



Your Primary Motor and Motion Solution Partner!

BRUSHLESS DC MOTOR

Product Catalogue



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PrimoPal Motor Co., Ltd. is a joint-venture manufacturing, engineering and trading company, located at the free-trade zone of Shanghai, China. PrimoPal specializes in development, production and selling of various high-quality and cost-effective precision motor and motion control products, including Hybrid stepper motors, PM stepper motors, Linear actuators, Close-loop stepper motors, Brushless DC motors, Brushless servo motors, AC servo motors, PM DC motors, AC induction motors, Synchronous motors, Gear motors, Stepper drives, Brushless DC drives, Hybrid servo drives, AC servo drives, Brushless servo drives, Brush servo drives, Encoders, Spur gearboxes, Planetary gearheads, Brakes, Power supplies, Accessories, and so on.

Since establishment, PrimoPal is committed to providing outstanding quality, economical solutions, impeccable support and after-sales service for every client. Our manufacturing bases are equipped with advanced quality testing devices, precise injection molding machines, auto high-speed punches, auto winding machines and other advanced manufacturing equipment. It makes us have the ability of continuously providing products with superior quality. Besides, we have an engineering team with many years of experience in motor design and application engineering. This ability of offering custom products often gives our customers the great benefit.

For PrimoPal, the customer is not only a buyer, but also a long-term business partner. We work not only to meet their expectations, but also to exceed them through continuous cycles of learning. We believe it is the key to a successful business relationship that understanding our customer's goals, delivering what our customers need and when they need it. To demonstrate our commitment to all our customers, PrimoPal has adopted "Bringing out the Best in Motion" as our official slogan, which means our ultimate goal is to become one of the world's top level companies in the industry of precision motor and motion control system. The pursuit of excellence encourages all PrimoPal employees to forge ahead into improving our business processes and increasing our management efficiency. We have no doubt that our endeavors enable us to maintain strong presence in the competitive market.

Now, let us help you find the right solution for your motor and motion control systems.



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BLDC Motor Introduction

Frameless brushless DC motor

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Brief Introduction of DC Brushless Motor

The electronically commutated motor are the characterized especially by their favorable torque characteristics, high power, extremely broad speed range and of cause by their unsurpassed service life.

Principles of operation

The differences between a DC motor having a mechanical commutation system and a BLDC motor are mainly found in:

- The product concept
- The commutation of phase currents.

From the user's point of view, DC brushless motors follow the same equations as those with brushes: torque is proportional to current, speed depends on the voltage and the load torque.

The commutation of brushless motors

In the conventional DC motor commutation takes place mechanically through the commutator-and-brush system. In a BLDC motor, commutation is done by electronic means. In that case the instantaneous rotor position must be known in order to determine the phases to be energized.

The angular rotor position can be known by:

- Using a position sensor (Hall sensor, optical encoder, resolver)
- Electronically analyzing the back-EMF of a non-energized winding. This is called sensorless commutation.

Use of Hall sensors

In general, BLDC motor have three phase windings. The easiest way is to power two of them at a time, using Hall sensors to know the rotor position. A simple logic allows for optimal energizing of the phases as a function of rotor position, just like the commutator and brushes are doing in the conventional DC motor.

Use of an encoder or resolver

The rotor position may also be known by use of an encoder or resolver. Commutation may be done very simply, similar to the procedure with Hall sensors, or it may be more complex by modulating sinusoidal currents in the three phases. This is called vector control, and its advantage is to provide a torque ripple of theoretically zero, as well as a high resolution for precise positioning.

Use of Back-EMF analysis

A third option requiring no position sensor is the use of a particular electronic circuit. The motor has only three hook-up wires, the three phase windings are connected in either triangle or star. In the latter case, resistors must be used to generate a zero reference voltage. With this solution the motor includes no sensors or electronic components and it is therefore highly insensitive to hostile environments. For applications such as hand-held tools, where the cable is constantly moved, the fact of just three wires is another advantage.

Loss calculation of BLDC motors

It follows the same equations as the DC motor using mechanical commutation except that parameters like iron losses and losses in the drive circuit are no longer negligible in applications where efficiency is of prime importance.

