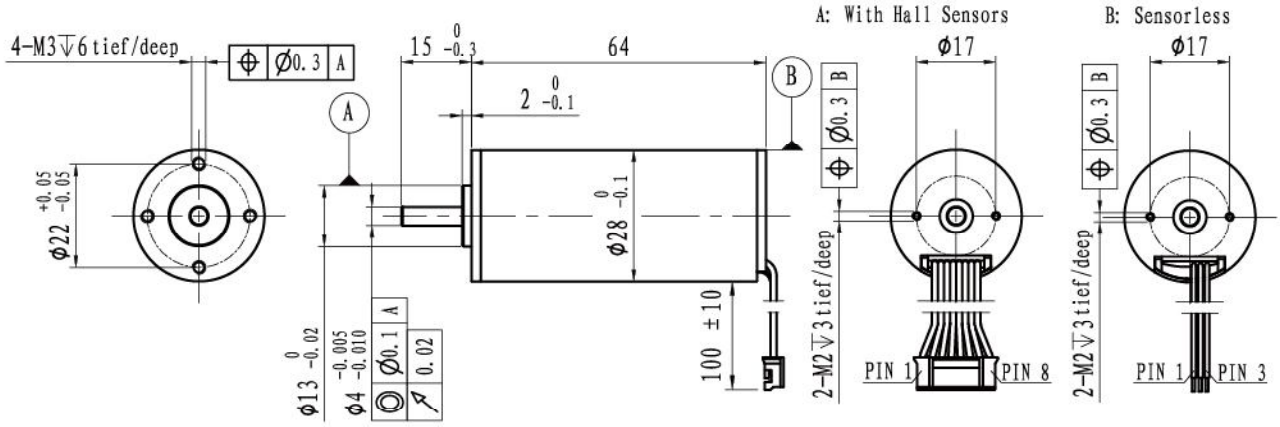
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

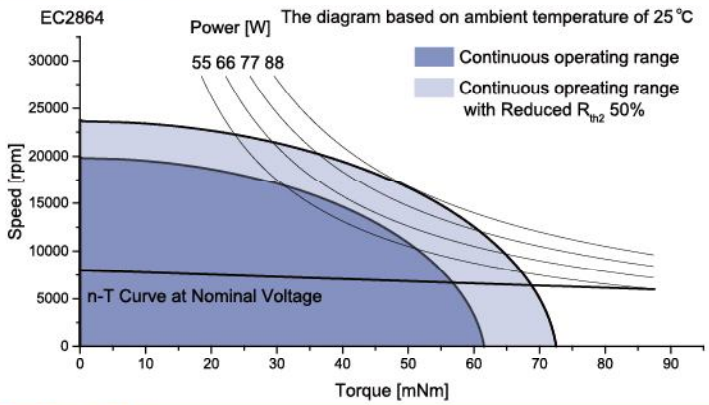
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.5

			Sensorless EC2864L-... With hall sensor EC2864S-...	1208	2408	3608	4808				
Motor data											
Values at nominal voltage											
1	Nominal voltage	V		12	24	36	48				
2	No load speed	rpm		7956	8014	8275	7960				
3	No load current	mA		182	104	92	59				
4	Nominal speed	rpm		6712	6840	7053	6782				
5	Nominal torque	mNm		50	50	50	50				
6	Nominal current	A		3.68	1.87	1.31	0.94				
7	Stall torque	mNm		320	341	339	338				
8	Stall current	A		22.6	12.1	8.33	5.99				
9	Max. efficiency	%		82.8	82.3	80.1	81.1				
10	Terminal resistance	Ω		0.53	1.98	4.32	8.02				
11	Terminal inductance	mH		0.11	0.46	0.96	1.83				
12	Torque constant	mNm/A		14.3	28.4	41.1	57				
13	Speed constant	rpm/V		668	337	232	167				
14	Speed/torque gradient	rpm/mNm		24.9	23.5	24.4	23.6				
15	Mechanical time constant	ms		2.5	2.4	2.5	2.4				
16	Rotor inertia	gcm^2		9.6	9.6	9.6	9.6				
17	Thermal resistance housing-ambient	5.5 K/W									
18	Thermal resistance winding-housing	4 K/W									
19	Thermal time constant winding	56 s									
20	Thermal time constant motor	521 s									
21	Ambient temprature	-30...+100℃									
22	Max. permissible winding temperature	+150℃									
23	Max. permissible speed	25000 rpm									
24	Axial play at axial load <8 N	0 mm									
	>8 N	max. 0.3 mm									
25	Radial play	preloaded									
26	Max. axial load (dynamic)	7.5 N									
27	Max.force for press fits (static)	100 N									
	(static, shaft supported)	2000 N									
28	Max. radial loading, 5mm from flange	25 N									
29	Number of pole pairs	1									
30	Number of phases	3									
31	Weight of motor	195 g									

Operating Range



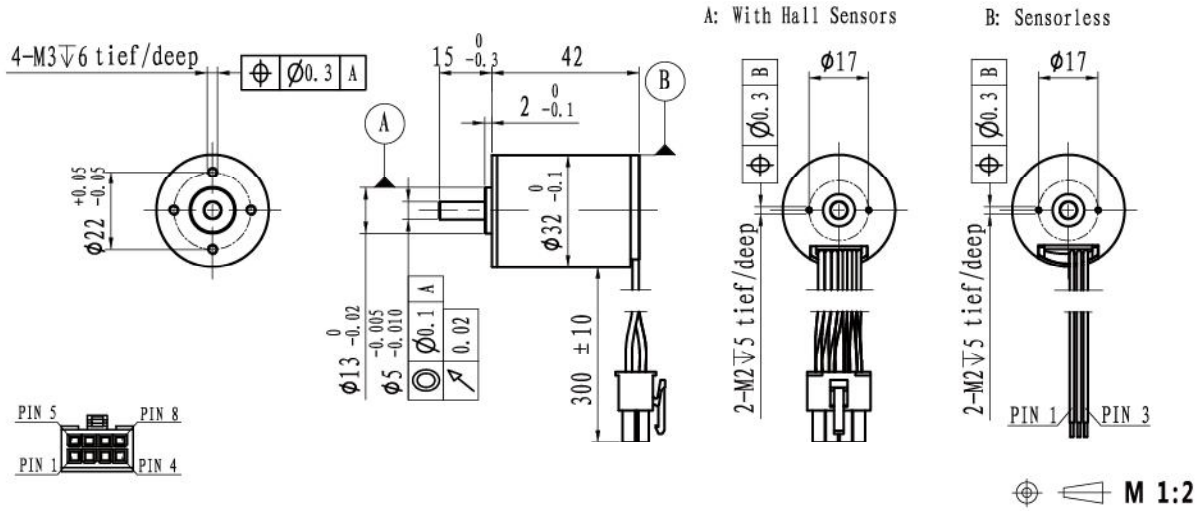
Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST PH2.0-8P			

Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

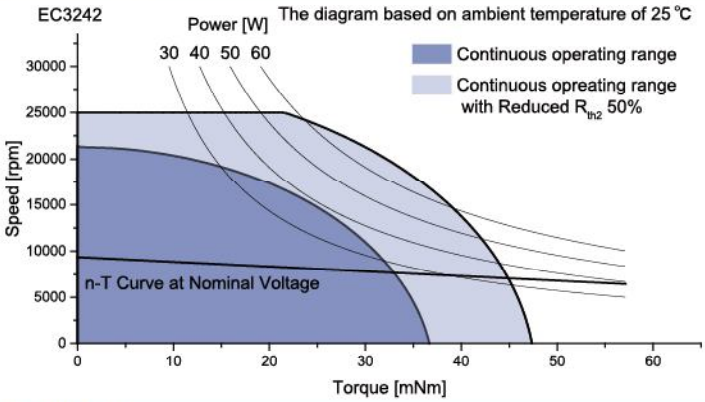
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless With hall sensor		EC3242L-... EC3242S-...	1209	2409	3609	4809
Motor data							
Values at nominal voltage							
1	Nominal voltage	V		12	24	36	48
2	No load speed	rpm		9319	9516	9269	9389
3	No load current	mA		380	210	120	90
4	Nominal speed	rpm		8198	8364	8219	8124
5	Nominal torque	mNm		25	25	25	25
6	Nominal current	A		2.46	1.27	0.81	0.61
7	Stall torque	mNm		208	206	221	186
8	Stall current	A		17.6	8.99	6.19	3.98
9	Max. efficiency	%		72.8	71.8	74.1	72.2
10	Terminal resistance	Ω		0.68	2.67	5.82	12.1
11	Terminal inductance	mH		0.11	0.40	0.98	1.79
12	Torque constant	mNm/A		12	23.5	36.4	47.7
13	Speed constant	rpm/V		794	406	263	200
14	Speed/torque gradient	rpm/mNm		44.9	46.1	42	50.6
15	Mechanical time constant	ms		4.4	4.5	4.1	5.0
16	Rotor inertia	gcm^2		9.4	9.4	9.4	9.4
17	Thermal resistance housing-ambient	8.8 K/W					
18	Thermal resistance winding-housing	2.7 K/W					
19	Thermal time constant winding	23.5 s					
20	Thermal time constant motor	560 s					
21	Ambient temprature	-30...+100℃					
22	Max. permissible winding temperature	+150℃					
23	Max. permissible speed	25000 rpm					
24	Axial play at axial load <8 N	0 mm					
	>8 N	max. 0.3 mm					
25	Radial play	preloaded					
26	Max. axial load (dynamic)	7.5 N					
27	Max.force for press fits (static)	100 N					
	(static, shaft supported)	2700 N					
28	Max. radial loading, 5mm from flange	25 N					
29	Number of pole pairs	1					
30	Number of phases	3					
31	Weight of motor	147 g					

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

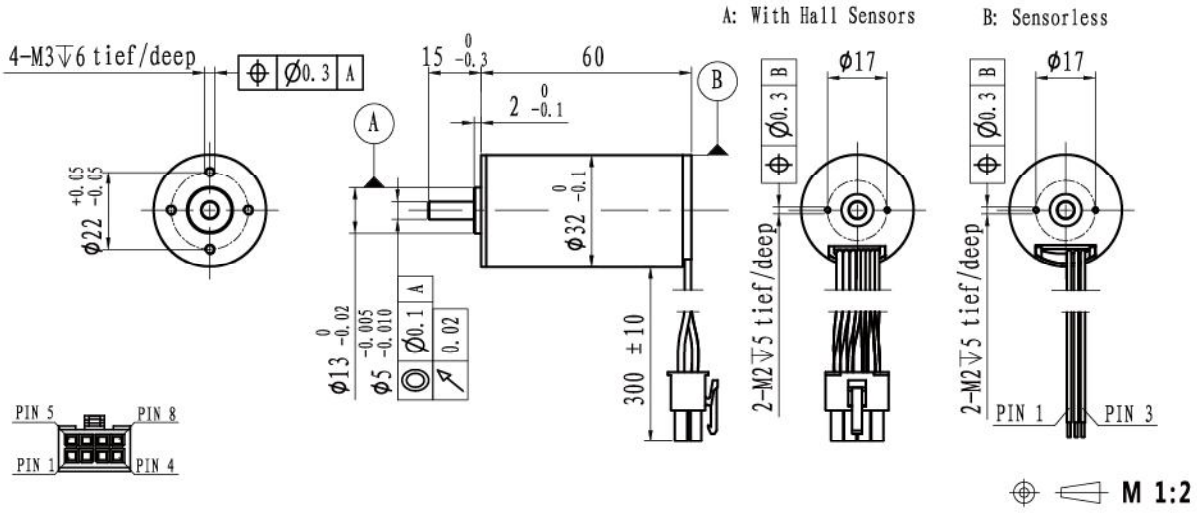
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

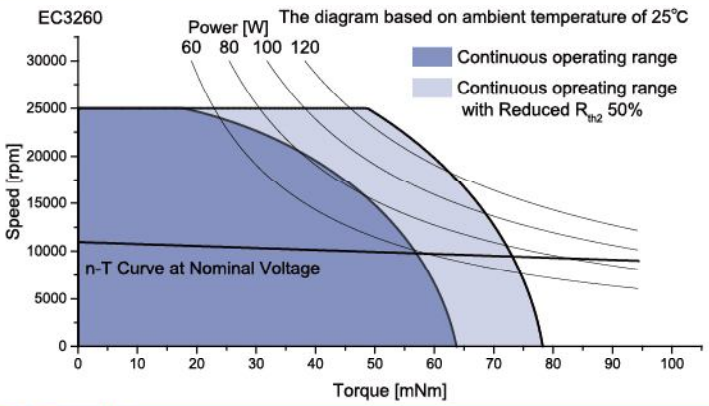
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



Sensorless / With hall sensor		EC3260L-... / EC3260S-...	1211	2411	3611	4811
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	12	24	36	48
2	No load speed	rpm	10845	11038	10937	11125
3	No load current	mA	430	190	130	90
4	Nominal speed	rpm	9889	10027	9931	10087
5	Nominal torque	mNm	50	50	50	50
6	Nominal current	A	5.2	2.62	1.73	1.31
7	Stall torque	mNm	567	546	544	536
8	Stall current	A	54.5	26.7	17.6	13.2
9	Max. efficiency	%	83	83.8	83.5	84.2
10	Terminal resistance	Ω	0.22	0.9	2.05	3.64
11	Terminal inductance	mH	0.08	0.32	0.90	1.22
12	Torque constant	mNm/A	10.5	20.6	31.2	40.9
13	Speed constant	rpm/V	911	463	306	233
14	Speed/torque gradient	rpm/mNm	19.1	20.2	20.1	20.8
15	Mechanical time constant	ms	3.1	3.3	3.3	3.4
16	Rotor inertia	gcm^2	15.5	15.5	15.5	15.5
17	Thermal resistance housing-ambient	6 K/W				
18	Thermal resistance winding-housing	3.2 K/W				
19	Thermal time constant winding	36 s				
20	Thermal time constant motor	626 s				
21	Ambient temprature	-30...+100°C				
22	Max. permissible winding temperature	+150°C				
23	Max. permissible speed	25000 rpm				
24	Axial play at axial load <8 N	0 mm				
	>8 N	max. 0.3 mm				
25	Radial play	preloaded				
26	Max. axial load (dynamic)	7.5 N				
27	Max.force for press fits (static)	100 N				
	(static, shaft supported)	2700 N				
28	Max. radial loading, 5mm from flange	25 N				
29	Number of pole pairs	1				
30	Number of phases	3				
31	Weight of motor	217 g				

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

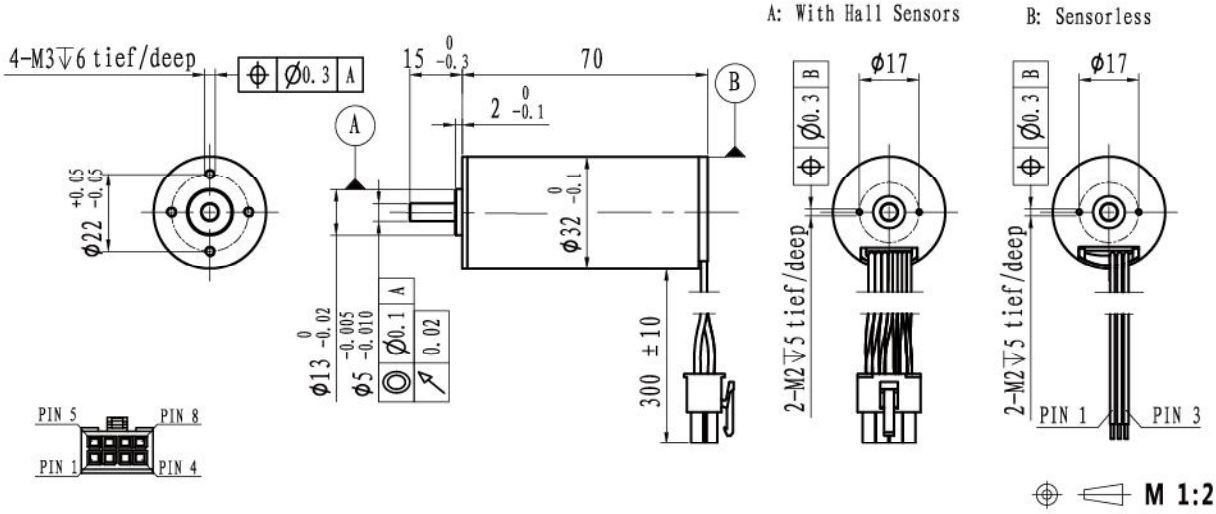
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

Configuration

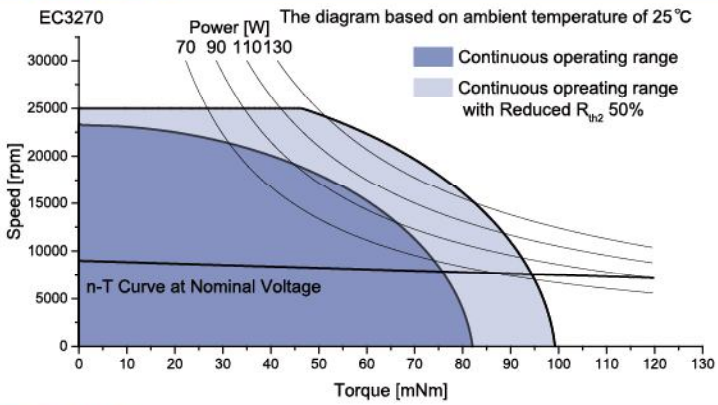
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



Sensorless / With hall sensor		EC3270L-... / EC3270S-...	1209	2409	3609	4809
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	12	24	36	48
2	No load speed	rpm	8998	9055	9252	9080
3	No load current	mA	450	180	100	90
4	Nominal speed	rpm	7991	7963	8129	8077
5	Nominal torque	mNm	70	70	70	70
6	Nominal current	A	6	2.97	2	1.49
7	Stall torque	mNm	625	581	577	634
8	Stall current	A	50	23.3	15.7	12.7
9	Max. efficiency	%	81.9	83.2	84.7	83.9
10	Terminal resistance	Ω	0.24	1.03	2.29	3.77
11	Terminal inductance	mH	0.09	0.35	0.75	1.33
12	Torque constant	mNm/A	12.6	25.1	36.9	50.1
13	Speed constant	rpm/V	757	380	259	191
14	Speed/torque gradient	rpm/mNm	14.4	15.6	16	14.3
15	Mechanical time constant	ms	2.8	3.0	3.1	2.8
16	Rotor inertia	gcm^2	18.5	18.5	18.5	18.5

17	Thermal resistance housing-ambient	4.7 K/W
18	Thermal resistance winding-housing	2.9 K/W
19	Thermal time constant winding	38 s
20	Thermal time constant motor	568 s
21	Ambient temprature	-30...+100℃
22	Max. permissible winding temperature	+150℃
23	Max. permissible speed	25000 rpm
24	Axial play at axial load <8 N	0 mm
	>8 N	max. 0.3 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	7.5 N
27	Max.force for press fits (static)	100 N
	(static, shaft supported)	2700 N
28	Max. radial loading, 5mm from flange	25 N
29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor	256 g

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

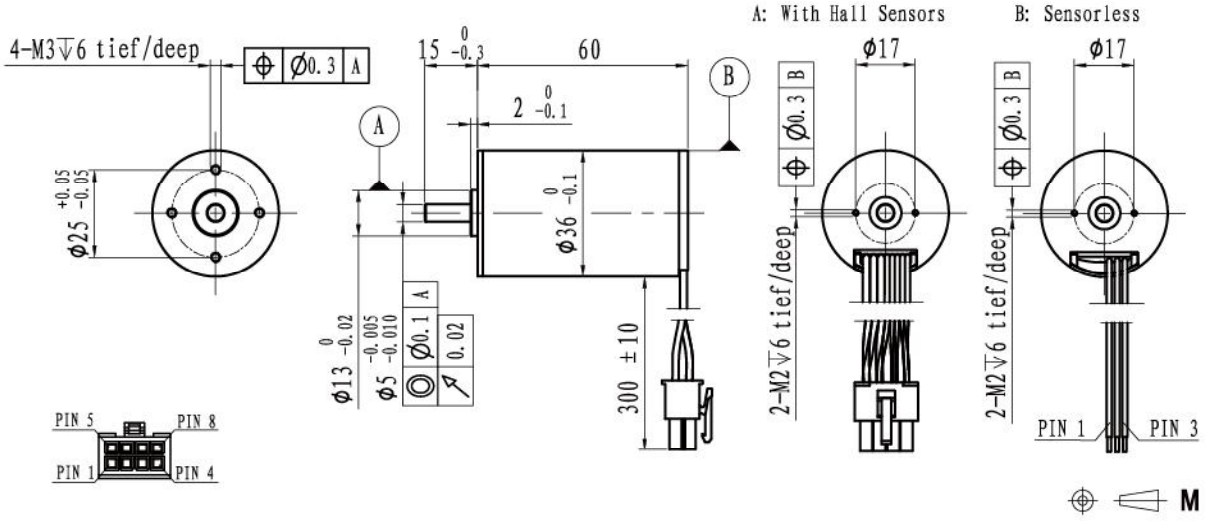
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

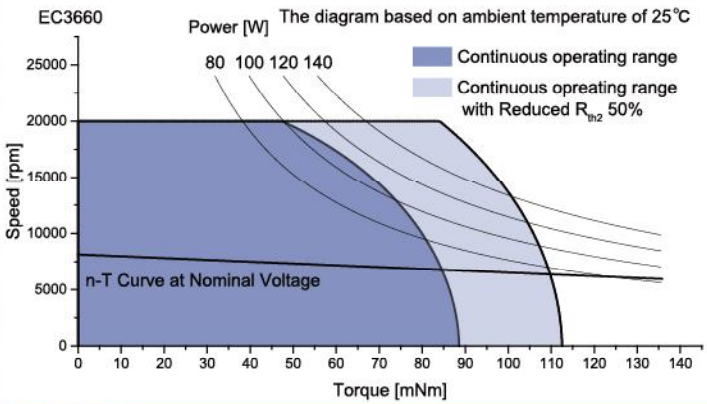
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless With hall sensor		EC3660L-... EC3660S-...	1208	2408	3608	4808
Motor data							
Values at nominal voltage							
1	Nominal voltage	V		12	24	36	48
2	No load speed	rpm		8050	8140	8014	8083
3	No load current	mA		288	148	101	84
4	Nominal speed	rpm		6794	6784	6804	6766
5	Nominal torque	mNm		82	82	82	82
6	Nominal current	A		6.09	3.08	2.03	1.54
7	Stall torque	mNm		526	492	543	503
8	Stall current	A		37.5	17.8	12.9	9.04
9	Max. efficiency	%		83.2	82.6	83.1	81.6
10	Terminal resistance	Ω		0.32	1.35	2.8	5.31
11	Terminal inductance	mH		0.09	0.38	0.88	1.6
12	Torque constant	mNm/A		14.1	27.9	42.6	56.2
13	Speed constant	rpm/V		676	342	224	170
14	Speed/torque gradient	rpm/mNm		15.3	16.5	14.8	16.1
15	Mechanical time constant	ms		3.1	3.4	3.0	3.3
16	Rotor inertia	gcm^2		19.5	19.5	19.5	19.5
17	Thermal resistance housing-ambient	4.4 K/W					
18	Thermal resistance winding-housing	1.3 K/W					
19	Thermal time constant winding	15 s					
20	Thermal time constant motor	582 s					
21	Ambient temprature	-30...+100°C					
22	Max. permissible winding temperature	+150°C					
23	Max. permissible speed	20000 rpm					
24	Axial play at axial load <8 N	0 mm					
	>8 N	max. 0.3 mm					
25	Radial play	preloaded					
26	Max. axial load (dynamic)	7.5 N					
27	Max.force for press fits (static)	100 N					
	(static, shaft supported)	2700 N					
28	Max. radial loading, 5mm from flange	25 N					
29	Number of pole pairs	1					
30	Number of phases	3					
31	Weight of motor	272 g					

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

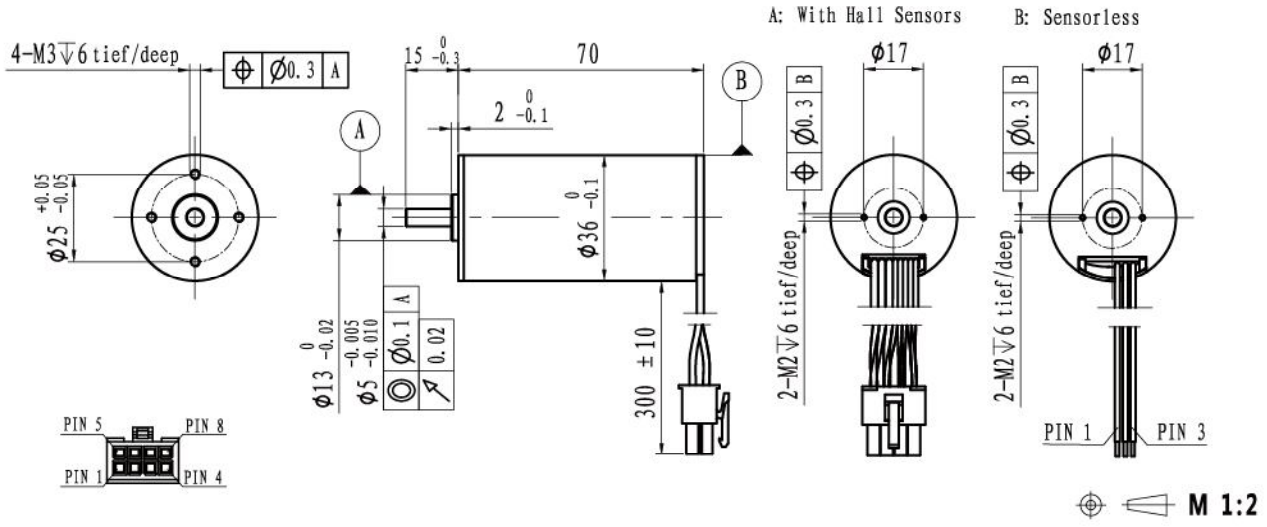
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

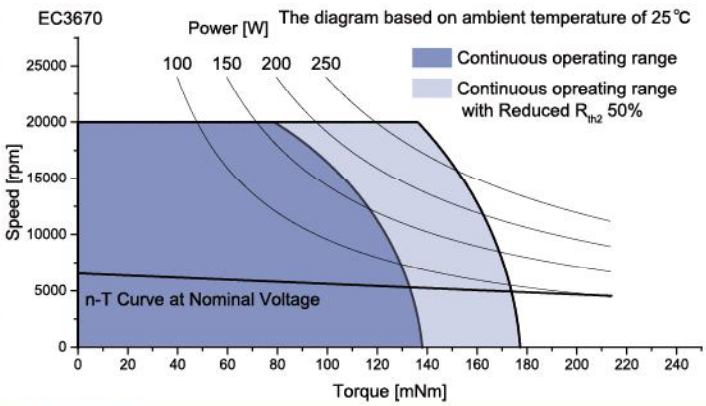
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



		Sensorless EC3670L-... / With hall sensor EC3670S-...		1206	2406	3606	4806
Motor data							
Values at nominal voltage							
1	Nominal voltage	V		12	24	36	48
2	No load speed	rpm		6578	6555	6675	6545
3	No load current	mA		293	137	101	78
4	Nominal speed	rpm		5300	5391	5455	5401
5	Nominal torque	mNm		120	120	120	120
6	Nominal current	A		7.24	3.59	2.45	1.81
7	Stall torque	mNm		618	676	657	687
8	Stall current	A		36	19.6	12.9	9.96
9	Max. efficiency	%		82.8	84	83.1	83.1
10	Terminal resistance	Ω		0.33	1.22	2.78	4.82
11	Terminal inductance	mH		0.09	0.38	0.85	1.52
12	Torque constant	mNm/A		17.3	34.7	51.1	69.5
13	Speed constant	rpm/V		553	275	187	137
14	Speed/torque gradient	rpm/mNm		10.7	9.7	10.2	9.53
15	Mechanical time constant	ms		2.4	2.2	2.3	2.1
16	Rotor inertia	gcm^2		21.5	21.5	21.5	21.5
17	Thermal resistance housing-ambient		3.5 K/W				
18	Thermal resistance winding-housing		0.9 K/W				
19	Thermal time constant winding		14.3 s				
20	Thermal time constant motor		558 s				
21	Ambient temprature		-30...+100°C				
22	Max. permissible winding temperature		+150°C				
23	Max. permissible speed		20000 rpm				
24	Axial play at axial load	<8 N	0 mm				
		>8 N	max. 0.3 mm				
25	Radial play		preloaded				
26	Max. axial load (dynamic)		7.5 N				
27	Max.force for press fits (static)		100 N				
	(static, shaft supported)		2700 N				
28	Max. radial loading, 5mm from flange		25 N				
29	Number of pole pairs		1				
30	Number of phases		3				
31	Weight of motor		331 g				

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

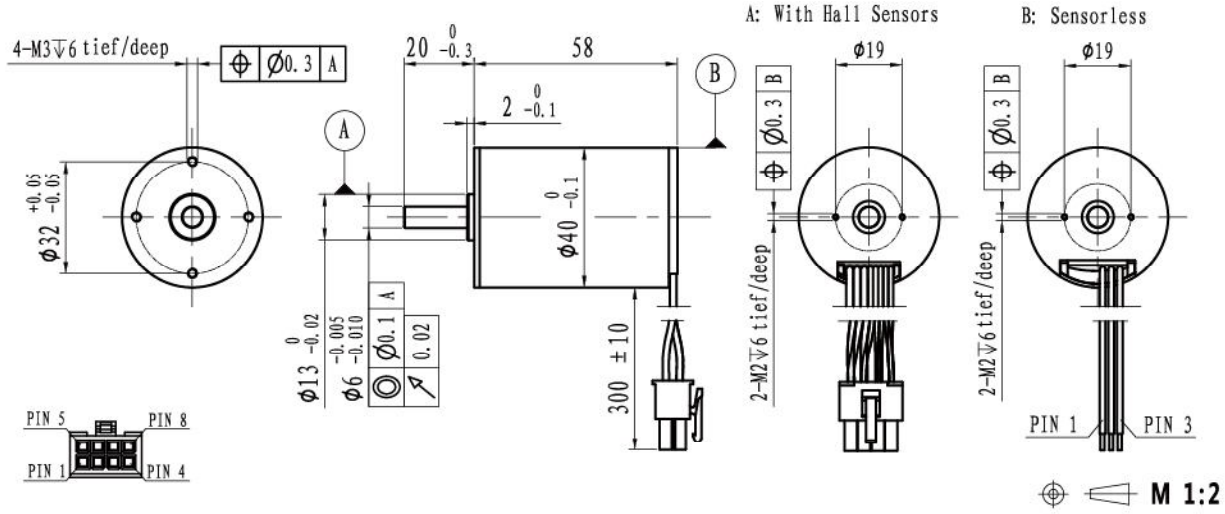
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

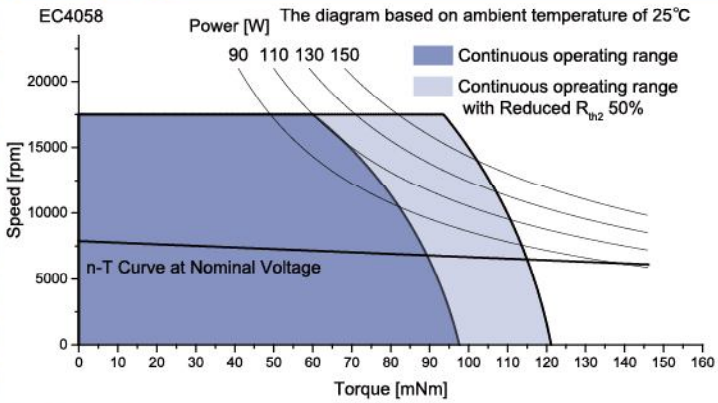
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless With hall sensor		EC4058L-... EC4058S-...	1208	2408	3608	4808				
Motor data											
Values at nominal voltage											
1	Nominal voltage	V		12	24	36	48				
2	No load speed	rpm		7958	7890	7962	8001				
3	No load current	mA		480	200	170	110				
4	Nominal speed	rpm		7000	6912	6943	6986				
5	Nominal torque	mNm		85	85	85	85				
6	Nominal current	A		6.44	3.15	2.16	1.61				
7	Stall torque	mNm		706	686	664	670				
8	Stall current	A		50	24	15.7	11.9				
9	Max. efficiency	%		81.4	82.6	80.3	81.7				
10	Terminal resistance	Ω		0.24	1	2.29	4.03				
11	Terminal inductance	mH		0.11	0.46	0.97	1.67				
12	Torque constant	mNm/A		14.3	28.8	42.7	56.8				
13	Speed constant	rpm/V		670	332	224	168				
14	Speed/torque gradient	rpm/mNm		11.3	11.5	12	11.9				
15	Mechanical time constant	ms		3.5	3.6	3.7	3.7				
16	Rotor inertia	gcm^2		29.6	29.6	29.6	29.6				
17	Thermal resistance housing-ambient	4.7 K/W									
18	Thermal resistance winding-housing	2.2 K/W									
19	Thermal time constant winding	35 s									
20	Thermal time constant motor	777 s									
21	Ambient temprature	-30...+100°C									
22	Max. permissible winding temperature	+150°C									
23	Max. permissible speed	17500 rpm									
24	Axial play at axial load <10N	0 mm									
	>10N	max. 0.3 mm									
25	Radial play	preloaded									
26	Max. axial load (dynamic)	9 N									
27	Max.force for press fits (static)	170 N									
	(static, shaft supported)	4500 N									
28	Max. radial loading, 5mm from flange	80 N									
29	Number of pole pairs	1									
30	Number of phases	3									
31	Weight of motor	338 g									

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

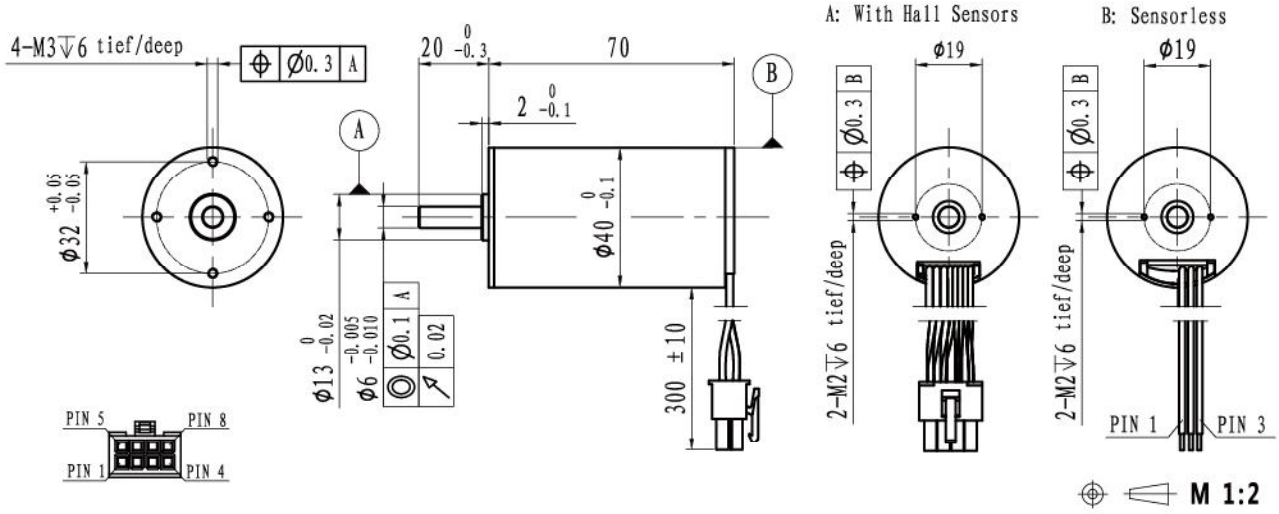
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

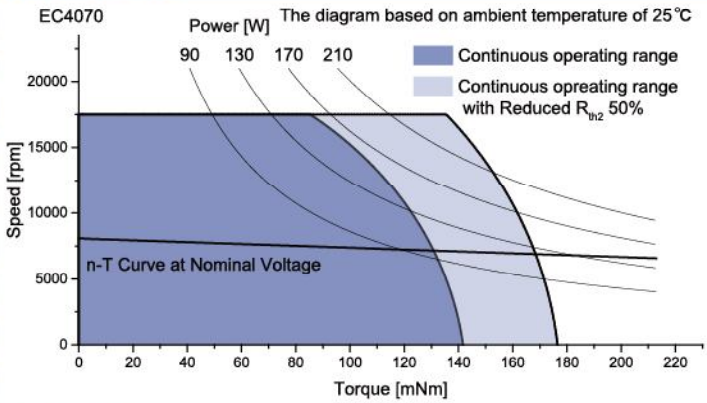
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



Sensorless / With hall sensor		EC4070L-... / EC4070S-...	1206	2408	3608	4808				
Motor data										
Values at nominal voltage										
1	Nominal voltage	V	12	24	36	48				
2	No load speed	rpm	6154	8102	8113	8061				
3	No load current	mA	264	200	190	130				
4	Nominal speed	rpm	5084	7304	7266	7238				
5	Nominal torque	mNm	130	130	130	130				
6	Nominal current	A	7.29	4.82	3.28	2.43				
7	Stall torque	mNm	748	1320	1245	1273				
8	Stall current	A	40.7	47.1	29.8	22.6				
9	Max. efficiency	%	84.5	87.4	84.7	85.4				
10	Terminal resistance	Ω	0.3	0.51	1.21	2.12				
11	Terminal inductance	mH	0.11	0.30	0.66	1.2				
12	Torque constant	mNm/A	18.5	28.2	42.1	56.5				
13	Speed constant	rpm/V	516	339	227	169				
14	Speed/torque gradient	rpm/mNm	8.23	6.14	6.52	6.33				
15	Mechanical time constant	ms	3.4	2.5	2.7	2.6				
16	Rotor inertia	gcm^2	39.4	39.4	39.4	39.4				
17	Thermal resistance housing-ambient	3.8 K/W								
18	Thermal resistance winding-housing	1.5 K/W								
19	Thermal time constant winding	33 s								
20	Thermal time constant motor	775 s								
21	Ambient temprature	-30...+100°C								
22	Max. permissible winding temperature	+150°C								
23	Max. permissible speed	17500 rpm								
24	Axial play at axial load <10N	0 mm								
	>10N	max. 0.3 mm								
25	Radial play	preloaded								
26	Max. axial load (dynamic)	9 N								
27	Max.force for press fits (static)	170 N								
	(static, shaft supported)	4500 N								
28	Max. radial loading, 5mm from flange	80 N								
29	Number of pole pairs	1								
30	Number of phases	3								
31	Weight of motor	415 g								

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

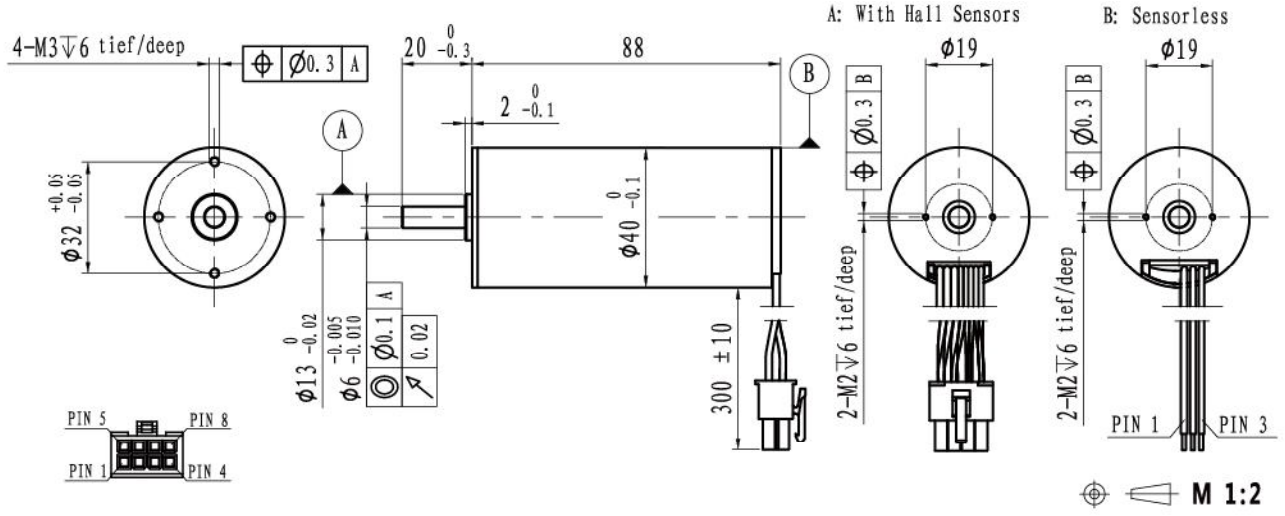
Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

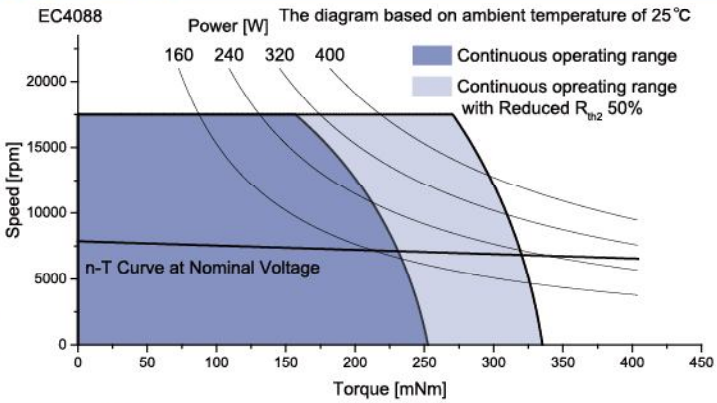
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless With hall sensor		EC4088L-... EC4088S-...	2408	3608	4808
Motor data						
Values at nominal voltage						
1	Nominal voltage	V		24	36	48
2	No load speed	rpm		7921	8032	8081
3	No load current	mA		440	290	200
4	Nominal speed	rpm		7299	7379	7452
5	Nominal torque	mNm		200	200	200
6	Nominal current	A		7.39	4.99	3.74
7	Stall torque	mNm		2546	2460	2570
8	Stall current	A		88.9	58.1	45.7
9	Max. efficiency	%		86.4	86.4	87.2
10	Terminal resistance	Ω		0.27	0.62	1.05
11	Terminal inductance	mH		0.18	0.38	0.78
12	Torque constant	mNm/A		28.8	42.6	56.5
13	Speed constant	rpm/V		332	224	169
14	Speed/torque gradient	rpm/mNm		3.11	3.26	3.14
15	Mechanical time constant	ms		1.8	1.9	1.8
16	Rotor inertia	gcm^2		54.1	54.1	54.1
17	Thermal resistance housing-ambient	3.0 K/W				
18	Thermal resistance winding-housing	0.6 K/W				
19	Thermal time constant winding	48 s				
20	Thermal time constant motor	996 s				
21	Ambient temprature	-30...+100°C				
22	Max. permissible winding temperature	+150°C				
23	Max. permissible speed	17500 rpm				
24	Axial play at axial load <10N	0 mm				
	>10N	max. 0.3 mm				
25	Radial play	preloaded				
26	Max. axial load (dynamic)	9 N				
27	Max.force for press fits (static)	170 N				
	(static, shaft supported)	4500 N				
28	Max. radial loading, 5mm from flange	80 N				
29	Number of pole pairs	1				
30	Number of phases	3				
31	Weight of motor	571 g				

Operating Range



Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HB	AWG26	Green

Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

Subject: _____

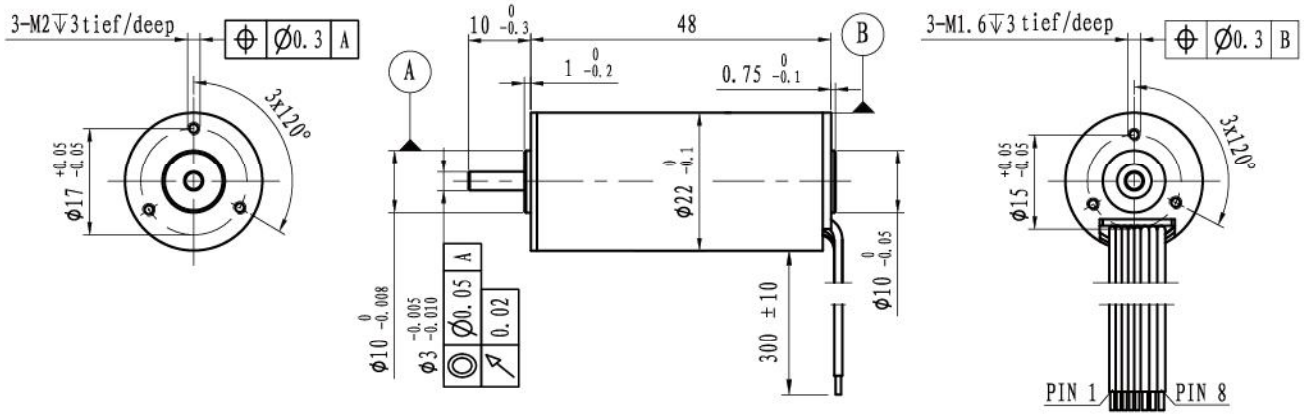
Date: _____

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

EC-4pole SERIES

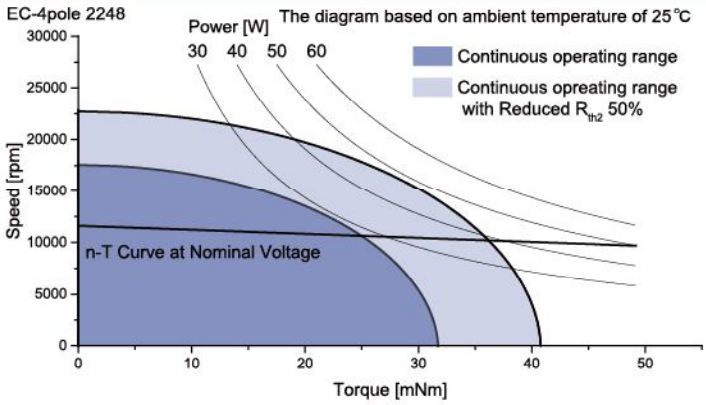
Φ22mm and Φ30mm
Ultra high power density
Innovative winding technology
No cogging
Long lifetime



M 1:1.2

With hall sensor **EC-4pole 2248S-...**		1212	1812	2412	3612
Motor data					
Values at nominal voltage					
1 Nominal voltage	V	12	18	24	36
2 No load speed	rpm	11800	11600	11650	11600
3 No load current	mA	300	240	140	100
4 Nominal speed	rpm	10724	10547	10520	10578
5 Nominal torque	mNm	30	30	30	30
6 Nominal current	A	3.42	2.29	1.68	1.12
7 Stall torque	mNm	329	331	309	340
8 Stall current	A	34.5	22.8	16	11.7
9 Max. efficiency	%	82.2	80.5	82.2	82.4
10 Terminal resistance	Ω	0.35	0.79	1.5	3.08
11 Terminal inductance	mH	0.011	0.021	0.042	0.084
12 Torque constant	mNm/A	9.63	14.7	19.5	29.4
13 Speed constant	rpm/V	992	651	490	325
14 Speed/torque gradient	rpm/mNm	35.9	35.1	37.7	34.1
15 Mechanical time constant	ms	3.4	3.3	3.6	3.2
16 Rotor inertia	gcm^2	9.0	9.0	9.0	9.0
17 Thermal resistance housing-ambient	14.5 K/W				
18 Thermal resistance winding-housing	3.9 K/W				
19 Thermal time constant winding	10.4 s				
20 Thermal time constant motor	776 s				
21 Ambient temprature	-30...+100°C				
22 Max. permissible winding temperature	+150°C				
23 Max. permissible speed	30000 rpm				
24 Axial play at axial load <4 N	0 mm				
>4 N	max. 0.3 mm				
25 Radial play	preloaded				
26 Max. axial load (dynamic)	3.5 N				
27 Max.force for press fits (static)	44 N				
(static, shaft supported)	1200 N				
28 Max. radial loading, 5mm from flange	15 N				
29 Number of pole pairs	2				
30 Number of phases	3				
31 Weight of motor	110 g				