Iron losses

They depend on speed and motor poles, in the torque formula, may be introduced as viscous friction. The equation for useful motor torque becomes:

$$M_m = k \cdot I_m - k_v \cdot \omega - M_f$$

M_m = Motor useful torque
 k = Torque constant
 I_m = Motor current
 k_v = Viscous coefficient for iron losses
 ω = Angular velocity
 M_f = Bearing friction

$$P_{tr} = P_h + P_{ec} + P_e$$

P_{tr} : Iron losses
 P_h : Hysteresis losses
 P_{ec} : Eddy current losses
 P_e : Additional losses

The iron loss is proportional to the square of the magnetic field intensity, and the iron loss is proportional to the 1.3-1.5 power of the frequency. Frequency = Speed * Poles' pair / 60

Losses in the electronics

The current and voltage required by the motor and the drive circuit to be operated at the desired speed and torque depend also on the drive circuit. As an example, a driver bridge in bipolar technique will reduce the voltage available at the motor terminals by about 1.7V, and the total current must include the consumption of the circuitry.

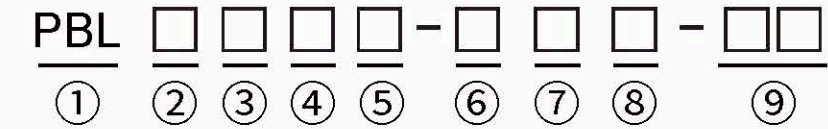
Losses in the electronics

- For commutation, position sensors are necessary when operating in incremental mode
- Sensorless commutation is recommended only for applications running at constant speed and load such as fan applications.

Indications Of Motor Data

- Nominal Voltage** Unit: V
Nominal voltage is the applied voltage between powered phases in block commutation. All nominal data refer to this voltage. Lower and higher voltage are permissible, provided that limits are not exceeded.
- Nominal Torque** Unit: N.m
Nominal Torque is the torque generated for operation at nominal voltage and nominal current at a motor temperature of 25°C, it is at the limit of the motor's continue operation range. Higher torques heat up the winding too much.
- Nominal Speed** Unit: rpm
Nominal speed is the speed set for operation at nominal voltage and nominal torque at a motor temperature of 25°C.
- Torque Constant** Unit: N.m/A
This may also be referred to as specific torque and represents the quotient from generated torque and applicable current.

Part Number Naming Rule



- PBL** Primopal brushless DC Motor
- Frame Size**

□ Square	S22:22x22mm	S28:28x28mm	S32:32x32mm	S35:35x35mm
	S42:42x42mm	S57:57x57mm	S60:60x60mm	S70:70x70mm
	S80:80x80mm	S86:86x86mm	S110:110x110mm	S130:130x130mm
○ Round	R16:Ø16mm	R32:Ø32mm	R42:Ø42mm	R52:Ø52mm
	R57:Ø57mm	R62:Ø62mm	R82:Ø82mm	
- Motor Type**

H-Inner Rotor BLDC Motor	F-Frameless brushless DC motor
E-Outer Roter BLDC Motor	D-Direct drive brushless motor
C-Economical BLDC Motor	R-Coreless brushless motor
G-Planetary Gearbox BLDC Motor	T-Integrated brushless DC motor
- Number Of Rotor Magnet Poles**

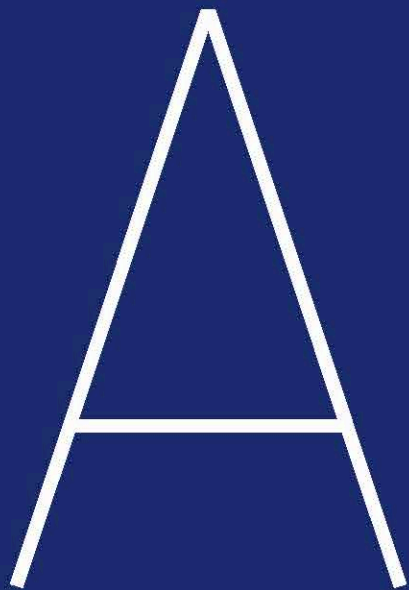
F-4Poles	T-10Poles	B-12Poles	M-22Poles
S-6Poles	L-14Poles	D-24Poles	N-28Poles
E-8Poles	H-16Poles	C-20Poles	
- Magnetic Steel Type**
 - S-Sintered magnet
 - L-Bonded magnet ring
 - T-Sintered radiation ring
 - Y-Hot-pressed magnet ring
- Voltage**