Operating Range



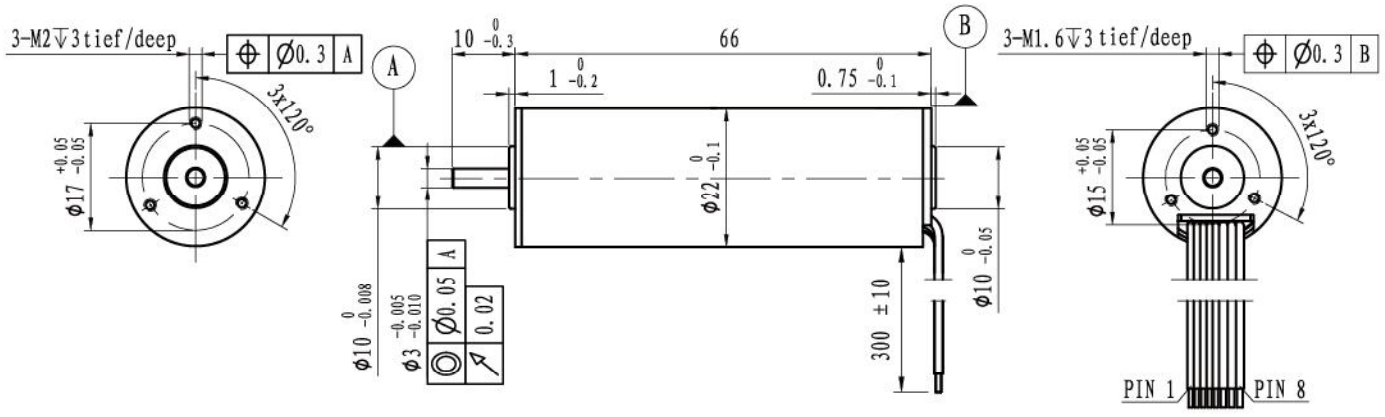
Connection

Conection (Sensor) PTFE

Pin 1	Vhall 3-18 VDC	AWG26	Red
Pin 2	Hall sensor HA	AWG26	Yellow
Pin 3	Hall sensor HB	AWG26	Blue
Pin 4	Hall sensor HC	AWG26	Green
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG20	Yellow
Pin 7	Motor winding MB	AWG20	Blue
Pin 8	Motor winding MC	AWG20	Green

Configuration

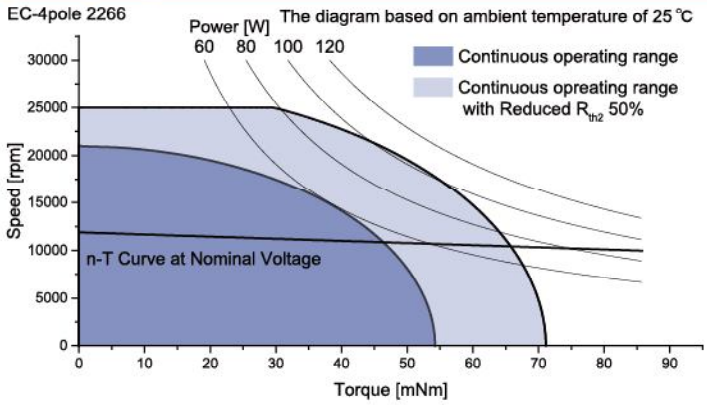
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.2

With hall sensor **EC-4pole 2266S-...**		1812	2412	3612	4812
Motor data					
Values at nominal voltage					
1 Nominal voltage	V	18	24	36	48
2 No load speed	rpm	12300	11530	12040	12050
3 No load current	mA	280	230	140	100
4 Nominal speed	rpm	11373	10659	11187	11221
5 Nominal torque	mNm	48	48	48	48
6 Nominal current	A	3.74	2.66	1.83	1.37
7 Stall torque	mNm	637	636	677	697
8 Stall current	A	46.2	32.4	24	18.5
9 Max. efficiency	%	85	83.9	85.3	85.8
10 Terminal resistance	Ω	0.39	0.74	1.5	2.59
11 Terminal inductance	mH	0.011	0.021	0.042	0.084
12 Torque constant	mNm/A	13.9	19.7	28.4	37.8
13 Speed constant	rpm/V	688	484	336	252
14 Speed/torque gradient	rpm/mNm	19.3	18.1	17.8	17.3
15 Mechanical time constant	ms	3.0	2.8	2.8	2.7
16 Rotor inertia	gcm^2	14.8	14.8	14.8	14.8
17 Thermal resistance housing-ambient	9.1 K/W				
18 Thermal resistance winding-housing	1.8 K/W				
19 Thermal time constant winding	7.3 s				
20 Thermal time constant motor	913 s				
21 Ambient temprature	-30...+100°C				
22 Max. permissible winding temperature	+150°C				
23 Max. permissible speed	30000 rpm				
24 Axial play at axial load <4 N	0 mm				
>4 N	max. 0.3 mm				
25 Radial play	preloaded				
26 Max. axial load (dynamic)	3.5 N				
27 Max.force for press fits (static)	44 N				
(static, shaft supported)	1200 N				
28 Max. radial loading, 5mm from flange	15 N				
29 Number of pole pairs	2				
30 Number of phases	3				
31 Weight of motor	153 g				

Operating Range



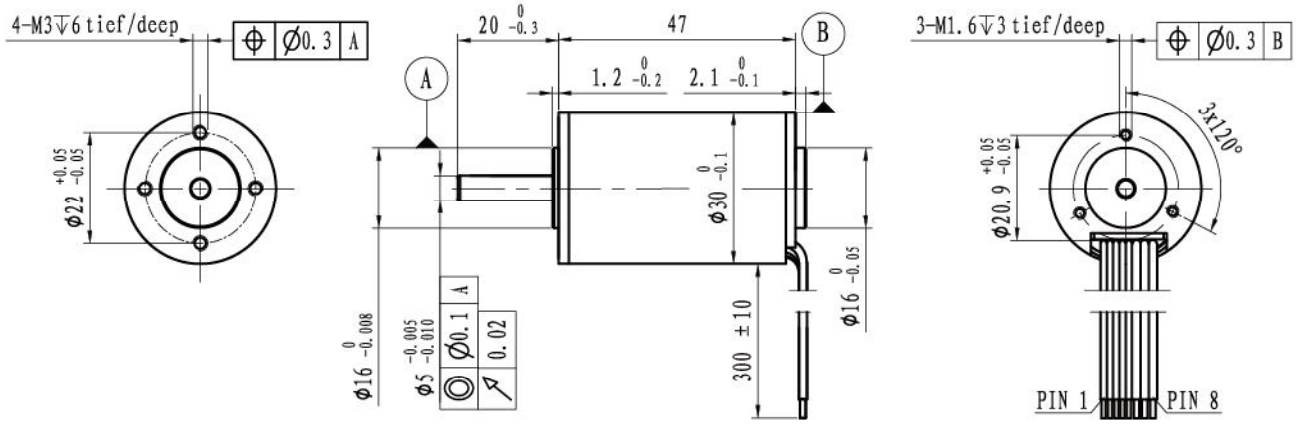
Connection

Conection (Sensor) PTFE

Pin 1	Vhall 3-18 VDC	AWG26	Red
Pin 2	Hall sensor HA	AWG26	Yellow
Pin 3	Hall sensor HB	AWG26	Blue
Pin 4	Hall sensor HC	AWG26	Green
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG20	Yellow
Pin 7	Motor winding MB	AWG20	Blue
Pin 8	Motor winding MC	AWG20	Green

Configuration

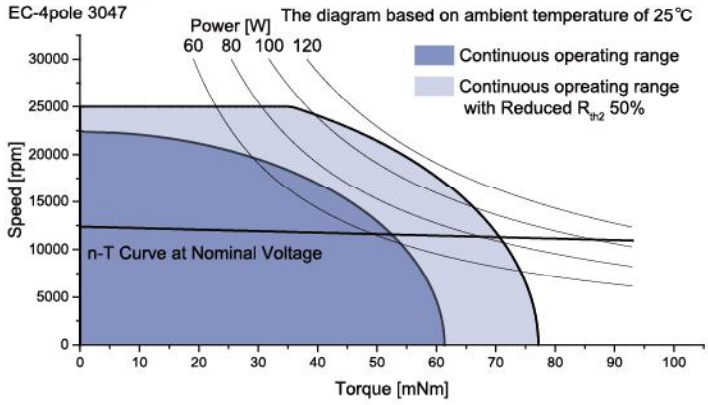
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1.5

With hall sensor **EC-4pole 3047S-...**		1812	2412	3612	4812
Motor data					
Values at nominal voltage					
1 Nominal voltage	V	18	24	36	48
2 No load speed	rpm	12193	12207	12200	12251
3 No load current	mA	580	410	310	200
4 Nominal speed	rpm	11431	11451	11506	11469
5 Nominal torque	mNm	55	55	55	55
6 Nominal current	A	4.52	3.36	2.28	1.68
7 Stall torque	mNm	880	888	967	861
8 Stall current	A	63.6	48.1	35	23.4
9 Max. efficiency	%	81.8	82.4	82.1	82.4
10 Terminal resistance	Ω	0.28	0.5	1.03	2.05
11 Terminal inductance	mH	0.021	0.042	0.084	0.170
12 Torque constant	mNm/A	14	18.6	27.9	37.1
13 Speed constant	rpm/V	684	513	342	257
14 Speed/torque gradient	rpm/mNm	13.8	13.8	12.6	14.2
15 Mechanical time constant	ms	3.81	3.8	3.5	3.9
16 Rotor inertia	gcm^2	26.3	26.3	26.3	26.3
17 Thermal resistance housing-ambient	8.2 K/W				
18 Thermal resistance winding-housing	3 K/W				
19 Thermal time constant winding	15.6 s				
20 Thermal time constant motor	940 s				
21 Ambient temprature	-30...+100°C				
22 Max. permissible winding temperature	+150°C				
23 Max. permissible speed	25000 rpm				
24 Axial play at axial load <8 N	0 mm				
>8 N	max. 0.3 mm				
25 Radial play	preloaded				
26 Max. axial load (dynamic)	7.5 N				
27 Max.force for press fits (static)	100 N				
(static, shaft supported)	2700 N				
28 Max. radial loading, 5mm from flange	25 N				
29 Number of pole pairs	2				
30 Number of phases	3				
31 Weight of motor	210 g				

Operating Range

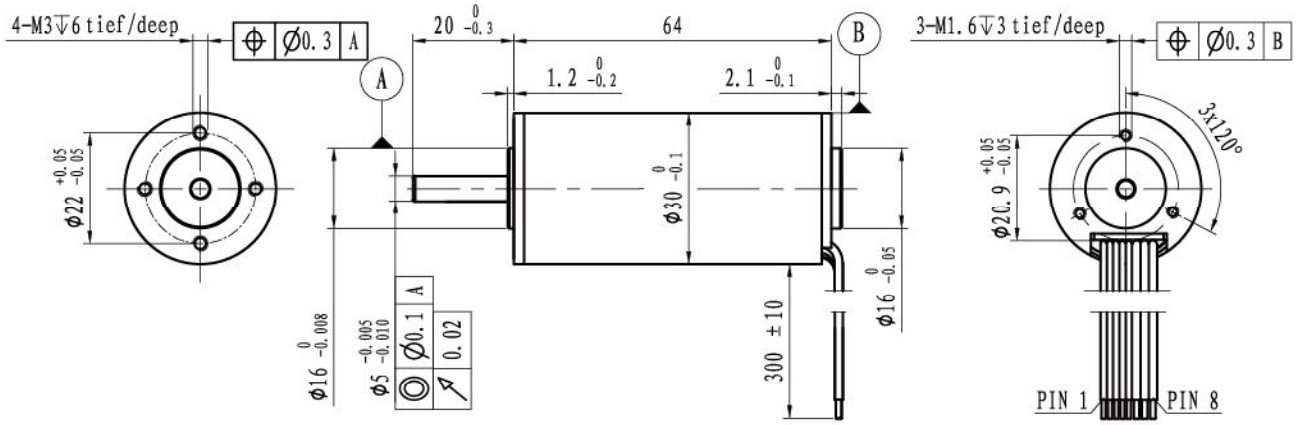


Connection

Conection (Sensor)		PTFE	
Pin 1	Vhall 3-18 VDC	AWG26	Red
Pin 2	Hall sensor HA	AWG26	Yellow
Pin 3	Hall sensor HB	AWG26	Blue
Pin 4	Hall sensor HC	AWG26	Green
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG20	Yellow
Pin 7	Motor winding MB	AWG20	Blue
Pin 8	Motor winding MC	AWG20	Green

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

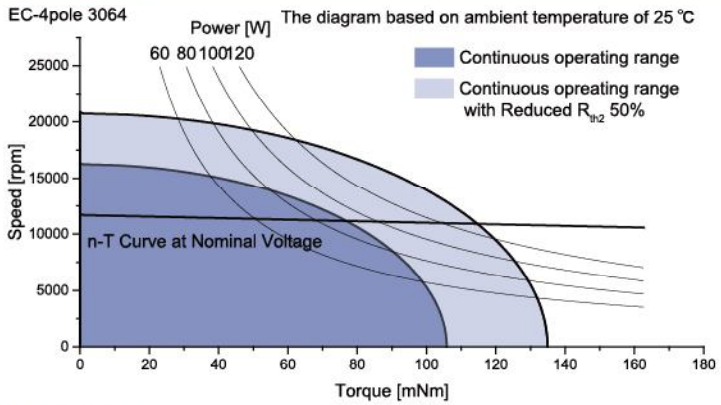


M 1:1.5

With hall sensor **EC-4pole 3064S-...**		2412	3612	4812
Motor data				
Values at nominal voltage				
1 Nominal voltage	V	24	36	48
2 No load speed	rpm	11700	12050	12300
3 No load current	mA	650	350	260
4 Nominal speed	rpm	11143	11417	11628
5 Nominal torque	mNm	92	92	92
6 Nominal current	A	5.38	3.59	2.74
7 Stall torque	mNm	1933	1751	1684
8 Stall current	A	100	62.1	45.7
9 Max. efficiency	%	84.5	85.5	85.5
10 Terminal resistance	Ω	0.24	0.58	1.05
11 Terminal inductance	mH	0.024	0.050	0.096
12 Torque constant	mNm/A	19.5	28.4	37.1
13 Speed constant	rpm/V	491	337	258
14 Speed/torque gradient	rpm/mNm	6.05	6.88	7.3
15 Mechanical time constant	ms	2.6	2.9	3.1
16 Rotor inertia	gcm^2	40.3	40.3	40.3

17 Thermal resistance housing-ambient	5.7 K/W	
18 Thermal resistance winding-housing	1.7 K/W	
19 Thermal time constant winding	12.7 s	
20 Thermal time constant motor	870 s	
21 Ambient temprature	-30...+100°C	
22 Max. permissible winding temperature	+150°C	
23 Max. permissible speed	25000 rpm	
24 Axial play at axial load <8 N	0 mm	
>8 N	max. 0.3 mm	
25 Radial play	preloaded	
26 Max. axial load (dynamic)	7.5 N	
27 Max.force for press fits (static)	100 N	
(static, shaft supported)	2700 N	
28 Max. radial loading, 5mm from flange	25 N	
29 Number of pole pairs	2	
30 Number of phases	3	
31 Weight of motor	289 g	

Operating Range



Connection

Conection (Sensor)	PTFE	
Pin 1 Vhall 3-18 VDC	AWG26	Red
Pin 2 Hall sensor HA	AWG26	Yellow
Pin 3 Hall sensor HB	AWG26	Blue
Pin 4 Hall sensor HC	AWG26	Green
Pin 5 GND	AWG26	black
Pin 6 Motor winding MA	AWG20	Yellow
Pin 7 Motor winding MB	AWG20	Blue
Pin 8 Motor winding MC	AWG20	Green

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

Subject: _____

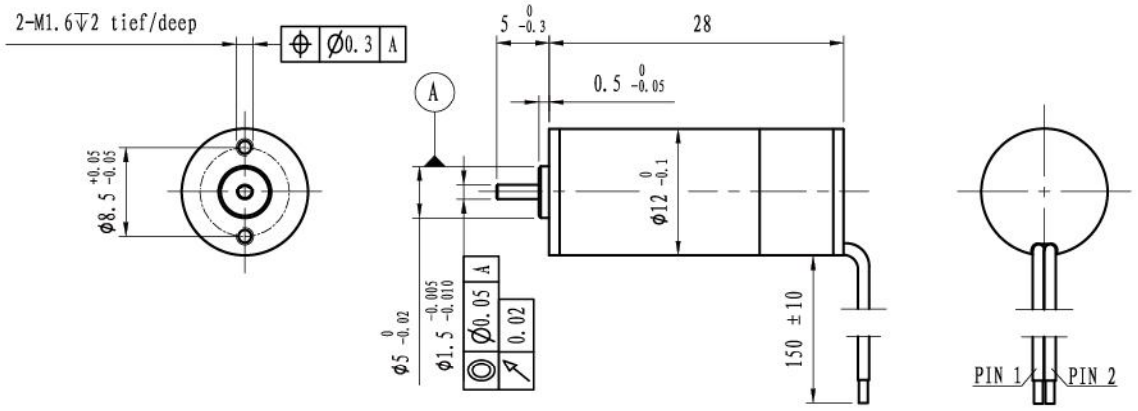
Date: _____

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

Slotless Brushless DC motor
With integrated Speed Controller
ECD SERIES

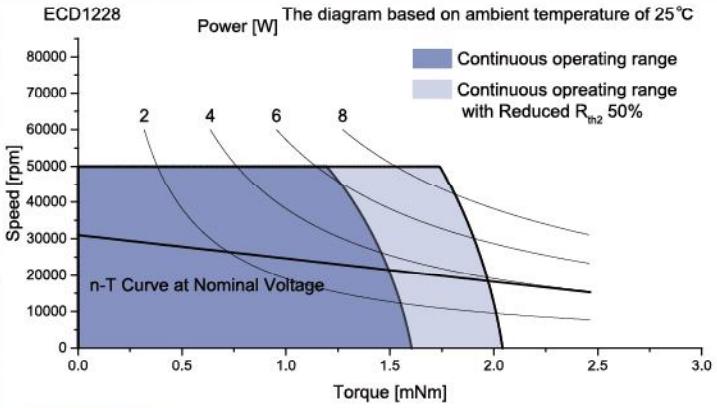
Φ12mm to Φ36mm
High quality BLDC controller
Used for speed control
Long life time
Low noise
Flexible function customization



M 1.5:1

Sensorless ECD1228L-...		0631
Motor data		
Values at nominal voltage		
1 Nominal voltage	V	6
2 No load speed	rpm	31000
3 No load current	mA	140
4 Nominal speed	rpm	27755
5 Nominal torque	mNm	0.5
6 Nominal current	A	0.42
7 Stall torque	mNm	4.78
8 Stall current	A	2.86
9 Max. efficiency	%	60.6
10 Supply voltage +Vcc	V	4.5..7
11 Direction of ratation		CW
12 Torque constant	mNm/A	1.78
13 Speed constant	rpm/V	5374
14 Speed/torque gradient	rpm/mNm	6350
15 Mechanical time constant	ms	11.3
16 Rotor inertia	gcm^2	0.2
17 Thermal resistance housing-ambient	38.3 K/W	
18 Thermal resistance winding-housing	9.6 K/W	
19 Thermal time constant winding	5 s	
20 Thermal time constant motor	196 s	
21 Ambient temprature	-30...+100℃	
22 Max. permissible winding temperature	+125℃	
23 Max. permissible speed	50000 rpm	
24 Axial play at axial load <0.8 N	0 mm	
>0.8 N	max. 0.3 mm	
25 Radial play	preloaded	
26 Max. axial load (dynamic)	0.3	
27 Max.force for press fits (static)	11N	
(static, shaft supported)	200 N	
28 Max. radial loading, 5mm from flange	4.3 N	
29 Number of pole pairs	1	
30 Number of phases	3	
31 Weight of motor	12.2 g	

Operating Range



Controller features	
Sensor, Open loop, Imax < 0.5A	
Overload protection, Stall protection	
Max. temperature of electronics	+105℃

Connection

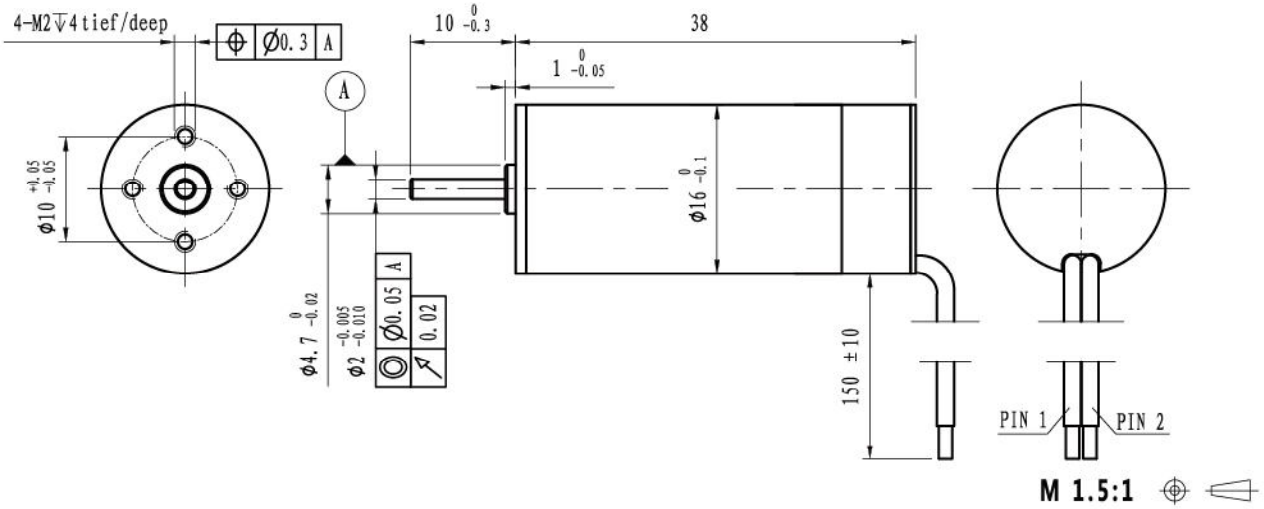
Conection			
Pin 1	+VCC	PTFE AWG24	red
Pin 2	GND	AWG24	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

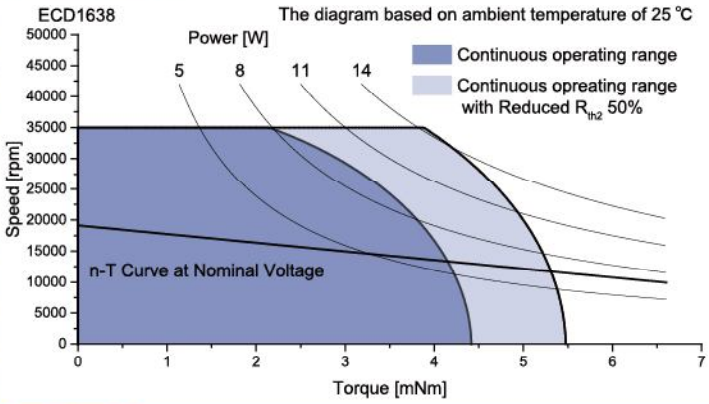
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



Sensorless	ECD1638S-...	0608	1217
Motor data			
Values at nominal voltage			
1 Nominal voltage	V	6	12
2 No load speed	rpm	8832	17664
3 No load current	mA	110	100
4 Nominal speed	rpm	6102	14491
5 Nominal torque	mNm	1.5	2
6 Nominal current	A	0.37	0.43
7 Stall torque	mNm	4.85	11.1
8 Stall current	A	0.96	1.91
9 Max. efficiency	%	43.7	59.5
10 Supply voltage +Vcc	V	4.5..7	8..13
11 Direction of ratation		CW	CW
12 Torque constant	mNm/A	5.74	6.11
13 Speed constant	rpm/V	1664	1562
14 Speed/torque gradient	rpm/mNm	1820	1604
15 Mechanical time constant	ms	8.2	7.2
16 Rotor inertia	gcm^2	0.4	0.4
17 Thermal resistance housing-ambient	20.2 K/W		
18 Thermal resistance winding-housing	8.7 K/W		
19 Thermal time constant winding	7 s		
20 Thermal time constant motor	238 s		
21 Ambient temprature	-.30...+100℃		
22 Max. permissible winding temperature	+150℃		
23 Max. permissible speed	35000 rpm		
24 Axial play at axial load <1.8 N	0 mm		
>1.8 N	max. 0.3 mm		
25 Radial play	preloaded		
26 Max. axial load (dynamic)	1.3 N		
27 Max.force for press fits (static)	15 N		
(static, shaft supported)	350 N		
28 Max. radial loading, 5mm from flange	5 N		
29 Number of pole pairs	1		
30 Number of phases	3		
31 Weight of motor	27 g		

Operating Range



Controller features	
Sensorless, Open loop, Imax < 0.5A	
Overload protection, Stall protection	
Max. temperature of electronics	+105℃

Connection

Conection

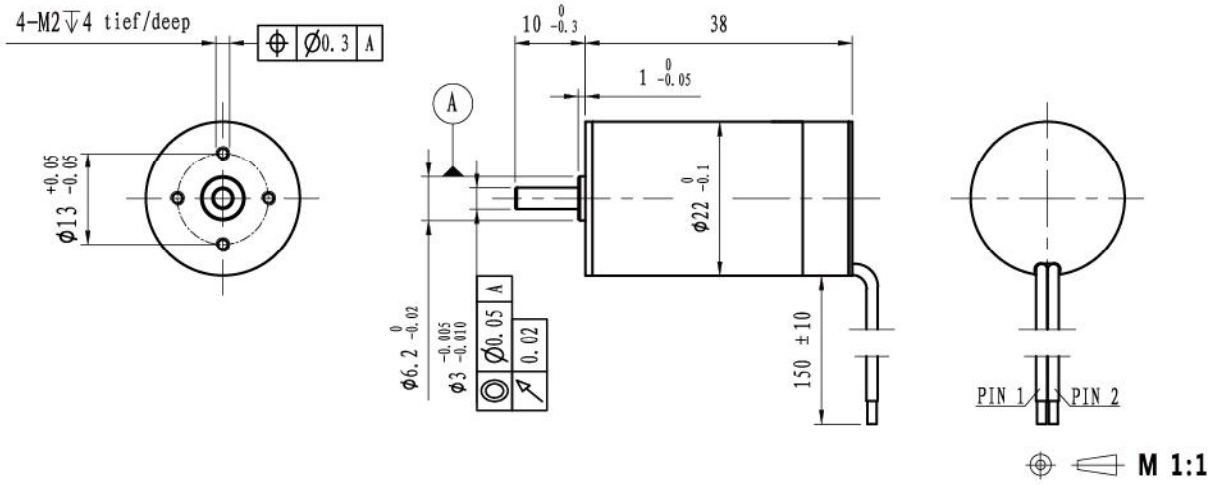
Pin 1	+VCC	PTFE AWG24	red
Pin 2	GND	AWG24	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

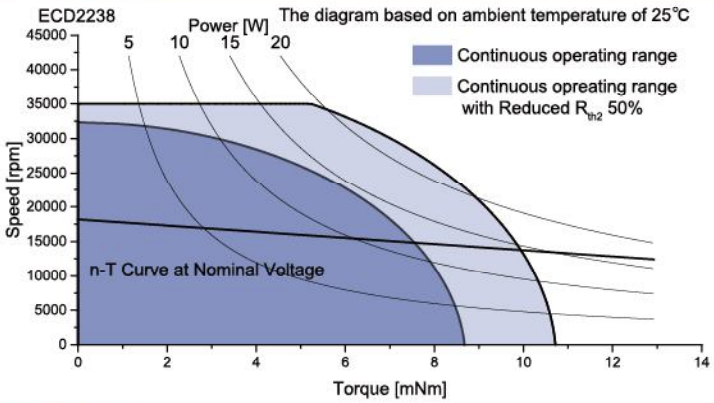
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD2238S-...			1218	1818	2418
Motor data					
Values at nominal voltage					
1	Nominal voltage	V	12	18	24
2	No load speed	rpm	17445	17830	17721
3	No load current	mA	220	150	110
4	Nominal speed	rpm	14292	14700	14260
5	Nominal torque	mNm	6	6	6
6	Nominal current	A	1.13	0.75	0.57
7	Stall torque	mNm	44.8	45.3	40.7
8	Stall current	A	7.44	4.96	3.39
9	Max. efficiency	%	70.2	70.3	67.7
10	Supply voltage +Vcc	V	10..28	10..28	10..28
11	Direction of ratation		CW	CW	CW
12	Torque constant	mNm/A	6.15	9.32	12.3
13	Speed constant	rpm/V	1553	1024	777
14	Speed/torque gradient	rpm/mNm	407	399	447
15	Mechanical time constant	ms	6.4	6.2	7.0
16	Rotor inertia	gcm^2	1.5	1.5	1.5
17	Thermal resistance housing-ambient	15.2 K/W			
18	Thermal resistance winding-housing	6.0 K/W			
19	Thermal time constant winding	11 s			
20	Thermal time constant motor	383 s			
21	Ambient temprature	-30...+100℃			
22	Max. permissible winding temperature	+150℃			
23	Max. permissible speed	35000 rpm			
24	Axial play at axial load <4 N	0 mm			
	>4 N	max. 0.3 mm			
25	Radial play	preloaded			
26	Max. axial load (dynamic)	3.5 N			
27	Max.force for press fits (static)	44 N			
	(static, shaft supported)	1200 N			
28	Max. radial loading, 5mm from flange	15 N			
29	Number of pole pairs	1			
30	Number of phases	3			
31	Weight of motor	63 g			

Operating Range



Controller features

Sensor, Open loop, Imax < 1.5A
Overload protection, Stall protection
Max. temperature of electronics +105℃

Connection

Conection

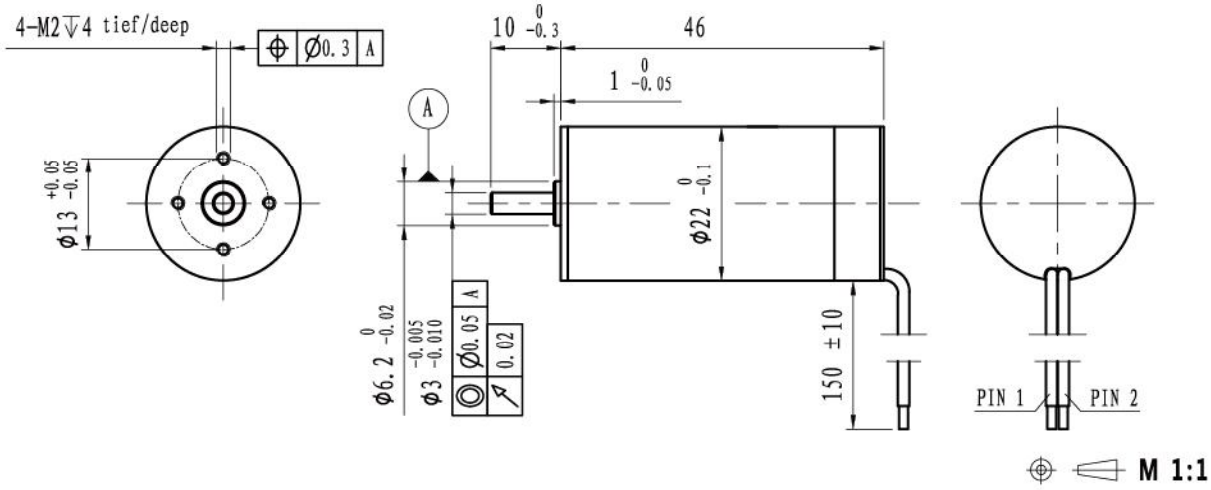
Pin 1	+VCC	PTFE AWG24	red
Pin 2	GND	AWG24	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

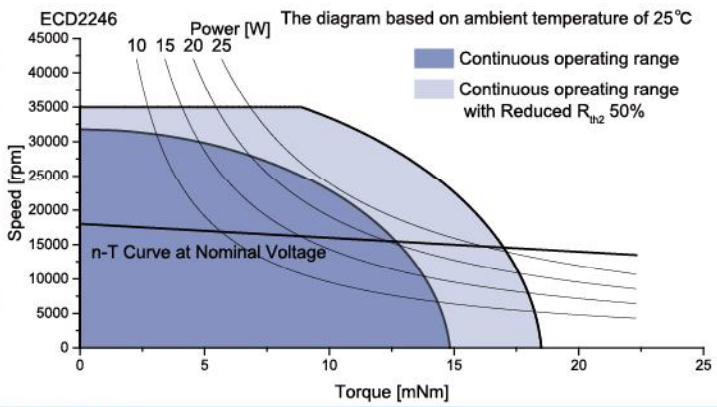
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD2246S-...			1212	2416
Motor data				
Values at nominal voltage				
1	Nominal voltage	V	12	24
2	No load speed	rpm	11570	15627
3	No load current	mA	170	140
4	Nominal speed	rpm	10085	12771
5	Nominal torque	mNm	8	12
6	Nominal current	A	1.01	1.01
7	Stall torque	mNm	60.4	82.8
8	Stall current	A	6.7	6.28
9	Max. efficiency	%	70.5	71.8
10	Supply voltage +Vcc	V	10..28	10..28
11	Direction of ratation		CW	CW
12	Torque constant	mNm/A	9.2	13.4
13	Speed constant	rpm/V	1038	712
14	Speed/torque gradient	rpm/mNm	202	203
15	Mechanical time constant	ms	4.8	4.8
16	Rotor inertia	gcm^2	2.3	2.3
17	Thermal resistance housing-ambient	12.7 K/W		
18	Thermal resistance winding-housing	5.0 K/W		
19	Thermal time constant winding	12 s		
20	Thermal time constant motor	420 s		
21	Ambient temprature	-30...+100°C		
22	Max. permissible winding temperature	+150°C		
23	Max. permissible speed	35000 rpm		
24	Axial play at axial load <4 N	0 mm		
	>4 N	max. 0.3 mm		
25	Radial play	preloaded		
26	Max. axial load (dynamic)	3.5 N		
27	Max.force for press fits (static)	44 N		
	(static, shaft supported)	1200 N		
28	Max. radial loading, 5mm from flange	15 N		
29	Number of pole pairs	1		
30	Number of phases	3		
31	Weight of motor	79 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 1.5A	
Overload protection, Stall protection	
Max. temperature of electronics	+105°C

Connection

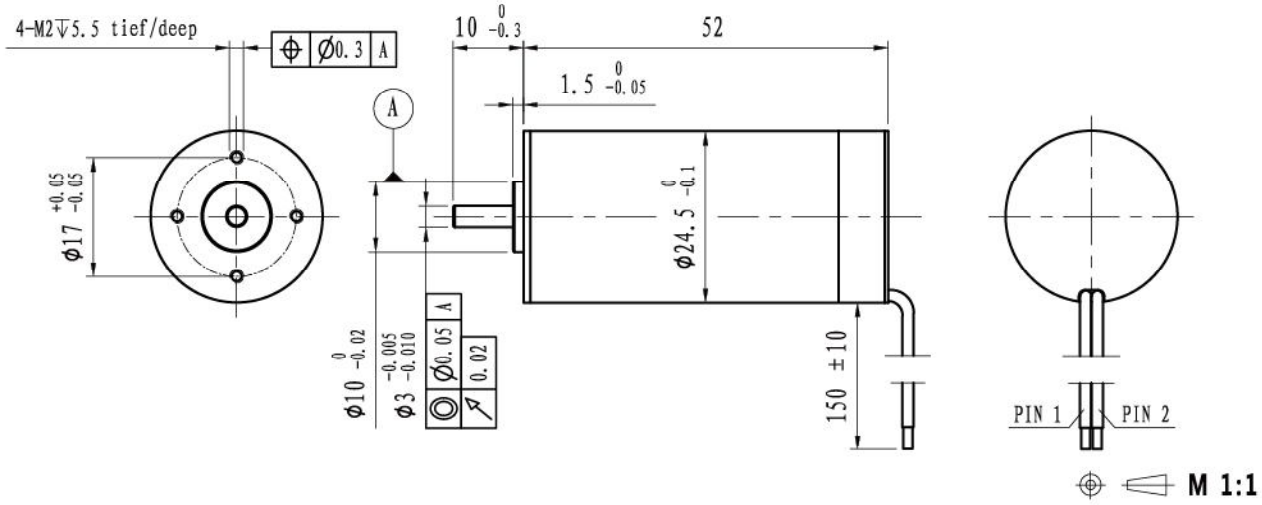
Conection		PTFE	
Pin 1	+VCC	AWG24	red
Pin 2	GND	AWG24	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

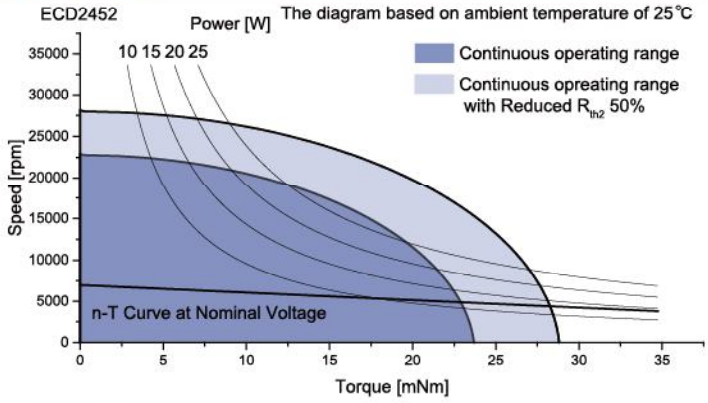
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD2452S-...			1207	2407
Motor data				
Values at nominal voltage				
1	Nominal voltage	V	12	24
2	No load speed	rpm	6904	6980
3	No load current	mA	103	70
4	Nominal speed	rpm	5087	5089
5	Nominal torque	mNm	14	14
6	Nominal current	A	0.98	0.51
7	Stall torque	mNm	87	85.2
8	Stall current	A	5.58	2.73
9	Max. efficiency	%	71.7	67.9
10	Supply voltage +Vcc	V	10..28	10..28
11	Direction of ratation		CW	CW
12	Torque constant	mNm/A	15.9	32
13	Speed constant	rpm/V	601	298
14	Speed/torque gradient	rpm/mNm	81.3	81.9
15	Mechanical time constant	ms	3.6	3.6
16	Rotor inertia	gcm^2	4.2	4.2
17	Thermal resistance housing-ambient	11.6 K/W		
18	Thermal resistance winding-housing	5.6 K/W		
19	Thermal time constant winding	30 s		
20	Thermal time constant motor	557 s		
21	Ambient temprature	-30...+100℃		
22	Max. permissible winding temperature	+150℃		
23	Max. permissible speed	30000 rpm		
24	Axial play at axial load <4 N	0 mm		
	>4 N	max. 0.3 mm		
25	Radial play	preloaded		
26	Max. axial load (dynamic)	3.5 N		
27	Max.force for press fits (static)	44 N		
	(static, shaft supported)	1200 N		
28	Max. radial loading, 5mm from flange	15 N		
29	Number of pole pairs	1		
30	Number of phases	3		
31	Weight of motor	112 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 1.5A	
Overload protection, Stall protection	
Max. temperature of electronics	+105℃

Connection

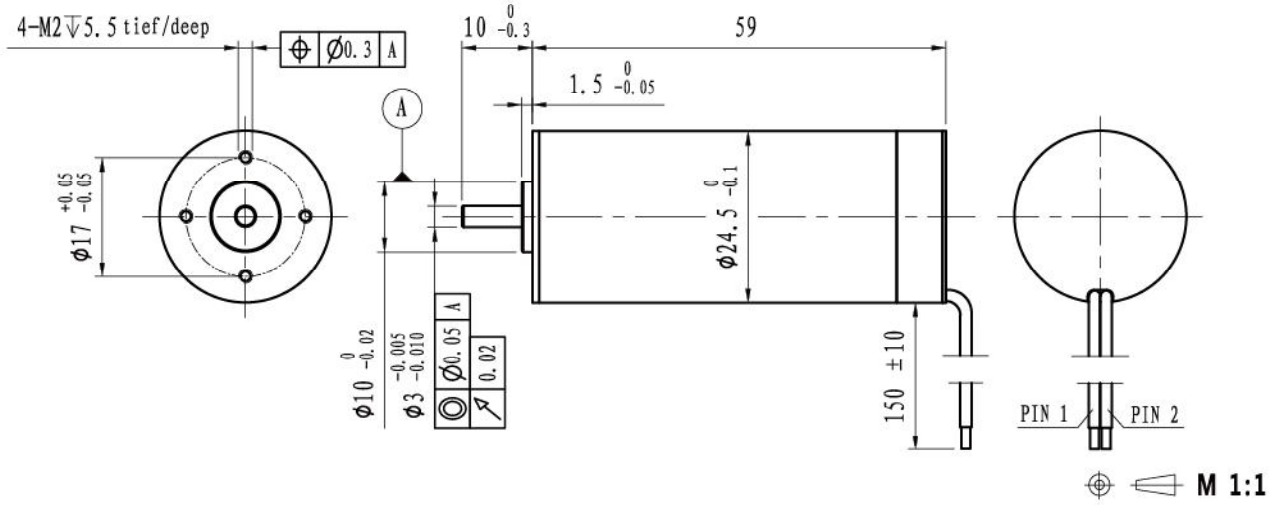
Conection		PTFE	
Pin 1	+VCC	AWG24	red
Pin 2	GND	AWG24	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

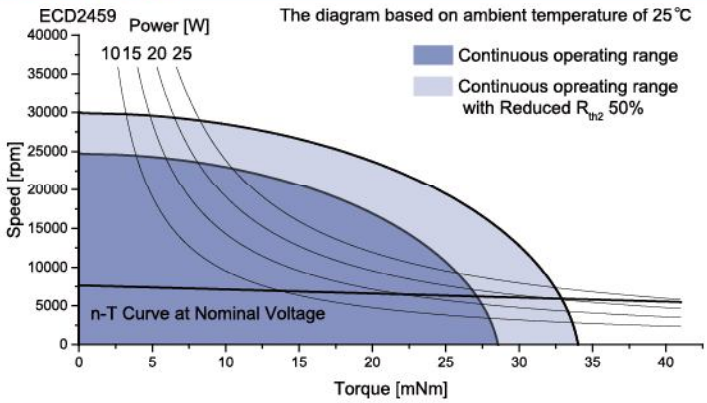
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD2459S-...			1207	2407
Motor data				
Values at nominal voltage				
1	Nominal voltage	V	12	24
2	No load speed	rpm	7699	7655
3	No load current	mA	114	73
4	Nominal speed	rpm	6958	6597
5	Nominal torque	mNm	14	20
6	Nominal current	A	1.07	0.75
7	Stall torque	mNm	145	145
8	Stall current	A	10	4.98
9	Max. efficiency	%	79.8	77.2
10	Supply voltage +Vcc	V	10..28	10..28
11	Direction of ratation		CW	CW
12	Torque constant	mNm/A	14.7	29.5
13	Speed constant	rpm/V	649	324
14	Speed/torque gradient	rpm/mNm	52.9	52.9
15	Mechanical time constant	ms	3.3	3.3
16	Rotor inertia	gcm^2	5.9	5.9
17	Thermal resistance housing-ambient	10.2 K/W		
18	Thermal resistance winding-housing	6.4 K/W		
19	Thermal time constant winding	36 s		
20	Thermal time constant motor	555 s		
21	Ambient temprature	-30...+100℃		
22	Max. permissible winding temperature	+150℃		
23	Max. permissible speed	30000 rpm		
24	Axial play at axial load <4 N	0 mm		
	>4 N	max. 0.3 mm		
25	Radial play	preloaded		
26	Max. axial load (dynamic)	3.5 N		
27	Max.force for press fits (static)	44 N		
	(static, shaft supported)	1200 N		
28	Max. radial loading, 5mm from flange	15 N		
29	Number of pole pairs	1		
30	Number of phases	3		
31	Weight of motor	130 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 1.5A	
Overload protection, Stall protection	
Max. temperature of electronics	+105℃

Connection

Conection

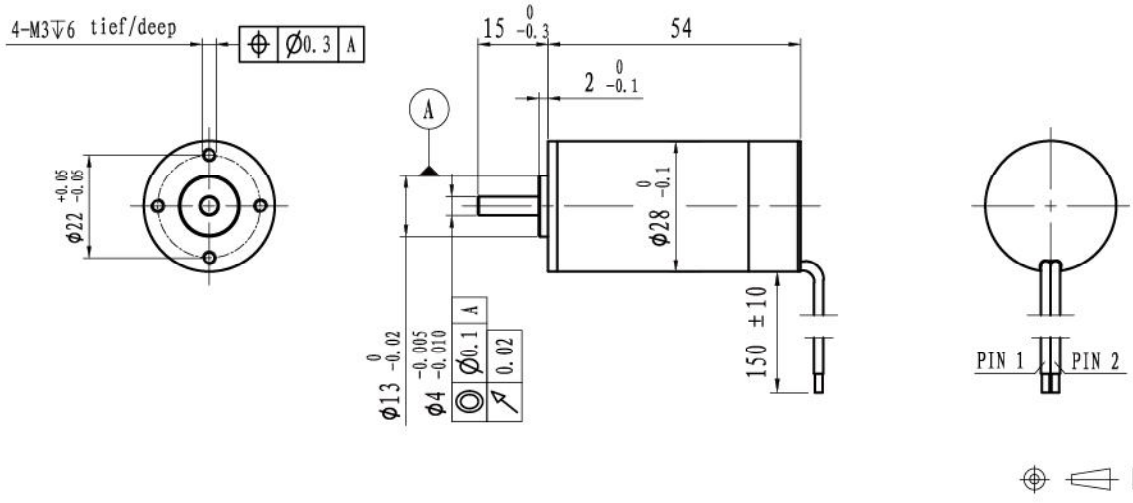
Pin 1	+VCC	PTFE AWG24	red
Pin 2	GND	AWG24	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

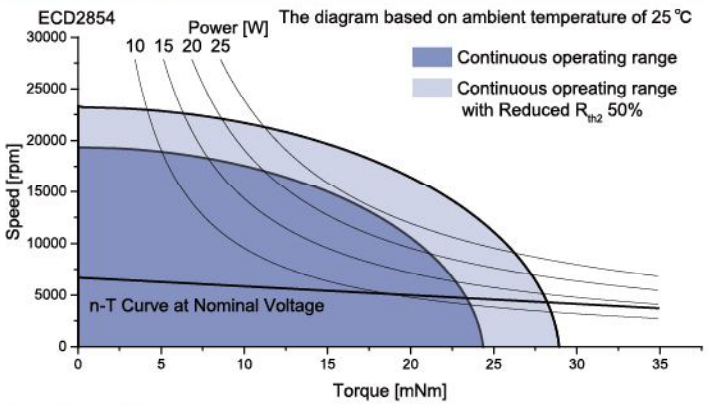
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD2854S-...		1206	2406
Motor data			
Values at nominal voltage			
1 Nominal voltage	V	12	24
2 No load speed	rpm	6878	6700
3 No load current	mA	121	76
4 Nominal speed	rpm	5674	5157
5 Nominal torque	mNm	15	18
6 Nominal current	A	1.04	0.62
7 Stall torque	mNm	85.7	78.1
8 Stall current	A	5.38	2.43
9 Max. efficiency	%	72.3	67.8
10 Supply voltage +Vcc	V	10..28	10..28
11 Direction of ratation		CW	CW
12 Torque constant	mNm/A	16.3	33.1
13 Speed constant	rpm/V	586	288
14 Speed/torque gradient	rpm/mNm	80.3	85.7
15 Mechanical time constant	ms	4.4	4.7
16 Rotor inertia	gcm^2	5.2	5.2
17 Thermal resistance housing-ambient	9.6 K/W		
18 Thermal resistance winding-housing	6.3 K/W		
19 Thermal time constant winding	37 s		
20 Thermal time constant motor	584 s		
21 Ambient temprature	-30...+100°C		
22 Max. permissible winding temperature	+150°C		
23 Max. permissible speed	25000 rpm		
24 Axial play at axial load <8 N	0 mm		
>8 N	max. 0.3 mm		
25 Radial play	preloaded		
26 Max. axial load (dynamic)	7.5 N		
27 Max.force for press fits (static)	100 N		
(static, shaft supported)	2000 N		
28 Max. radial loading, 5mm from flange	25 N		
29 Number of pole pairs	1		
30 Number of phases	3		
31 Weight of motor	153 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 1.8A	
Overload protection, Stall protection	
Max. temperature of electronics	+105°C