24-24VDC	36-36VDC	48-48VDC	220-220VAC
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- Power**

1. <100W x 1times	2. ≥100W < 1000W x 10times	3. ≥1000W x 10times
05-5W 99-99W	10-100W 99-990W	100-1000W 150-1500W
- Roted Speed**

30-3000RPM	40-4000RPM
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- Serial Number**

INNER ROTOR BRUSHLESS MOTOR

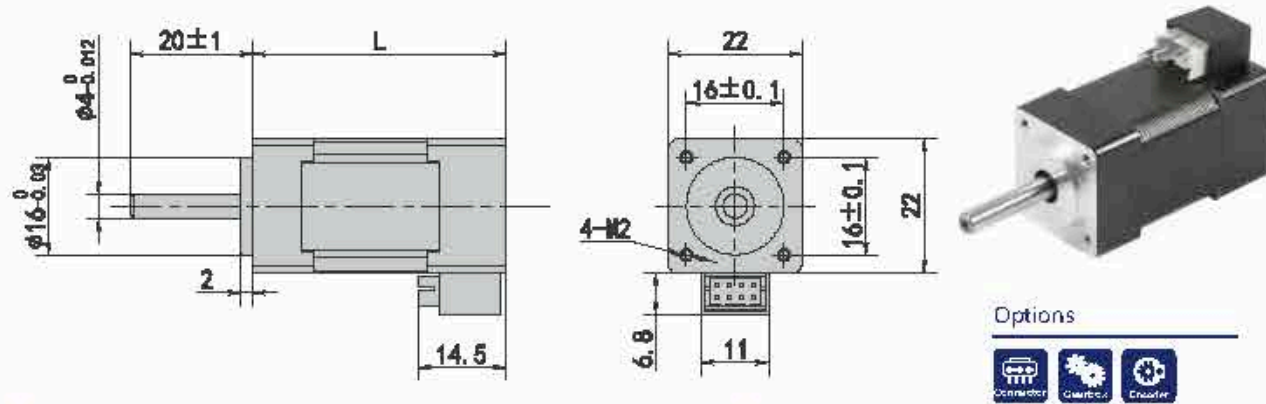


Inner Rotor Brushless Motor

Brushless DC motor is composed of motor body and driver, which is a typical mechatronics product. The stator windings of the motor are mostly made of three phase symmetric star connection, which is very similar to three-phase asynchronous motor. A magnetized permanent magnet is attached to the rotor of the motor. In order to detect the polarity of the rotor, a position sensor is installed in the motor. The driver is composed of power electronic devices and integrated circuits, etc. Its functions are: to accept the start, stop and brake signals of the motor to control the start, stop and brake of the motor; It receives position sensor signals and positive and negative rotation signals, which are used to control on and off of each power tube of the inverter bridge and generate continuous torque. Accept speed instruction and speed feedback signal, used to control and adjust the speed; Provide protection, display, and so on.

PBLS22HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	2N
Dielectric Strength	360VAC/1S
Insulation Resistance	100MQ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