Connection

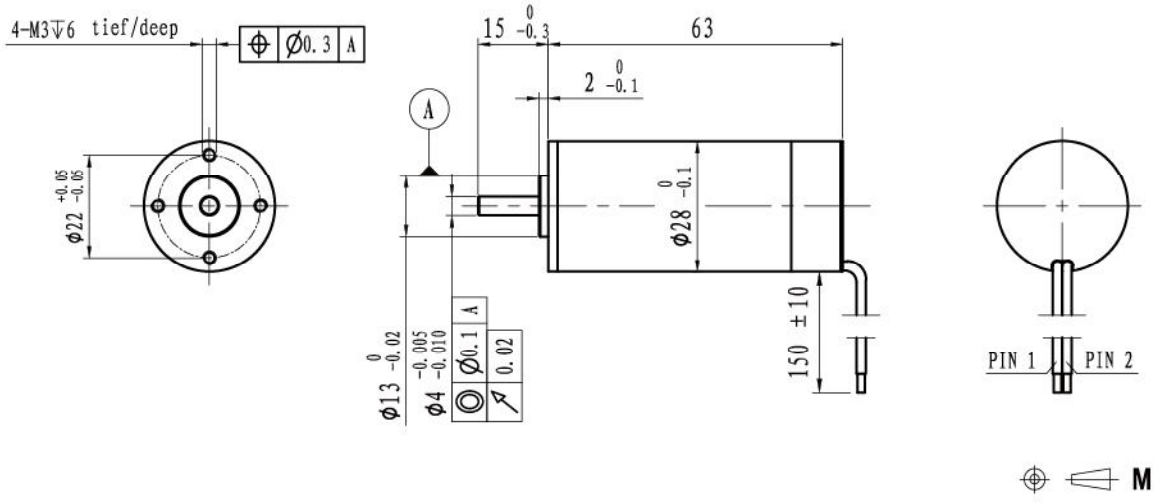
Conection		PTFE	
Pin 1	+VCC	AWG20	red
Pin 2	GND	AWG20	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

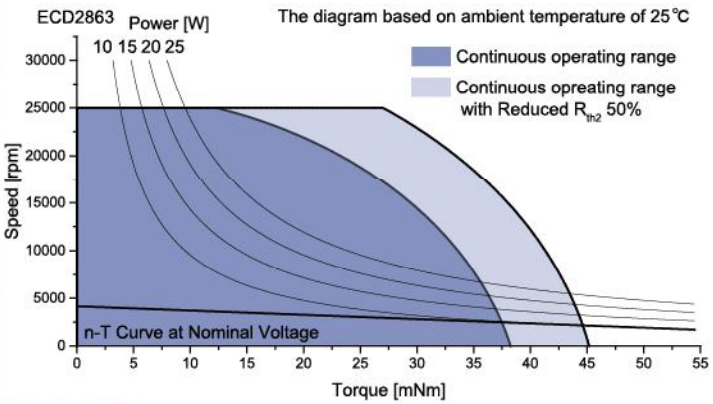
More :
Please contact our sales engineers



M 1:1.5

With hall sensor ECD2863S-...			1204	2404
Motor data				
Values at nominal voltage				
1	Nominal voltage	V	12	24
2	No load speed	rpm	4168	4163
3	No load current	mA	70	60
4	Nominal speed	rpm	3264	3033
5	Nominal torque	mNm	25	25
6	Nominal current	A	0.99	0.53
7	Stall torque	mNm	115	92.1
8	Stall current	A	4.33	1.79
9	Max. efficiency	%	76.2	66.7
10	Supply voltage +Vcc	V	10..28	10..28
11	Direction of ratation		CW	CW
12	Torque constant	mNm/A	27	53.2
13	Speed constant	rpm/V	353	179
14	Speed/torque gradient	rpm/mNm	36.2	45.2
15	Mechanical time constant	ms	3.2	4.0
16	Rotor inertia	gcm^2	8.5	8.5
17	Thermal resistance housing-ambient	7.1 K/W		
18	Thermal resistance winding-housing	5 K/W		
19	Thermal time constant winding	51 s		
20	Thermal time constant motor	552 s		
21	Ambient temprature	-30...+100°C		
22	Max. permissible winding temperature	+150°C		
23	Max. permissible speed	25000 rpm		
24	Axial play at axial load <8 N	0 mm		
	>8 N	max. 0.3 mm		
25	Radial play	preloaded		
26	Max. axial load (dynamic)	7.5 N		
27	Max.force for press fits (static)	100 N		
	(static, shaft supported)	2000 N		
28	Max. radial loading, 5mm from flange	25 N		
29	Number of pole pairs	1		
30	Number of phases	3		
31	Weight of motor	188 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 1.8A	
Overload protection, Stall protection	
Max. temperature of electronics	+105°C

Connection

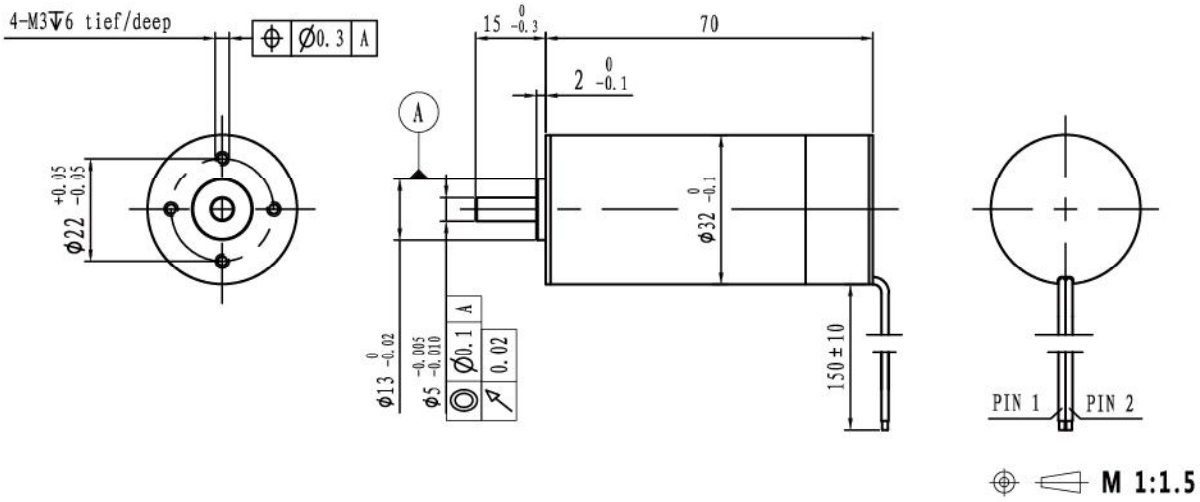
Conection		PTFE	
Pin 1	+VCC	AWG20	red
Pin 2	GND	AWG20	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

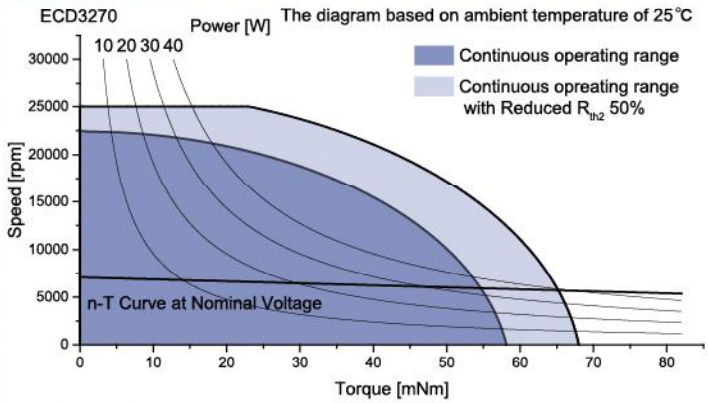
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD3270S-...			1207	2407
Motor data				
Values at nominal voltage				
1	Nominal voltage	V	12	24
2	No load speed	rpm	7200	7100
3	No load current	mA	194	110
4	Nominal speed	rpm	6623	6243
5	Nominal torque	mNm	25	40
6	Nominal current	A	1.78	1.36
7	Stall torque	mNm	312	331
8	Stall current	A	20	10.5
9	Max. efficiency	%	81.3	80.6
10	Supply voltage +Vcc	V	10..28	10..28
11	Direction of ratation		CW	CW
12	Torque constant	mNm/A	15.8	31.9
13	Speed constant	rpm/V	606	299
14	Speed/torque gradient	rpm/mNm	23.1	21.4
15	Mechanical time constant	ms	3.7	3.5
16	Rotor inertia	gcm^2	15.5	15.5
17	Thermal resistance housing-ambient	5 K/W		
18	Thermal resistance winding-housing	4 K/W		
19	Thermal time constant winding	52 s		
20	Thermal time constant motor	540 s		
21	Ambient temprature	-30...+100℃		
22	Max. permissible winding temperature	+150℃		
23	Max. permissible speed	25000 rpm		
24	Axial play at axial load <8 N	0 mm		
	>8 N	max. 0.3 mm		
25	Radial play	preloaded		
26	Max. axial load (dynamic)	7.5 N		
27	Max.force for press fits (static)	100 N		
	(static, shaft supported)	2700 N		
28	Max. radial loading, 5mm from flange	25 N		
29	Number of pole pairs	1		
30	Number of phases	3		
31	Weight of motor	255 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 2.2A	
Overload protection, Stall protection	
Max. temperature of electronics	+105℃

Connection

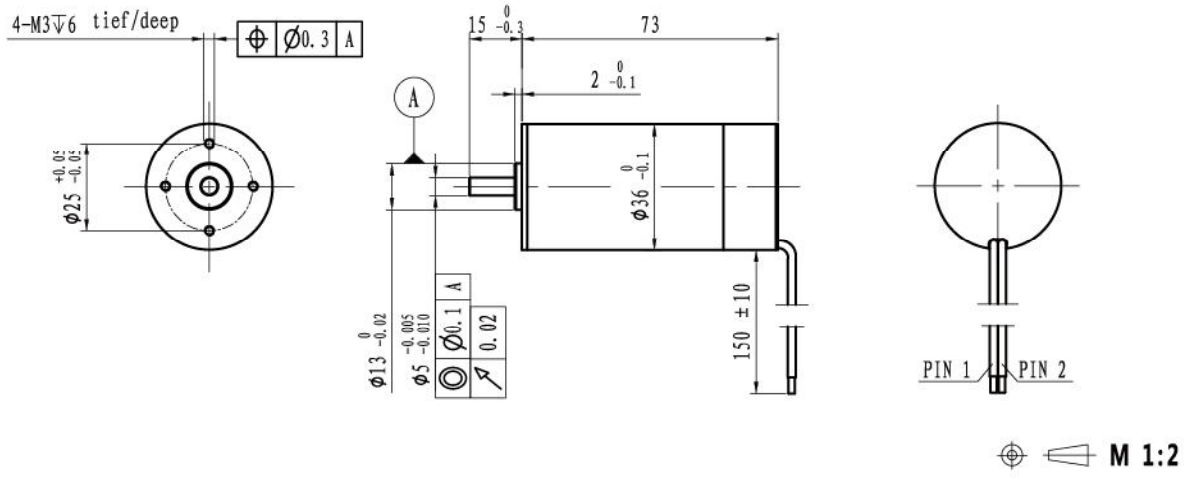
Conection			
Pin 1	+VCC	PTFE AWG20	red
Pin 2	GND	AWG20	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

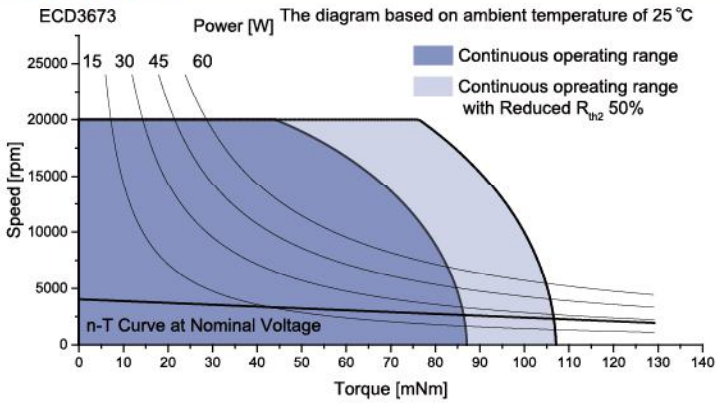
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD3673S-...		1204	2404
Motor data			
Values at nominal voltage			
1 Nominal voltage	V	12	24
2 No load speed	rpm	4070	4042
3 No load current	mA	148	84
4 Nominal speed	rpm	3229	3223
5 Nominal torque	mNm	50	50
6 Nominal current	A	1.95	0.98
7 Stall torque	mNm	242	247
8 Stall current	A	8.89	4.52
9 Max. efficiency	%	75.9	74.6
10 Supply voltage +Vcc	V	10..28	10..28
11 Direction of ratation		CW	CW
12 Torque constant	mNm/A	27.7	55.7
13 Speed constant	rpm/V	345	172
14 Speed/torque gradient	rpm/mNm	16.8	16.4
15 Mechanical time constant	ms	3.4	3.3
16 Rotor inertia	gcm^2	19.5	19.5
17 Thermal resistance housing-ambient	4.9 K/W		
18 Thermal resistance winding-housing	1.6 K/W		
19 Thermal time constant winding	45 s		
20 Thermal time constant motor	630 s		
21 Ambient temprature	-30...+100°C		
22 Max. permissible winding temperature	+150°C		
23 Max. permissible speed	20000 rpm		
24 Axial play at axial load <8 N	0 mm		
>8 N	max. 0.3 mm		
25 Radial play	preloaded		
26 Max. axial load (dynamic)	7.5 N		
27 Max.force for press fits (static)	100 N		
(static, shaft supported)	2700 N		
28 Max. radial loading, 5mm from flange	25 N		
29 Number of pole pairs	1		
30 Number of phases	3		
31 Weight of motor	317 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 4A	
Overload protection, Stall protection	
Max. temperature of electronics	+105°C

Connection

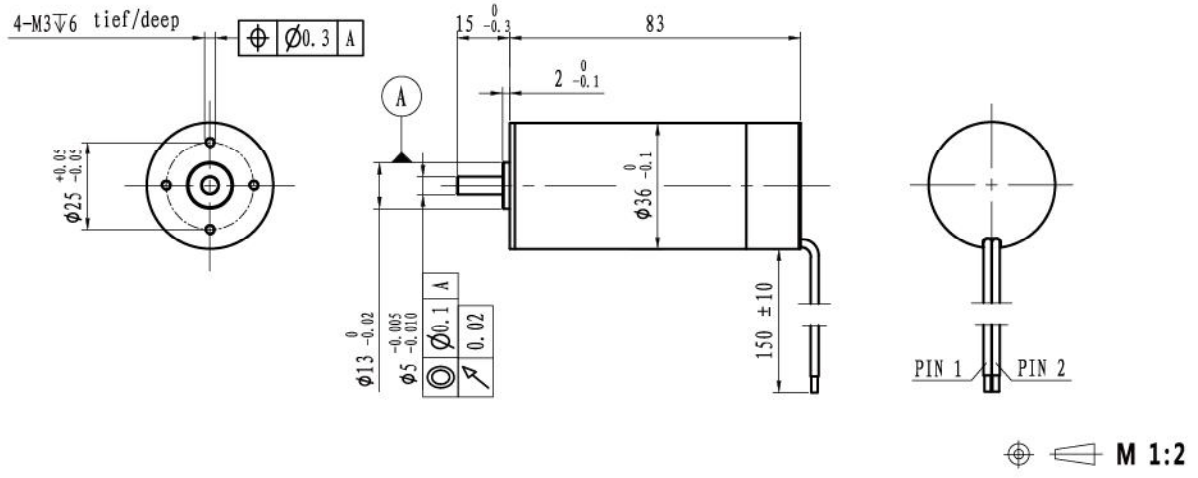
Conection			
Pin 1	+VCC	PTFE AWG20	red
Pin 2	GND	AWG20	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

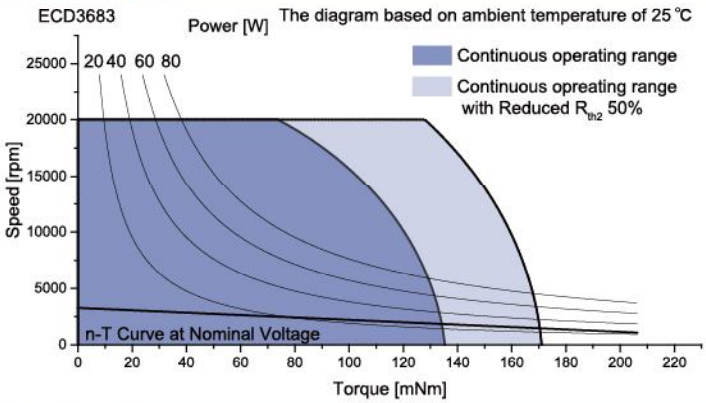
Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers



With hall sensor ECD3683S-...		1203	2403
Motor data			
Values at nominal voltage			
1 Nominal voltage	V	12	24
2 No load speed	rpm	3278	3273
3 No load current	mA	137	78
4 Nominal speed	rpm	2294	2304
5 Nominal torque	mNm	100	100
6 Nominal current	A	3.04	1.53
7 Stall torque	mNm	333	338
8 Stall current	A	9.8	4.98
9 Max. efficiency	%	77.8	76.5
10 Supply voltage +Vcc	V	10..28	10..28
11 Direction of ratation		CW	CW
12 Torque constant	mNm/A	34.5	68.9
13 Speed constant	rpm/V	277	139
14 Speed/torque gradient	rpm/mNm	9.83	9.69
15 Mechanical time constant	ms	2.2	2.2
16 Rotor inertia	gcm^2	21.5	21.5
17 Thermal resistance housing-ambient	5 K/W		
18 Thermal resistance winding-housing	2.3 K/W		
19 Thermal time constant winding	46 s		
20 Thermal time constant motor	816 s		
21 Ambient temprature	-30...+100℃		
22 Max. permissible winding temperature	+150℃		
23 Max. permissible speed	20000 rpm		
24 Axial play at axial load <8 N	0 mm		
>8 N	max. 0.3 mm		
25 Radial play	preloaded		
26 Max. axial load (dynamic)	7.5 N		
27 Max.force for press fits (static)	100 N		
(static, shaft supported)	2700 N		
28 Max. radial loading, 5mm from flange	25 N		
29 Number of pole pairs	1		
30 Number of phases	3		
31 Weight of motor	366 g		

Operating Range



Controller features	
Sensor, Open loop, Imax < 4A	
Overload protection, Stall protection	
Max. temperature of electronics	+105℃

Connection

Conection

Pin 1	+VCC	PTFE AWG20	red
Pin 2	GND	AWG20	black

Caution:
Incorrect lead connection will damage the controller!

Configuration

Function: On&Off/Direction/Speed control/Brake
Speed closed&open-loop Control/Speed feedback
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

More :
Please contact our sales engineers

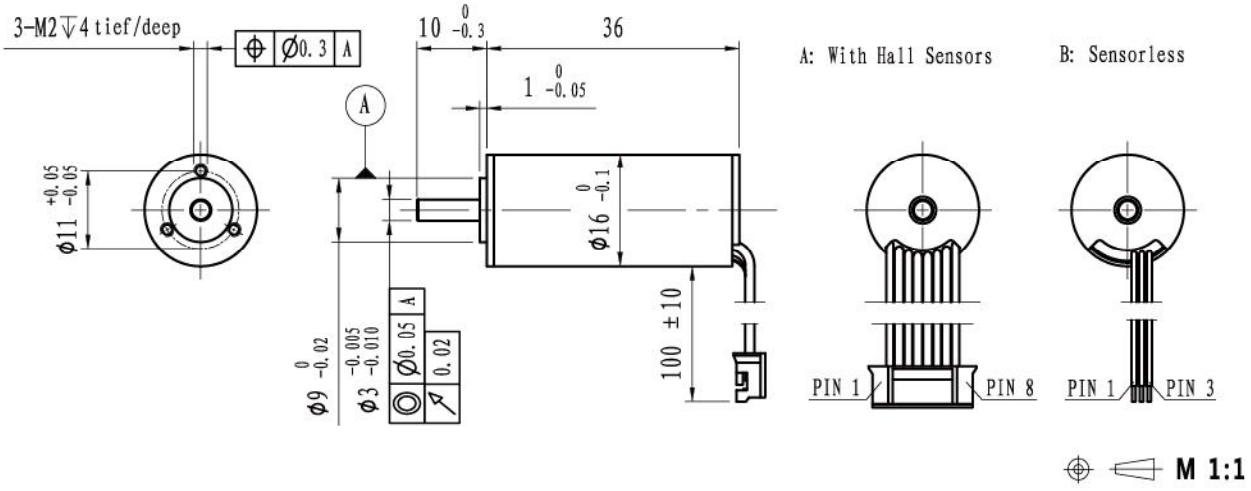
vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

Slotless BLDC high speed motor

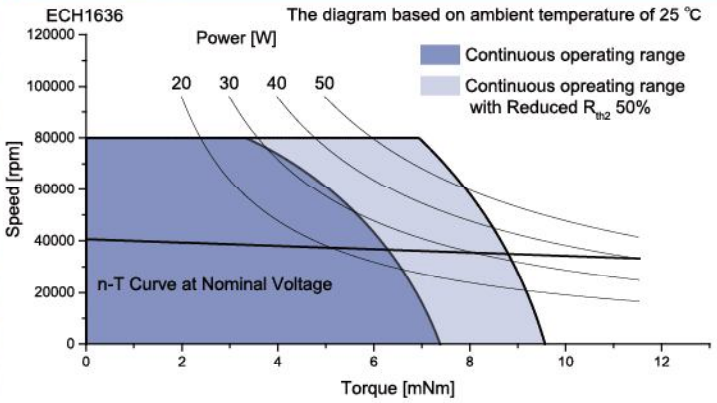
ECH SERIES

High speed up to 60000RPM
Low noise
High efficiency
Long life time
Flexible customization



	Sensorless ECH1636L-... / With hall sensor ECH1636S-...		2440	3040	3640
Motor data					
Values at nominal voltage					
1	Nominal voltage	V	24	30	36
2	No load speed	rpm	40273	40225	40760
3	No load current	mA	90	77	72
4	Nominal speed	rpm	37067	36958	37406
5	Nominal torque	mNm	5	5	5
6	Nominal current	A	0.98	0.79	0.67
7	Stall torque	mNm	62.8	61.6	60.8
8	Stall current	A	11.2	8.8	7.35
9	Max. efficiency	%	82.9	82.2	81.2
10	Terminal resistance	Ω	2.14	3.41	4.9
11	Terminal inductance	mH	0.11	0.17	0.24
12	Torque constant	mNm/A	5.65	7.06	8.35
13	Speed constant	rpm/V	1692	1353	1143
14	Speed/torque gradient	rpm/mNm	641	653	671
15	Mechanical time constant	ms	3.7	3.8	3.9
16	Rotor inertia	gcm^2	0.55	0.55	0.55
17	Thermal resistance housing-ambient	18.6 K/W			
18	Thermal resistance winding-housing	3.44 K/W			
19	Thermal time constant winding	6 s			
20	Thermal time constant motor	298 s			
21	Ambient temprature	-30...+100℃			
22	Max. permissible winding temperature	+150℃			
23	Max. permissible speed	80000 rpm			
24	Axial play at axial load <3 N	0 mm			
	>3 N	max. 0.3 mm			
25	Radial play	preloaded			
26	Max. axial load (dynamic)	2.5 N			
27	Max.force for press fits (static)	44 N			
	(static, shaft supported)	1200 N			
28	Max. radial loading, 5mm from flange	11 N			
29	Number of pole pairs	1			
30	Number of phases	3			
31	Weight of motor	32 g			

Operating Range



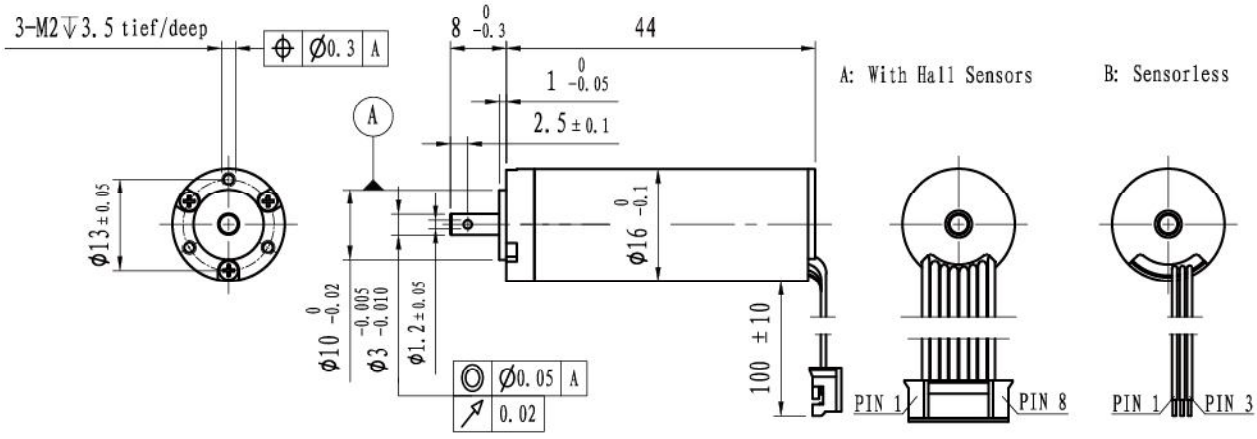
Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST PH2.0-8P			

Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

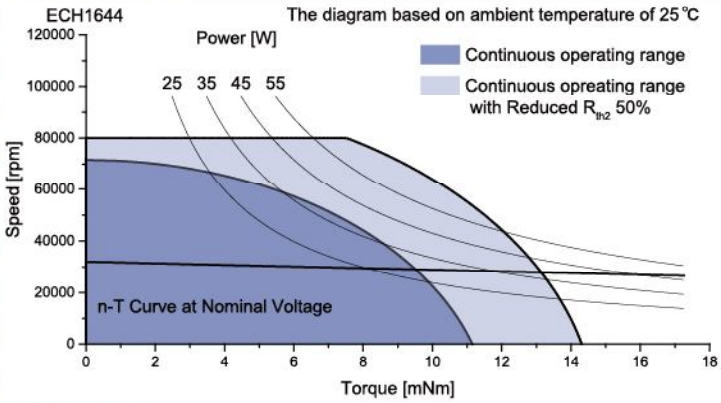
Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



M 1:1

Sensorless ECH1644L-... / With hall sensor ECH1644S-...			2430	3040	3640
Motor data					
Values at nominal voltage					
1	Nominal voltage	V	24	30	36
2	No load speed	rpm	30580	30900	30160
3	No load current	mA	95	80	76
4	Nominal speed	rpm	28134	28403	27632
5	Nominal torque	mNm	7.5	7.5	7.5
6	Nominal current	A	1.1	0.9	0.74
7	Stall torque	mNm	93.8	92.8	89.5
8	Stall current	A	12.7	10.2	8
9	Max. efficiency	%	83.4	83	81.5
10	Terminal resistance	Ω	1.89	2.95	4.5
11	Terminal inductance	mH	0.12	0.19	0.28
12	Torque constant	mNm/A	7.44	9.2	11.3
13	Speed constant	rpm/V	1284	1038	846
14	Speed/torque gradient	rpm/mNm	326	333	337
15	Mechanical time constant	ms	2.8	2.9	2.9
16	Rotor inertia	gcm^2	0.82	0.82	0.82
17	Thermal resistance housing-ambient	16.2 K/W			
18	Thermal resistance winding-housing	3.5 K/W			
19	Thermal time constant winding	4 s			
20	Thermal time constant motor	339 s			
21	Ambient temprature	-30...+100℃			
22	Max. permissible winding temperature	+150℃			
23	Max. permissible speed	80000 rpm			
24	Axial play at axial load <3 N	0 mm			
	>3 N	max. 0.3 mm			
25	Radial play	preloaded			
26	Max. axial load (dynamic)	2.5 N			
27	Max.force for press fits (static)	44 N			
	(static, shaft supported)	1200 N			
28	Max. radial loading, 5mm from flange	11 N			
29	Number of pole pairs	1			
30	Number of phases	3			
31	Weight of motor	43g			

Operating Range



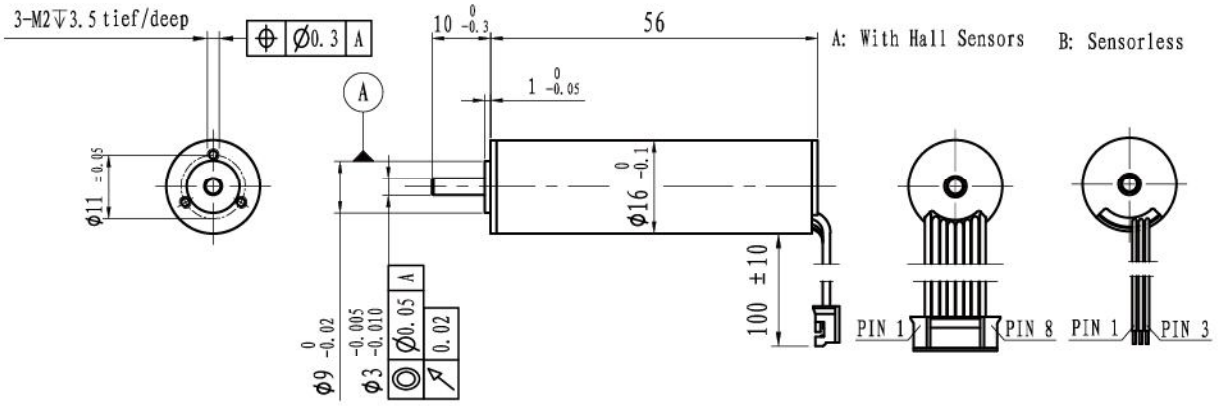
Connection

Conection A (Sensor)		PVC	
Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black
Conector			
JST PH2.0-8P			

Conection B (Sensorless)		PVC	
Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE

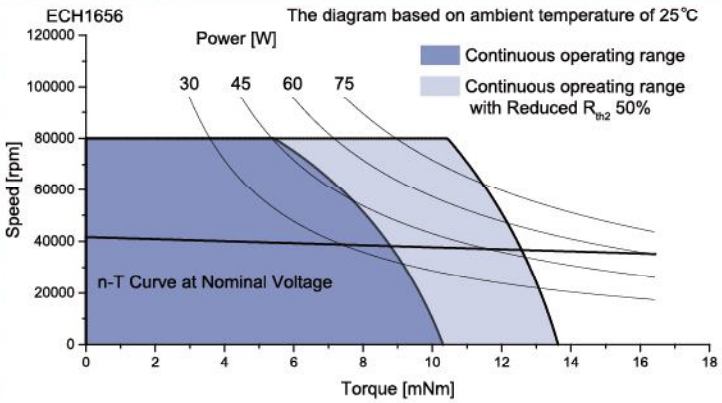


M 1:1.2

Sensorless ECH1656L-... / With hall sensor ECH1656S-...		2440	3040	3640
Motor data				
Values at nominal voltage				
1 Nominal voltage	V	24	30	36
2 No load speed	rpm	41670	40775	41311
3 No load current	mA	103	89	79
4 Nominal speed	rpm	39232	38438	38898
5 Nominal torque	mNm	6	6	6
6 Nominal current	A	1.2	0.95	0.8
7 Stall torque	mNm	103	105	103
8 Stall current	A	18.9	15.1	12.5
9 Max. efficiency	%	85.8	85.2	84.7
10 Terminal resistance	Ω	1.27	1.99	2.88
11 Terminal inductance	mH	0.09	0.14	0.2
12 Torque constant	mNm/A	5.47	6.98	8.27
13 Speed constant	rpm/V	1746	1367	1155
14 Speed/torque gradient	rpm/mNm	406	390	402
15 Mechanical time constant	ms	2.6	2.5	2.6
16 Rotor inertia	gcm^2	0.61	0.61	0.61

17 Thermal resistance housing-ambient	16.2 K/W	
18 Thermal resistance winding-housing	1.9 K/W	
19 Thermal time constant winding	5 s	
20 Thermal time constant motor	397 s	
21 Ambient temprature	-30...+100℃	
22 Max. permissible winding temperature	+150℃	
23 Max. permissible speed	80000 rpm	
24 Axial play at axial load <3 N	0 mm	
>3 N	max. 0.3 mm	
25 Radial play	preloaded	
26 Max. axial load (dynamic)	2.5 N	
27 Max.force for press fits (static)	44 N	
(static, shaft supported)	1200 N	
28 Max. radial loading, 5mm from flange	11 N	
29 Number of pole pairs	1	
30 Number of phases	3	
31 Weight of motor	50 g	

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1 Vhall 3-18 VDC	AWG26	black
Pin 2 Hall sensor HA	AWG26	black
Pin 3 Hall sensor HB	AWG26	black
Pin 4 Hall sensor HC	AWG26	black
Pin 5 GND	AWG26	black
Pin 6 Motor winding MA	AWG26	black
Pin 7 Motor winding MB	AWG26	black
Pin 8 Motor winding MC	AWG26	black

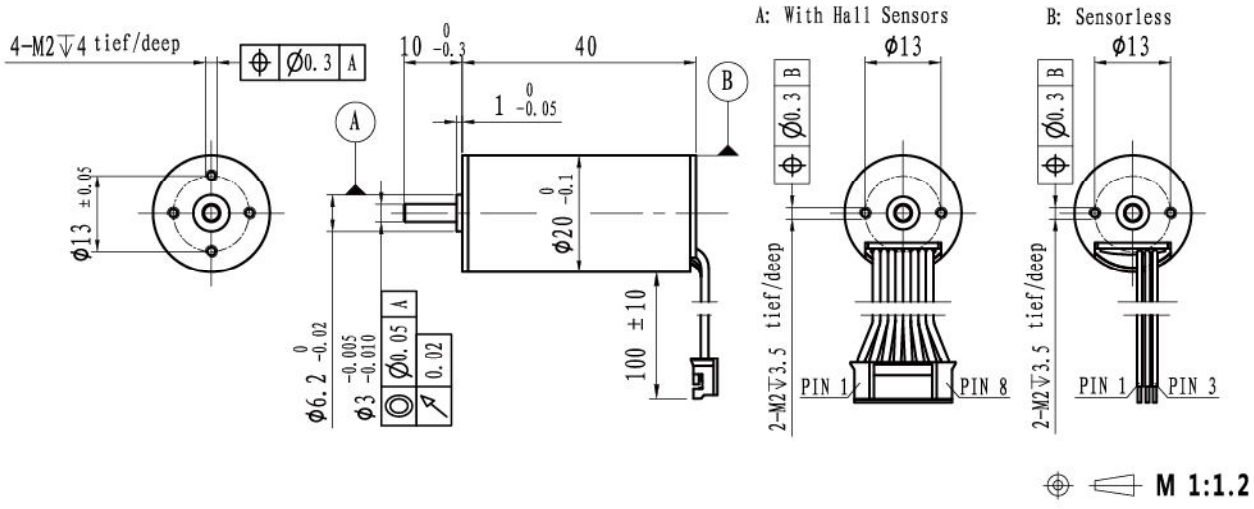
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1 Motor winding MA	AWG26	yellow
Pin 2 Motor winding MB	AWG26	green
Pin 3 Motor winding MC	AWG26	blue

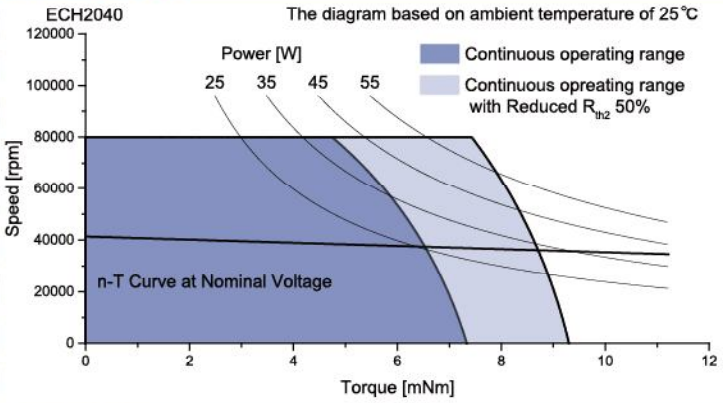
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



Sensorless ECH2040L-... / With hall sensor ECH2040S-...			2440	3040	3640
Motor data					
Values at nominal voltage					
1	Nominal voltage	V	24	30	36
2	No load speed	rpm	41392	40700	40020
3	No load current	mA	69	60	55
4	Nominal speed	rpm	37500	36777	36049
5	Nominal torque	mNm	6.3	6.3	6.3
6	Nominal current	A	1.21	0.96	0.79
7	Stall torque	mNm	67	65.4	63.5
8	Stall current	A	12.2	9.4	7.5
9	Max. efficiency	%	85.5	84.7	83.6
10	Terminal resistance	Ω	1.96	3.19	4.8
11	Terminal inductance	mH	0.21	0.47	0.47
12	Torque constant	mNm/A	5.51	6.99	8.53
13	Speed constant	rpm/V	1734	1365	1120
14	Speed/torque gradient	rpm/mNm	618	623	630
15	Mechanical time constant	ms	4.5	4.5	4.6
16	Rotor inertia	gcm^2	0.69	0.69	0.69
17	Thermal resistance housing-ambient	18.7 K/W			
18	Thermal resistance winding-housing	1.9 K/W			
19	Thermal time constant winding	5 s			
20	Thermal time constant motor	397 s			
21	Ambient temprature	-30...+100℃			
22	Max. permissible winding temperature	+150℃			
23	Max. permissible speed	80000 rpm			
24	Axial play at axial load <3 N	0 mm			
	>3 N	max. 0.3 mm			
25	Radial play	preloaded			
26	Max. axial load (dynamic)	2.5 N			
27	Max.force for press fits (static)	44 N			
	(static, shaft supported)	1200 N			
28	Max. radial loading, 5mm from flange	11 N			
29	Number of pole pairs	1			
30	Number of phases	3			
31	Weight of motor	53 g			

Operating Range



Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

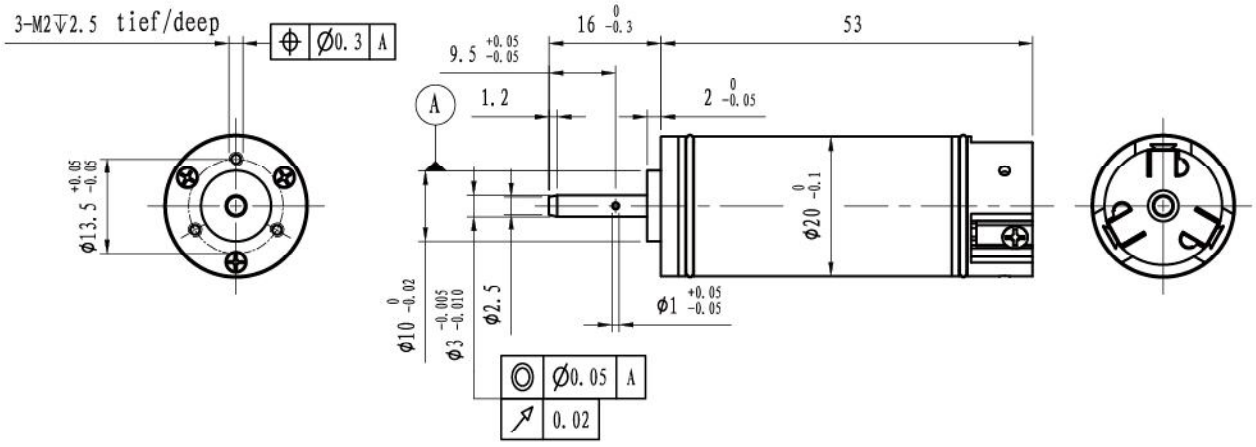
Conector
JST PH2.0-8P

Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

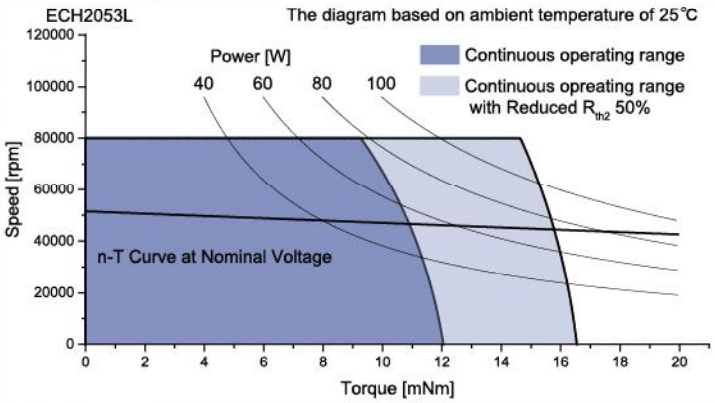
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimension/length
Connector: JST/MOLEX/TE



	Sensorless	EC2053L-...	1850	2450	3650	4850
Motor data						
Values at nominal voltage						
1	Nominal voltage	V	18	24	36	48
2	No load speed	rpm	50202	50832	51448	50700
3	No load current	mA	136	107	81	68
4	Nominal speed	rpm	45684	46379	46936	46188
5	Nominal torque	mNm	10	10	10	10
6	Nominal current	A	3.07	2.33	1.58	1.18
7	Stall torque	mNm	111	114	114	112
8	Stall current	A	32.7	25.5	17.2	12.6
9	Max. efficiency	%	87.5	87.5	86.8	85.8
10	Terminal resistance	Ω	0.55	0.94	2.09	3.82
11	Terminal inductance	mH	0.06	0.10	0.23	0.38
12	Torque constant	mNm/A	3.41	4.49	6.65	8.99
13	Speed constant	rpm/V	2801	2127	1436	1062
14	Speed/torque gradient	rpm/mNm	452	445	451	451
15	Mechanical time constant	ms	3.9	3.9	3.9	3.9
16	Rotor inertia	gcm^2	0.83	0.83	0.83	0.83
17	Thermal resistance housing-ambient	11.8 K/W				
18	Thermal resistance winding-housing	0.8 K/W				
19	Thermal time constant winding	2 s				
20	Thermal time constant motor	386 s				
21	Ambient temprature	-30...+100℃				
22	Max. permissible winding temperature	+150℃				
23	Max. permissible speed	80000 rpm				
24	Axial play at axial load <3 N	0 mm				
	>3 N	max. 0.3 mm				
25	Radial play	preloaded				
26	Max. axial load (dynamic)	2.5 N				
27	Max.force for press fits (static)	44 N				
	(static, shaft supported)	1200 N				
28	Max. radial loading, 5mm from flange	11 N				
29	Number of pole pairs	1				
30	Number of phases	3				
31	Weight of motor	63 g				

Operating Range

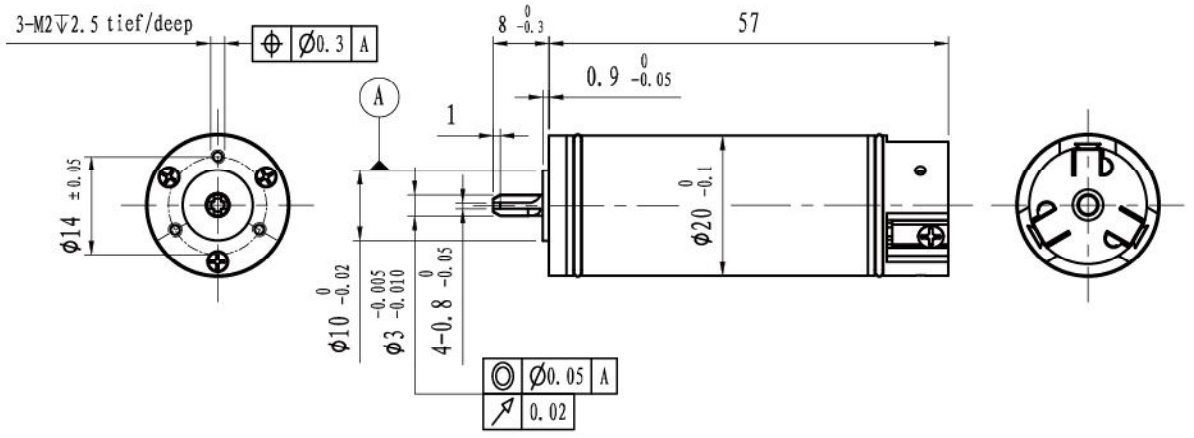


Connection

Conection
specical connector
please contact sales engineer

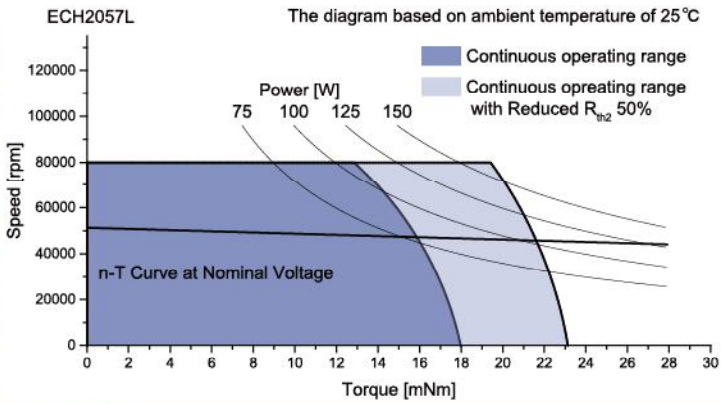
Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft



Sensorless	EC2057L-...	1850	2450	3650	4850
Motor data					
Values at nominal voltage					
1 Nominal voltage	V	18	24	36	48
2 No load speed	rpm	50202	50832	51286	50700
3 No load current	mA	210	158	113	94
4 Nominal speed	rpm	46263	46714	47328	46436
5 Nominal torque	mNm	15	15	15	15
6 Nominal current	A	4.61	3.5	2.36	1.76
7 Stall torque	mNm	191	185	194	178
8 Stall current	A	56.3	41.4	29.2	19.9
9 Max. efficiency	%	88.2	88	87.9	86.7
10 Terminal resistance	Ω	0.32	0.58	1.23	2.41
11 Terminal inductance	mH	0.04	0.06	0.14	0.25
12 Torque constant	mNm/A	3.41	4.49	6.68	9
13 Speed constant	rpm/V	2799	2126	1430	1061
14 Speed/torque gradient	rpm/mNm	263	275	264	284
15 Mechanical time constant	ms	2.5	2.6	2.5	2.7
16 Rotor inertia	gcm^2	0.91	0.91	0.91	0.91
17 Thermal resistance housing-ambient	7.6 K/W				
18 Thermal resistance winding-housing	1.6 K/W				
19 Thermal time constant winding	5 s				
20 Thermal time constant motor	410 s				
21 Ambient temprature	-30...+100℃				
22 Max. permissible winding temperature	+150℃				
23 Max. permissible speed	80000 rpm				
24 Axial play at axial load <3 N	0 mm				
>3 N	max. 0.3 mm				
25 Radial play	preloaded				
26 Max. axial load (dynamic)	2.5 N				
27 Max.force for press fits (static)	44 N				
(static, shaft supported)	1200 N				
28 Max. radial loading, 5mm from flange	11 N				
29 Number of pole pairs	1				
30 Number of phases	3				
31 Weight of motor	69 g				

Operating Range



Connection

Conection
specical connector
please contact sales engineer

Configuration

Performance: Customized in the continuous operating range
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft

Subject: _____

Date: _____

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

Slotless BLDC gear motor

ECG SERIES

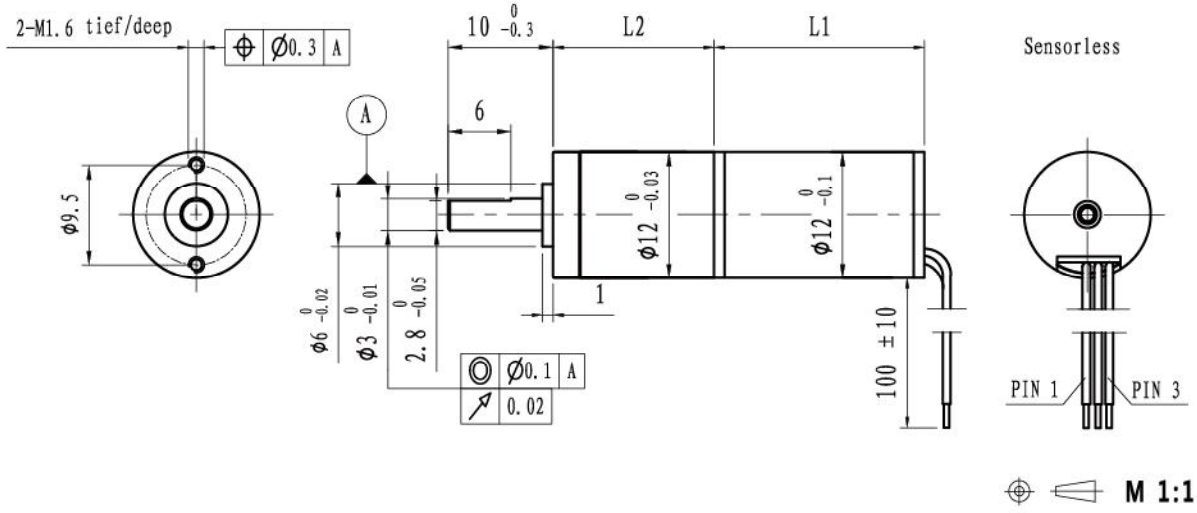
Φ12mm to Φ40mm

Precision planetary gearheads

High torque output

Low noise

Flexible customization



ECG12..L P16

Motor type

1	Length of motor L1	ECG1220L	mm	20	Motor performance at P8.
		ECG1230L	mm	30	Motor performance at P9.

Gearhead Data

2	Housing material				Steel		
3	Geartrain material				Steel		
4	Bearing type on output shaft				Ball bearing		
5	Max. radial load (10mm from flange)	N			5		
6	Max. axial load	N			5		
7	Radial play of shaft	mm			0.1		
8	Thrust play of shaft	mm			0.2		
9	Bcaklash at no load	°			3		
10	Max. continuous speed	rpm			42000		
11	Operating temperatue range	℃			-30..+100		
12	Number of stages		1	2	3	4	5
13	Max continuous torque	Nm	0.1	0.2	0.2	0.2	0.2
14	Max. intermittent torque	Nm	0.15	0.25	0.25	0.25	0.25
15	Max. efficiency	%	90	81	73	65	59
16	Gearhead length L2	mm	15.1	17.9	20.7	23.5	26.3
17	Ratio	X:1	3.47, 3.94	12.07, 13.68 15.5, 18.17	41.92, 47.51 55.69, 53.86 63.13 61.05 71.56, 83.88	145.6, 165.04 187,08, 219.29 248.56, 281.75 291.36 330.26	505.8,