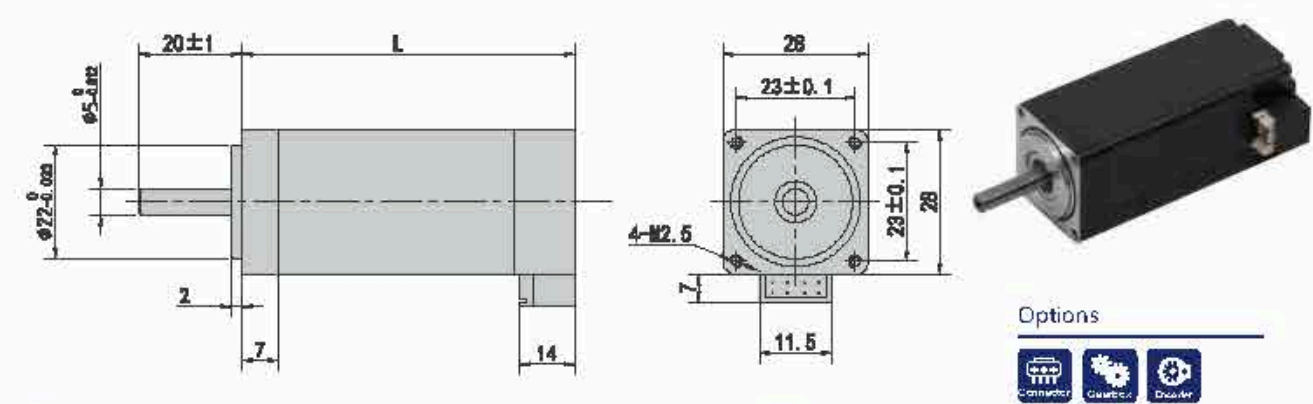
Type	Color	Functions
UL1007 AWG28	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG26	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS22HEL240440	PBLS22HEL240840	PBLS22HEL241240
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.01	0.02	0.03
Rated Power	W	4	8	12
Rated Current	A	0.2	0.4	0.6
Peak Current	A	0.6	1.2	1.8
Peak Torque	N.m	0.03	0.06	0.09
Rotor Inertia	kg.cm ²	0.01	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Q	2.1	3.2	3.9
Line-Line Inductance	mH	1.1	1.3	1.5
Length	mm	31.5	41.5	51.5
Weight	kg	0.2	0.3	0.4

PBLS28HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(10N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MQ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

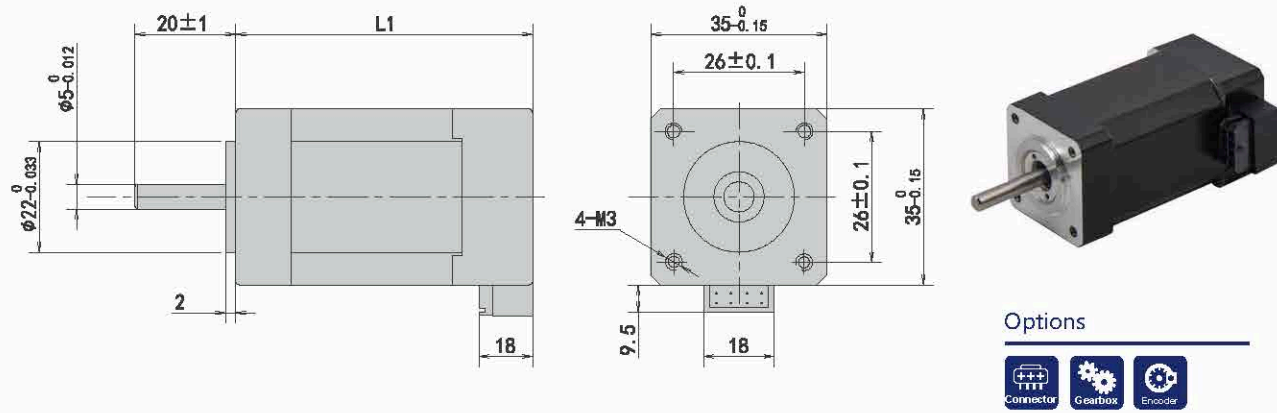
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG26	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS28HEL241240	PBLS28HEL241840	PBLS28HEL242540
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.03	0.045	0.06
Rated Power	W	12.5	18.8	25
Rated Current	A	0.7	0.9	1.3
Peak Current	A	2.1	2.7	3.9
Peak Torque	N.m	0.09	0.13	0.18
Rotor Inertia	kg.cm ²	0.01	0.02	0.03
Torque Constant	N.m/A	0.04	0.04	0.04
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	46	56	66
Weight (kg)	kg	0.22	0.38	0.55

PBLS35HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(28N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