Connection

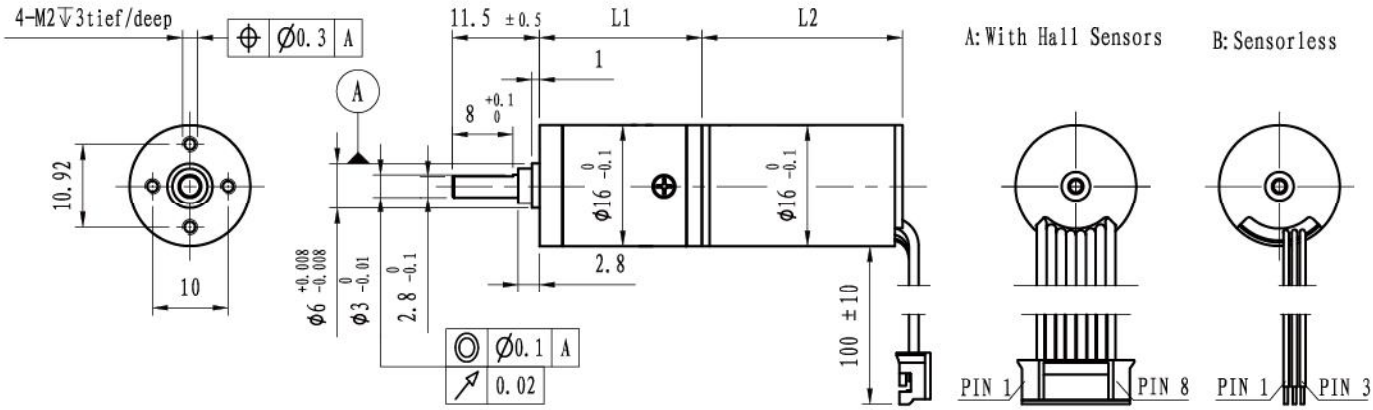
Conection (Sensorless) PVC

Pin 1	Motor winding MA	AWG28	yellow
Pin 2	Motor winding MB	AWG28	green
Pin 3	Motor winding MC	AWG28	blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer



M 1:1

				ECG16..L / ECG16..S P16				
Motor type								
1	Length of motor L1	ECG1630S/L	mm			30		Motor performance at P10.
		ECG1636S/L	mm			36		Motor performance at P11.
		ECG1656S/L	mm			56		Motor performance at P52.
		ECDG1638L	mm			38		Motor performance at P39.
Gearhead Data								
2	Housing material					Steel		
3	Geartrain material					Steel		
4	Bearing type on output shaft					Ball bearing		
5	Max. radial load (10mm from flange)		N			15.6		
6	Max. axial load		N			4.9		
7	Radial play of shaft		mm			0.04		
8	Thrust play of shaft		mm			0.4		
9	Bcaklash at no load		°			2		
10	Max. continuous speed		rpm			42000		
11	Operating temperatue range		℃			-30..+100		
12	Number of stages			1	2	3	4	5
13	Max continuous torque		Nm	0.42	0.6	0.75	0.9	0.9
14	Max. intermittent torque		Nm	0.84	1.2	1.5	1.8	1.8
15	Max. efficiency		%	90	83	77	72	67
16	Gearhead length L2		mm	17.9	21.8	25.7	29.6	33.5
17	Ratio		X:1	3.7, 4.4, 5.4, 6.5	14.5, 16.4, 19.2, 23.7, 28.5, 35.1 42.3,	48.2, 54.5, 61.7, 67.1, 75.9, 80.8, 88.8, 94.5, 103.8, 109.3 125, 131 154, 185.3	204, 228, 251.8, 274.6, 294.4, 313.3 333, 354.4, 389.3, 400.8 455.2, 493.6, 547.9, 560.6 674.8, 690.4	738, 850.3, 944.2, 1023.5, 1136.6, 1232 1328.9, 1447.2, 1502.9, 1636.7, 1757, 1851 1996, 2164, 2402, 2530, 3027, 3644,

Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

Conector
JST PH2.0-8P

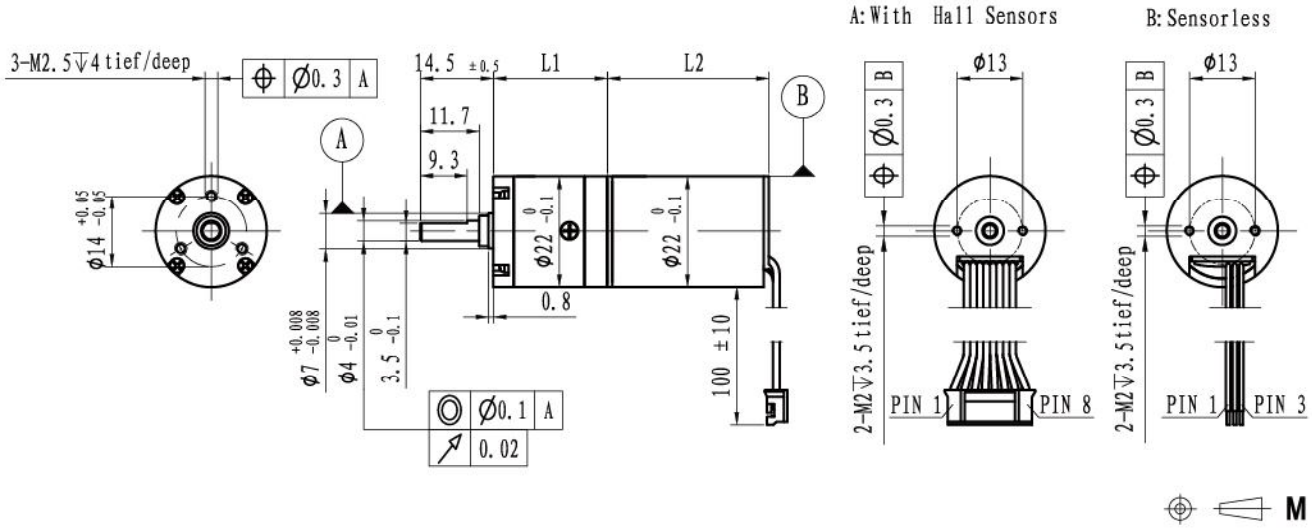
Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer



				ECG22..L ECG22..S P22				
Motor type								
1	Length of motor L1	ECG2232S/L	mm			32		Motor performance at P13.
		ECG2240S/L	mm			40		Motor performance at P14.
		ECG2248S/L	mm			48		Motor performance at P15.
		ECG2260S/L	mm			60		Motor performance at P16.
		ECDG2238S	mm			38.5		Motor performance at P40.
		ECDG2246S	mm			46.5		Motor performance at P41.
Gearhead Data								
2	Housing material					Steel		
3	Geartrain material					Steel		
4	Bearing type on output shaft					Ball bearing		
5	Max. radial load (10mm from flange)		N			15.6		
6	Max. axial load		N			4.9		
7	Radial play of shaft		mm			0.04		
8	Thrust play of shaft		mm			0.4		
9	Bcaklash at no load		°			2		
10	Max. continuous speed		rpm			42000		
11	Operating temperatue range		℃			-30..+100		
12	Number of stages			1	2	3	4	5
13	Max continuous torque		Nm	0.72	0.96	1.2	1.45	1.45
14	Max. intermittent torque		Nm	1.44	1.92	2.4	2.9	2.9
15	Max. efficiency		%	90	83	77	72	72
16	Gearhead length L2		mm	22.6	27.6	32.7	37.7	42.8
17	Ratio		X:1	3.7, 4.4, 5.4, 6.5	14.5, 16.4, 19.2, 23.7, 28.5, 35.1 42.3,	48.2, 54.5, 61.7, 67.1, 75.9, 80.8, 88.8, 94.5, 103.8, 109.3 125, 131 154, 185.3	204, 228, 251.8, 274.6, 294.4, 313.3 333, 354.4, 389.3, 400.8 455.2, 493.6, 547.9, 560.6 674.8, 690.4	738, 850.3, 944.2, 1023.5, 1136.6, 1232 1328.9, 1447.2, 1502.9, 1636.7, 1757, 1851 1996, 2164, 2402, 2530, 3027, 3644,

Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

Conector
JST PH2.0-8P

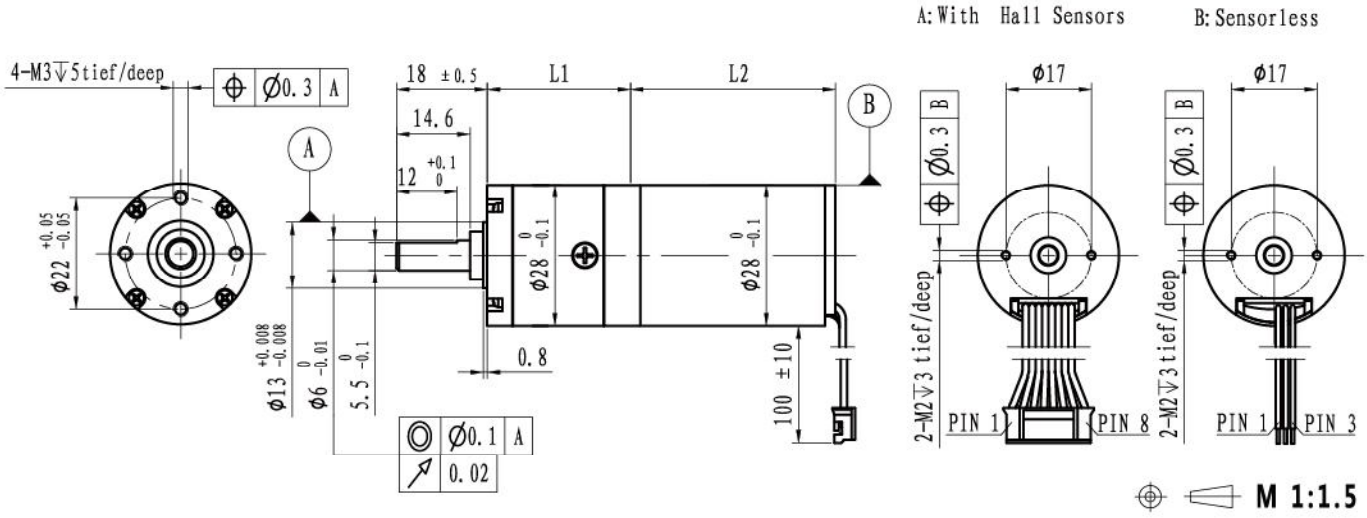
Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer



				ECG28..L ECG28..S	**P28**	
Motor type						
1	Length of motor L1	ECG2845S/L	mm		45	Motor performance at P19.
		ECG2854S/L	mm		54	Motor performance at P20.
		ECG2864S/L	mm		64	Motor performance at P21.
		ECDG2854S	mm		54	Motor performance at P44.
		ECDG2863S	mm		63	Motor performance at P45.
Gearhead Data						
2	Housing material				Steel	
3	Geartrain material				Steel	
4	Bearing type on output shaft				Ball bearing	
5	Max. radial load (10mm from flange)		N		58.8	
6	Max. axial load		N		29.4	
7	Radial play of shaft		mm		0.04	
8	Thrust play of shaft		mm		0.4	
9	Bcaklash at no load		°		2	
10	Max. continuous speed		rpm		36000	
11	Operating temperatue range		℃		-30..+100	
12	Number of stages			1	2	3	4
13	Max continuous torque		Nm	1.55	2.1	2.6	3.1
14	Max. intermittent torque		Nm	3.1	4.2	5.2	6.2
15	Max. efficiency		%	90	83	77	72
16	Gearhead length L2		mm	28.4	34.7	41	47.3
17	Ratio		X:1	4.4, 5.2, 6.7, 8.3	15.1, 16.9, 18, 20.1, 23.1, 25.6 27.6, 29.3, 31.8, 35, 43.5, 55.2,	61.7, 68,7, 77,1, 87,6, 100.6, 109, 120, 125, 129, 134.1 139.8, 144.7 149.1, 154 166.8, 183.8 211.7, 243 264.5, 290	335.9, 385.5, 411.4, 494.8, 528, 630, 677.6, 705.8 759.7, 860.4 964.7, 1069 1158, 1276, 1523, 1755, 2014, 3051 3792, 4713

Connection

Conection A (Sensor) PVC

Pin 1	Vhall 3-18 VDC	AWG26	black
Pin 2	Hall sensor HA	AWG26	black
Pin 3	Hall sensor HB	AWG26	black
Pin 4	Hall sensor HC	AWG26	black
Pin 5	GND	AWG26	black
Pin 6	Motor winding MA	AWG26	black
Pin 7	Motor winding MB	AWG26	black
Pin 8	Motor winding MC	AWG26	black

Conector
JST PH2.0-8P

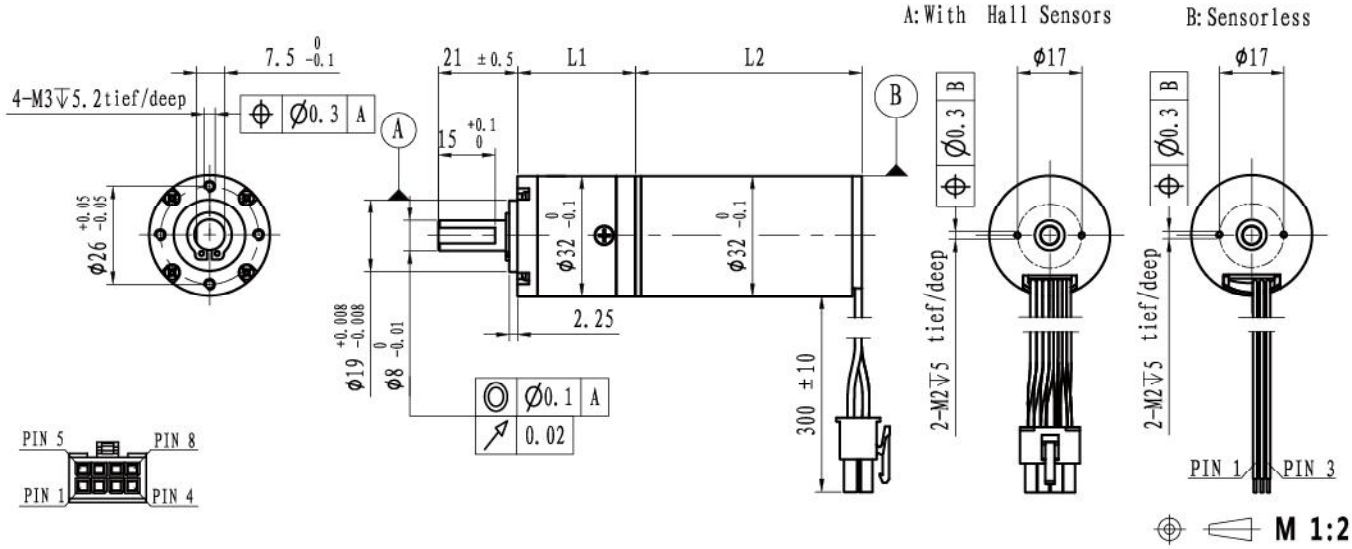
Conection B (Sensorless) PVC

Pin 1	Motor winding MA	AWG26	yellow
Pin 2	Motor winding MB	AWG26	green
Pin 3	Motor winding MC	AWG26	blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer



				ECG32..L ECG32..S P32			
Motor type							
1	Length of motor L1	ECG3242S/L	mm			42	Motor performance at P22.
		ECG3260S/L	mm			60	Motor performance at P23.
		ECG3270S/L	mm			70	Motor performance at P24.
		ECDG3270S	mm			70	Motor performance at P46.
Gearhead Data							
2	Housing material					Steel	
3	Geartrain material					Steel	
4	Bearing type on output shaft					Ball bearing	
5	Max. radial load (10mm from flange)		N			98	
6	Max. axial load		N			58.8	
7	Radial play of shaft		mm			0.04	
8	Thrust play of shaft		mm			0.4	
9	Bcaklash at no load		°			2	
10	Max. continuous speed		rpm			36000	
11	Operating temperatue range		℃			-30..+100	
12	Number of stages			1	2	3	4
13	Max continuous torque		Nm	2.34	3.1	3.88	4.65
14	Max. intermittent torque		Nm	4.68	6.2	7.76	9.3
15	Max. efficiency		%	90	83	77	72
16	Gearhead length L2		mm	31.2	38.7	46.2	53.7
17	Ratio		X:1	4.4, 5.2, 6.7, 8.3	15.1, 16.9, 18, 20.1, 23.1, 25.6 27.6, 29.3, 31.8, 35, 43.5, 55.2,	61.7, 68,7, 77,1, 87,6, 100.6, 109, 120, 125, 129, 134.1 139.8, 144.7 149.1, 154 166.8, 183.8 211.7, 243 264.5, 290	335.9, 385.5, 411.4, 494.8, 528, 630, 677.6, 705.8 759.7, 860.4 964.7, 1069 1158, 1276, 1523, 1755, 2014, 3051 3792, 4713

Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HC	AWG26	Green

Conector
Molex5557-8P

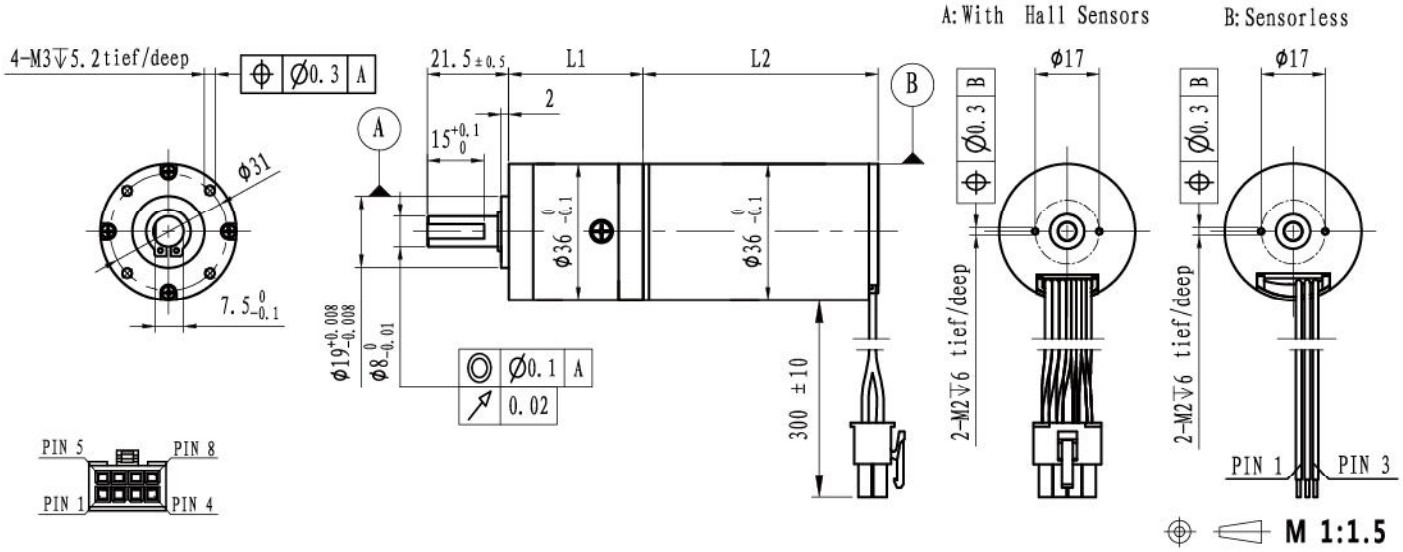
Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer



				ECG36..L ECG36..S P36	
Motor type					
1	Length of motor L1	ECG3660S/L	mm	60	Motor performance at P25.
		ECG3670S	mm	70	Motor performance at P26.
		ECDG3673S	mm	73	Motor performance at P47.
		ECDG3683S	mm	83	Motor performance at P48.

Gearhead Data							
2	Housing material			Steel			
3	Geartrain material			Steel			
4	Bearing type on output shaft			Ball bearing			
5	Max. radial load (10mm from flange)		N	98			
6	Max. axial load		N	58.8			
7	Radial play of shaft		mm	0.04			
8	Thrust play of shaft		mm	0.4			
9	Bcaklash at no load		°	2			
10	Max. continuous speed		rpm	30000			
11	Operating temperatue range		℃	-30..+100			
12	Number of stages			1	2	3	4
13	Max continuous torque		Nm	3.24	4.32	5.4	6.48
14	Max. intermittent torque		Nm	6.48	8.64	10.8	12.96
15	Max. efficiency		%	90	83	77	72
16	Gearhead length L2		mm	35.6	44.2	52.8	61.4
17	Ratio		X:1	4.3, 5.1, 6.3, 7.6	14.7, 16.3, 18.6, 19.2, 21.9, 23.9, 25.8, 27.2, 28.9, 32 38.7, 39.7, 48, 58.1	65.6, 74.6, 81.4, 90.5, 98.5, 109, 112.1, 124.6, 123, 141.8, 150.4, 162.4, 171.2, 182, 196.5, 220.3 243.9, 250.7	277.4, 302.6, 335.8, 351, 382.2, 413.2, 459.3, 500.1, 537.4, 583.5, 620.6, 686.9, 744.7, 824.4, 869, 924.2 1006, 1388, 1680, 3380

Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HC	AWG26	Green

Conector
Molex5557-8P

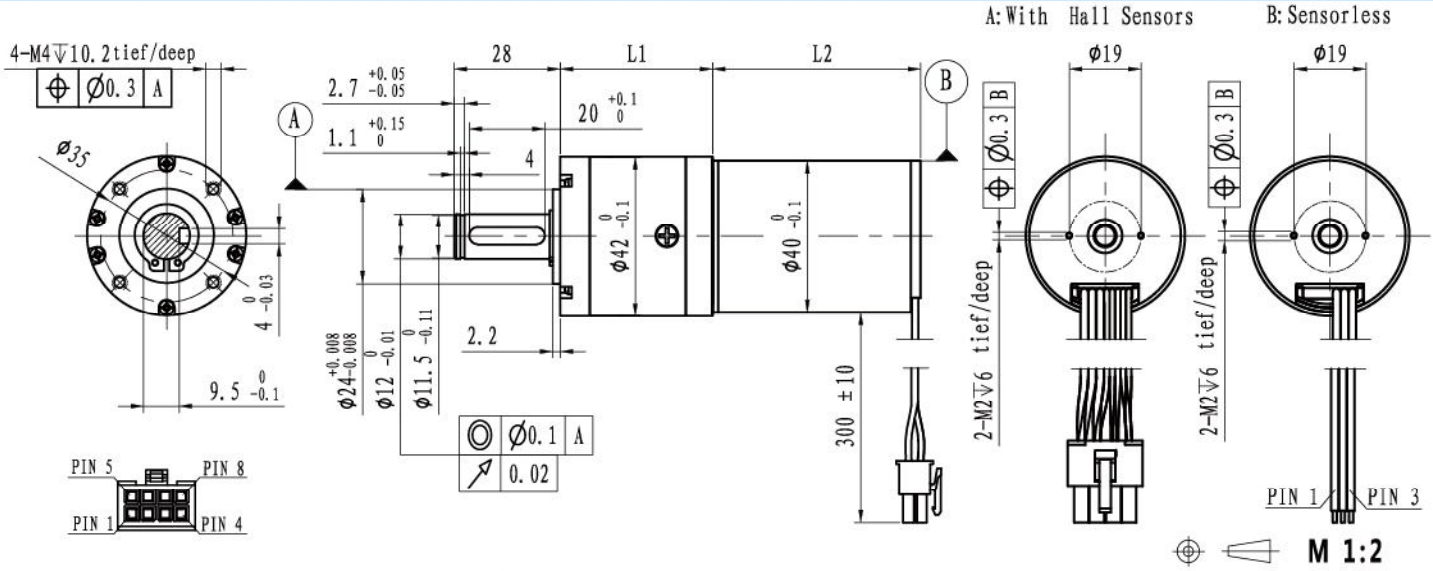
Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer



				ECG40..L ECG40..S	P42		
Motor type							
1	Length of motor L1	ECG4058S/L	mm			58	Motor performance at P27.
		ECG4070S/L	mm			70	Motor performance at P28.
		ECG4088S/L	mm			88	Motor performance at P29.
Gearhead Data							
2	Housing material					Steel	
3	Geartrain material					Steel	
4	Bearing type on output shaft					Ball bearing	
5	Max. radial load (10mm from flange)		N			196	
6	Max. axial load		N			98	
7	Radial play of shaft		mm			0.04	
8	Thrust play of shaft		mm			0.4	
9	Bcaklash at no load		°			2	
10	Max. continuous speed		rpm			30000	
11	Operating temperatue range		℃			-30..+100	
12	Number of stages			1	2	3	4
13	Max continuous torque		Nm	6.5	8.6	10.8	13
14	Max. intermittent torque		Nm	13	17.2	21.6	26
15	Max. efficiency		%	90	83	77	72
16	Gearhead length L2		mm	43.8	54.6	65.4	76
17	Ratio		X:1	4.3, 5.1, 6.3, 7.6	14.7, 16.3, 18.6, 19.2, 21.9, 23.9, 25.8, 27.2, 28.9, 32 38.7, 39.7, 48, 58.1	65.6, 74.6, 81.4, 90.5, 98.5, 109, 112.1, 124.6, 123, 141.8, 150.4, 162.4, 171.2, 182, 196.5, 220.3 243.9, 250.7	277.4, 302.6, 335.8, 351, 382.2, 413.2, 459.3, 500.1, 537.4, 583.5, 620.6, 686.9, 744.7, 824.4, 869, 924.2 1006, 1388, 1680, 3380

Connection

Conection A (Sensor) PTFE

Pin 1	Motor winding MB	AWG20	Green
Pin 2	Vhall 3-18 VDC	AWG26	Red
Pin 3	Hall sensor HA	AWG26	Yellow
Pin 4	Hall sensor HC	AWG26	Blue
Pin 5	Motor winding MA	AWG20	Yellow
Pin 6	Motor winding MC	AWG20	Blue
Pin 7	GND	AWG26	Black
Pin 8	Hall sensor HC	AWG26	Green

Conector
Molex5557-8P

Conection B (Sensorless) PTFE

Pin 1	Motor winding MA	AWG20	Yellow
Pin 2	Motor winding MB	AWG20	Green
Pin 3	Motor winding MC	AWG20	Blue

Configuration

Pinion: Metal/Plastic
Ball bearing: Preload
Flange: Standard frange front&back/customize the frange
Shaft: Length/Diameter/Cut face/double shaft/hollow shaft
Leadwire: PVC/Silicon/Teflon/UL No/Dimensions/length
Connector: JST/MOLEX/TE

More:
Special design for high speed/high torque
ECD series can be chosen in some application
Details please contact our sales engineer

Subject: _____

Date: _____

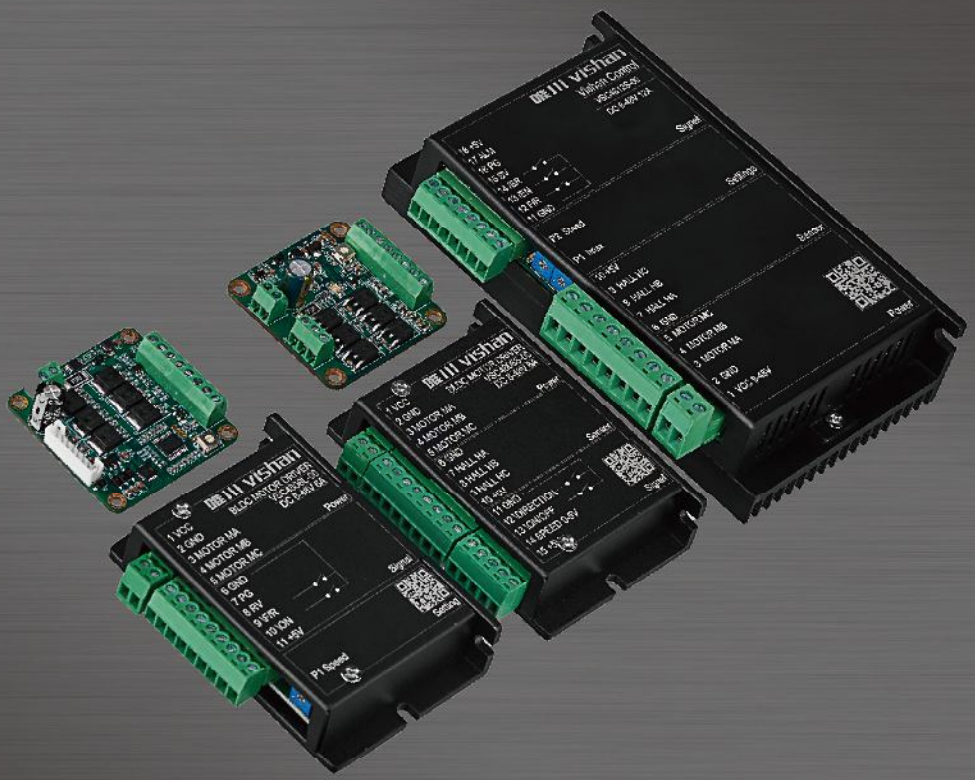
Subject: _____

Date: _____

vishan 唯川

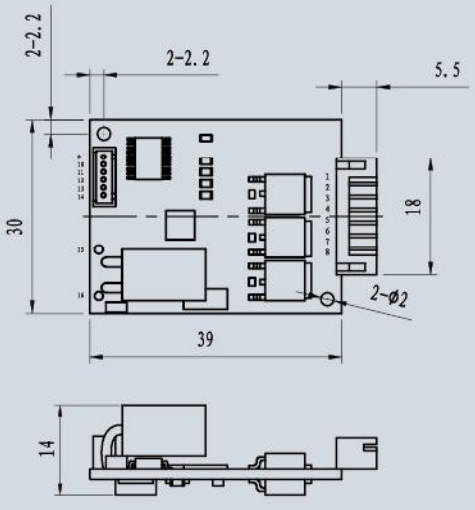
BLDC MOTOR & SERVO BLDC MOTOR

Vishan motor control

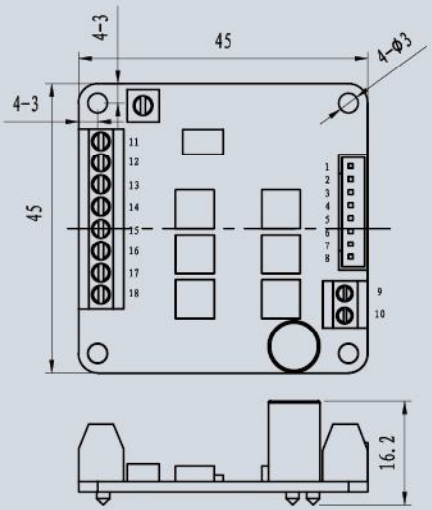


Wide operating voltage from 8-48VDC
Impeccable software protection
Reliable quality
Competitive Price
Function customization

	VSC 3002S-00	VSC 3003S-00
Operating Mode		
	10-30VDC, Max. Current 2A Speed controller with hall sensor, Open loop Overload protection Stall protection Sensor error protection	8-30VDC, Max. Current 3A Speed controller with hall sensor, Open loop Overload protection Stall protection Sensor error protection
Electrical Data		
1 DC motor up to	60W	90W
2 Operating Voltage Vcc	10-30 VDC	8-30 VDC
3 Max.output current	5A , <60S	5A , <60S
4 Continuous output current	2A	3A
5 Pulse width modulation frequency	20KHz	20KHz
6 Sampling rate PI current controller	20KHz	20KHz
7 Max.Speed (1 pole pair)	60000rpm	60000rpm
8 Efficiency	92%	92%
Inputs/Outputs		
9 Hall sensor signal	HA,HB,HC	HA,HB,HC
10 Digital inputs/outputs	4	5
11 Set value "SP"	Set value speed 0.... +5V (1024 steps)	Set value speed 0.... +5V (1024 steps)
12 Enable "EN"	Enable 0...+5V	Enable 0...+5V
13 Direction "F/R"	Direction 0...+5V	Direction 0...+5V
14 Brake "BK"	Brake 0...+5V	Brake 0...+5V
15 Speed Feedback "PG"	- - -	TTL
16 Status Indicators	Operation: LED light/Blink at 1 HZ; Error: LED Blink at 20Hz	
17 Hall sensor supply voltage	+5 VDC	+5 VDC
18 Hall & Digital signal ground	GND	GND
Environmental Conditions		
18 Temperature - Operation	-30....+45℃	-30....+45℃
19 Temperature - Storage	-40....+85℃	-40....+85℃
Mechanical Data		
20 Weight	Approx. 15 g	Approx. 20 g
21 Dimensisons (L x W x H)	30 x 39 x 14mm	45 x 45 x16.2mm
22 Mounting holes	for screws M2	for screws M3
23 Connections		

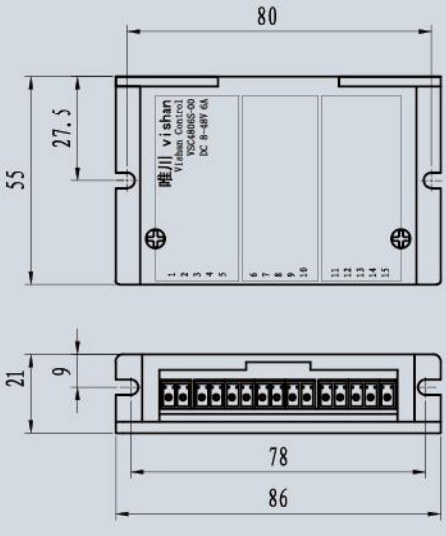


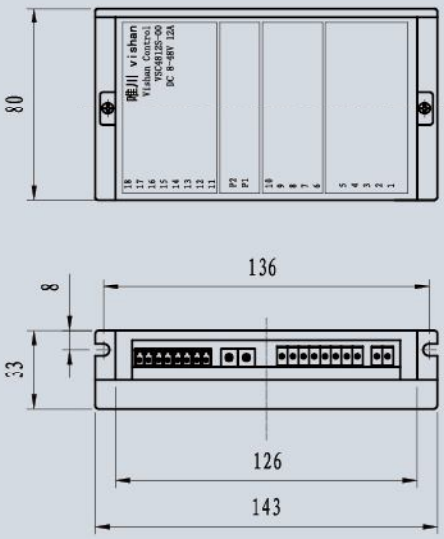
Pin9	BK	Pin1	+5V, Output
Pin10	SP	Pin2	HA
Pin11	F/R	Pin3	HB
Pin12	EN	Pin4	HC
Pin13	+5V, Output	Pin5	GND
Pin14	GND	Pin6	MA
Pin15	POWER +	Pin7	MB
Pin16	POWER -	Pin8	MC



Pin11	PG	Pin1	+5V, Output
Pin12	SP	Pin2	HA
Pin13	GND	Pin3	HB
Pin14	GND	Pin4	HC
Pin15	+5V, Output	Pin5	GND
Pin16	EN	Pin6	MA
Pin17	F/R	Pin7	MB
Pin18	BK	Pin8	MC
		Pin9	POWER +
		Pin10	POWER -

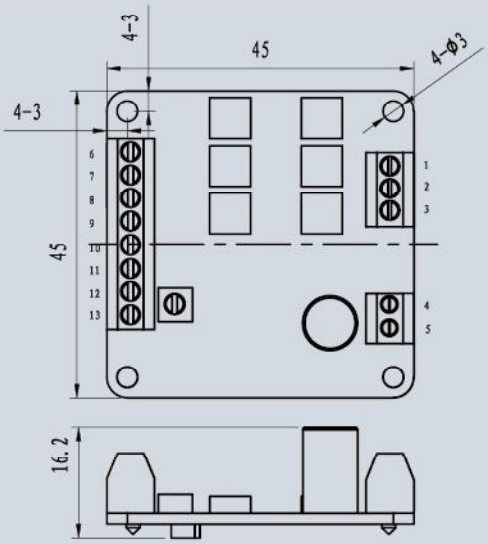
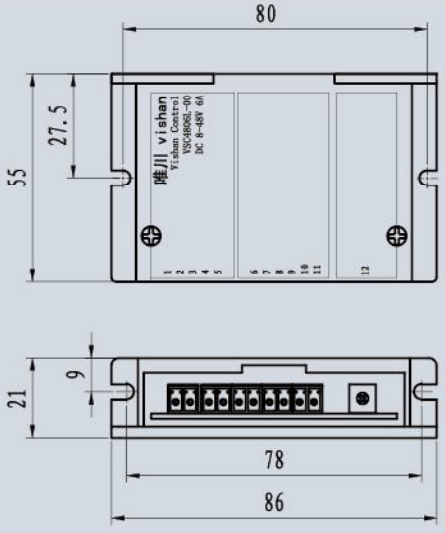
		VSC 4806S-00	VSC 4812S-00
Operating Mode		8-48VDC, Max. Current 6A Speed controller with hall sensor, Open loop Overload protection Stall protection Sensor error protection	8-48VDC, Max. Current 12A Speed controller with hall sensor, Open loop Overload protection Stall protection Sensor error protection
Electrical Data			
1	DC motor up to	300W	600W
2	Operating Voltage Vcc	8-48 VDC	8-48 VDC
3	Max.output current	8A , <30S	15A , <30S
4	Continuous output current	6A	12A
5	Pulse width modulation frequency	20KHz	20KHz
6	Sampling rate PI current controller	20KHz	20KHz
7	Max.Speed (1 pole pair)	60000rpm	60000rpm
8	Efficiency	95%	95%
Inputs/Outputs			
9	Hall sensor signal	HA,HB,HC	HA,HB,HC
10	Digital inputs/outputs	3	6
11	Set value "SP"	Set value speed 0.... +5V (1024 steps)	Set value speed 0.... +5V (1024 steps)
12	Enable "EN"	Enable 0...+5V	Enable 0...+5V
13	Direction "F/R"	Direction 0...+5V	Direction 0...+5V
14	Brake "BK"	---	Brake 0...+5V
15	Speed Feedback "PG"	---	OC ouput(30V/10mA max)
16	Alarm Ouput "ALARM"	---	OC ouput(30V/10mA max)
17	Status Indicators	Operation: LED light/Blink at 1 HZ; Error: LED Blink at 20Hz	
18	Hall sensor supply voltage	+5 VDC	+5 VDC
19	Hall & Digital signal ground	GND	GND
Environmental Conditions			
20	Temperature - Operation	-30....+45℃	-30....+45℃
21	Temperature - Storage	-40....+85℃	-40....+85℃
Mechanical Data			
22	Weight	Approx. 90 g	Approx. 300 g
23	Dimensisons (L x W x H)	55 x 86 x 21mm	80x 143 x33mm
24	Mounting holes	for screws M3	for screws M3
25	Connections		





Pin1	POWER +	Pin9	HC
Pin2	POWER -	Pin10	+5V, Output
Pin3	MA	Pin11	GND
Pin4	MB	Pin12	F/R
Pin5	MC	Pin13	EN
Pin6	GND	Pin14	SP
Pin7	HA	Pin15	+5V, Output
Pin8	HB		

Pin1	POWER +	Pin10	+5V, Output
Pin2	POWER -	Pin11	GND
Pin3	MA	Pin12	F/R
Pin4	MB	Pin13	EN
Pin5	MC	Pin14	Brake
Pin6	GND	Pin15	SP
Pin7	HA	Pin16	PG
Pin8	HB	Pin17	ALM
Pin9	HC	Pin18	+5V, Output

	VSC 3003L-00	VSC 4806L-00
Operating Mode		
	8-30VDC, Max. Current 3A Speed controller without sensor, Open loop Overload protection Stall protection CW/CCW control	8-48VDC, Max. Current 6A Speed controller without sensor, Open loop Overload protection Stall protection CW/CCW control
Electrical Data		
1 DC motors up to	90W	300W
2 Operating Voltage Vcc	8-30 VDC	8-48 VDC
3 Max.output current	5A , <60S	8A , <30S
4 Continuous output current	3A	6A
5 Pulse width modulation frequency	16KHz	16KHz
6 Sampling rate PI current controller	16KHz	16KHz
7 Max.Speed (1 pole pair)	50000rpm	50000rpm
8 Efficiency	92%	95%
Inputs/Outputs		
9 Digital inputs/outputs	5	4
10 Set value "SP"	Set value speed 0.... +5V (1024 steps)	Set value speed 0.... +5V (1024 steps)
11 Enable "EN"	Enable 0...+5V	Enable 0...+5V
12 Direction "F/R"	Direction 0...+5V	Direction 0...+5V
13 Brake "BK"	Brake 0...+5V	- - -
14 Speed Feedback "PG"	TTL	OC ouput(30V/10mA max)
15 Status Indicators	Operation: LED light/Blink at 1 HZ; Error: LED Blink at 20Hz	
Environmental Conditions		
16 Temperature - Operation	-30....+45°C	-30....+45°C
17 Temperature - Storage	-40....+85°C	-40....+85°C
Mechanical Data		
18 Weight	Approx. 20 g	Approx. 90 g
19 Dimensisons (L x W x H)	45 x 45 x16.2mm	55 x 86 x 21mm
20 Mounting holes	for screws M3	for screws M3
21 Connections		

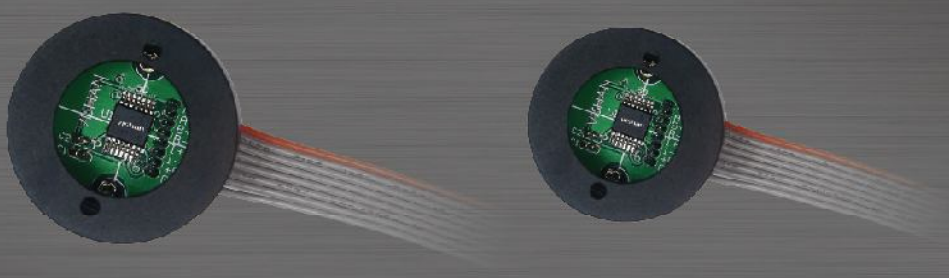
Pin6	PG	Pin1	MC
Pin7	SP	Pin2	MB
Pin8	GND	Pin3	MA
Pin9	GND	Pin4	POWER -
Pin10	+5V, Output	Pin5	POWER +
Pin11	EN		
Pin12	F/R		
Pin13	BK		

Pin1	POWER +	Pin6	GND
Pin2	POWER -	Pin7	PG
Pin3	MA	Pin8	SP
Pin4	MB	Pin9	F/R
Pin5	MC	Pin10	EN
		Pin11	+5V, Output

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

Vishan Encoder

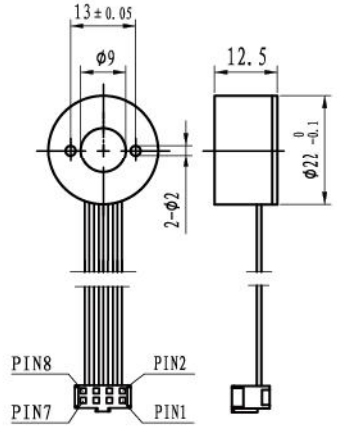


Magnetic encoder

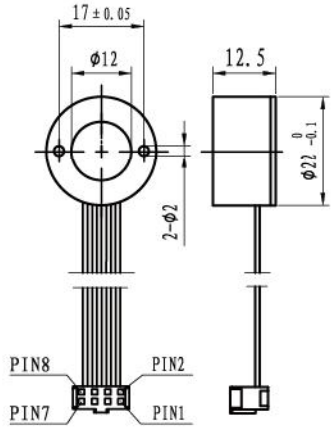
High position accuracy, repeability and high signal quality

Multifarious function customization

EN22A/EN22AL



EN22B/EN22BL



M 1:1.5

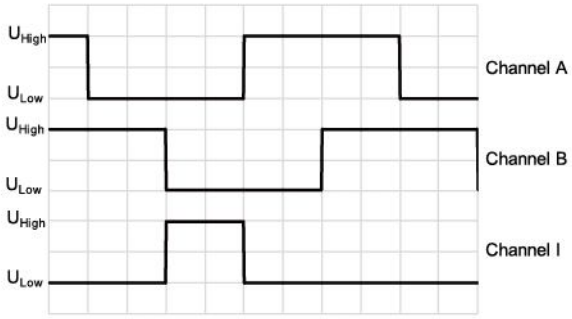
	Without line driver / Line driver		EN22A	EN22AL	EN22B	EN22BL
Electrical Data						
1	Lines per revolution		1024	1024	1024	1024
2	Number of channels		3	3	3	3
3	Max. speed	rpm	20000	20000	20000	20000
4	Supply voltage	V	5	5	5	5
5	Output signal		TTL	TTL	TTL	TTL
6	Index pulse width	°e	90	90	90	90
7	Phase shift, Channel A to B	°e	90	90	90	90
8	Interia of code disc	gcm^2	0.7	0.7	0.7	0.7
9	Operating temperature range	°C	-40..+125	-40..+125	-40..+125	-40..+125

Features & Configuration

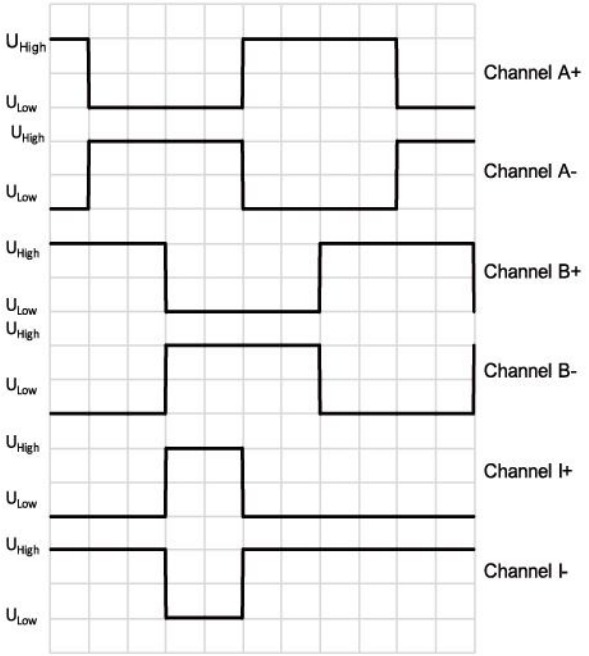
- Magnetic rotary encoder chip
- Output interface: ABI
- Configuration programmable : Zero position, ABI line per revolution
- ABI binrary pulse count: 1024, 512, 256ppr
- Optional line driver : Provide four channal differential line driver with complementary outputs for EN22AL and EN22BL

Output Signals

EN22A/EN22B
with counter-clockwise rotation as from the shaft end

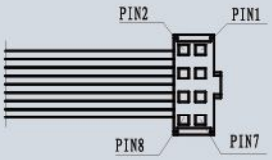


EN22AL/EN22BL
with counter-clockwise rotation as from the shaft end



Connection

Conection	EN22A/EN22B	PVC
Pin 1	GND	AWG28
Pin 2	Vcc	AWG28
Pin 3	NC	AWG28
Pin 4	I+	AWG28
Pin 5	NC	AWG28
Pin 6	B+	AWG28
Pin 7	NC	AWG28
Pin 8	A+	AWG28



Conection	EN22AL/EN22BL	PVC
Pin 1	GND	AWG28
Pin 2	Vcc	AWG28
Pin 3	I-	AWG28
Pin 4	I+	AWG28
Pin 5	B-	AWG28
Pin 6	B+	AWG28
Pin 7	A-	AWG28
Pin 8	A+	AWG28

Subject: _____

Date: _____

Vishan
Servo motor series

Slotless bldc motor have the advantage of high power density, high efficiency and fast response... So the slotless bldc servo motor have the same advantage which will suitable for the miniaturization but large torque application

Vishan commit to give each customer custom made solution. There are abundant of servo motor solutions here. We believe you can always find the suitable solutions for your appplication from Vishan.

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

What we can do...
Deliver the suitable solut

tions to customers.

Know us more
www.vishanmotor.com

vishan 唯川

BLDC MOTOR & SERVO BLDC MOTOR

ShenZhen Vishan Technology Co.,Ltd

Tel: +86(0)755 29835880 Fax: +86 (0)755 29835881
Email: sales@vishanmotor.com
Address: No.37, KengWei Street, ShiYan Town, Baoan District, ShenZhen, China.