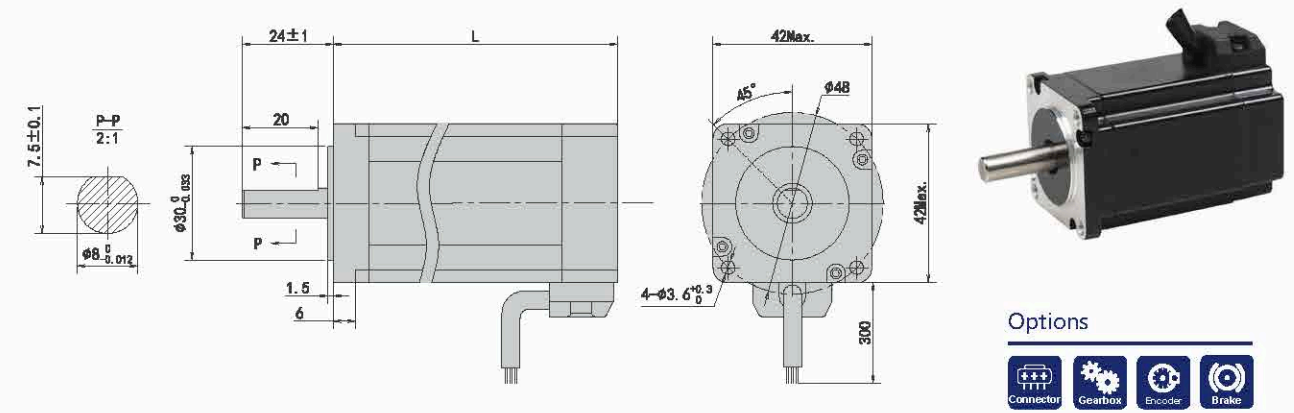
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS35HEL241640	PBLS35HEL242540	PBLS35HEL243340
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.04	0.06	0.08
Rated Power	W	16.7	25	33.5
Rated Current	A	0.8	1.25	1.7
Peak Current	A	2.4	3.75	5.2
Peak Torque	N.m	0.12	0.18	0.24
Rotor Inertia	kg.cm ²	0.02	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.6	4.5
Line-Line Resistance	Q	2.5	3.1	3.4
Line-Line Inductance	mH	1.1	1.2	1.3
Length	mm	49	59	69
Weight	kg	0.34	0.5	0.66

PBLS42HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(28N 10mm From the flange)
Max axial force	10N
Dielectric Strength	6000VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

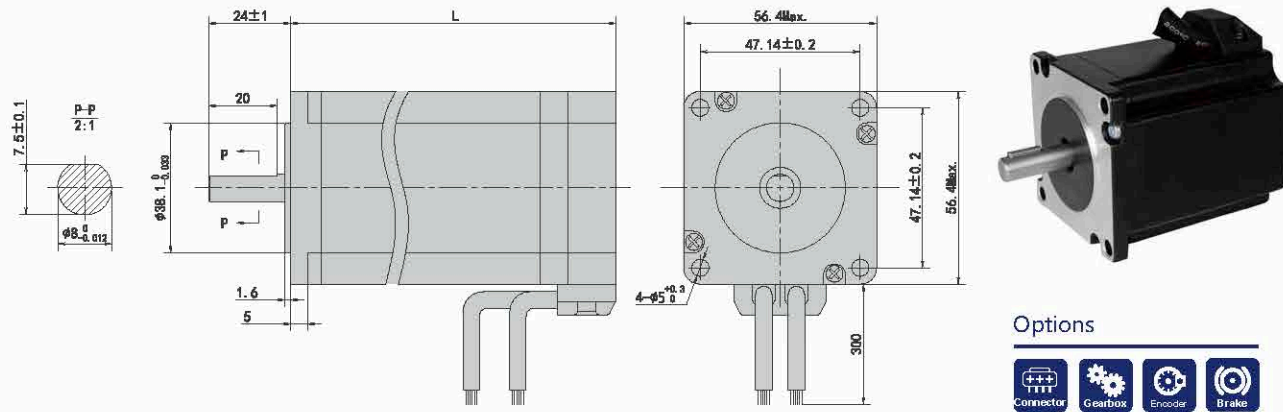
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS42HES483130	PBLS42HES486330	PBLS42HES489430
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.1	0.2	0.3
Rated Power	W	31	63	94
Rated Current	A	0.87	1.74	2.61
Peak Current	A	2.6	5.2	7.8
Peak Torque	N.m	0.3	0.6	0.9
Rotor Inertia	kg.cm ²	0.039	0.045	0.052
Torque Constant	N.m/A	0.115	0.115	0.115
Torque Constant	V/krpm	12	12	12
Line-Line Resistance	Q	1.9	1.4	0.8
Line-Line Inductance	mH	1.5	1.1	0.6
Length	mm	47	67	87
Weight	kg	0.4	0.9	1.0

PBLS56HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(75N 10mm From the flange)
Max axial force	15N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

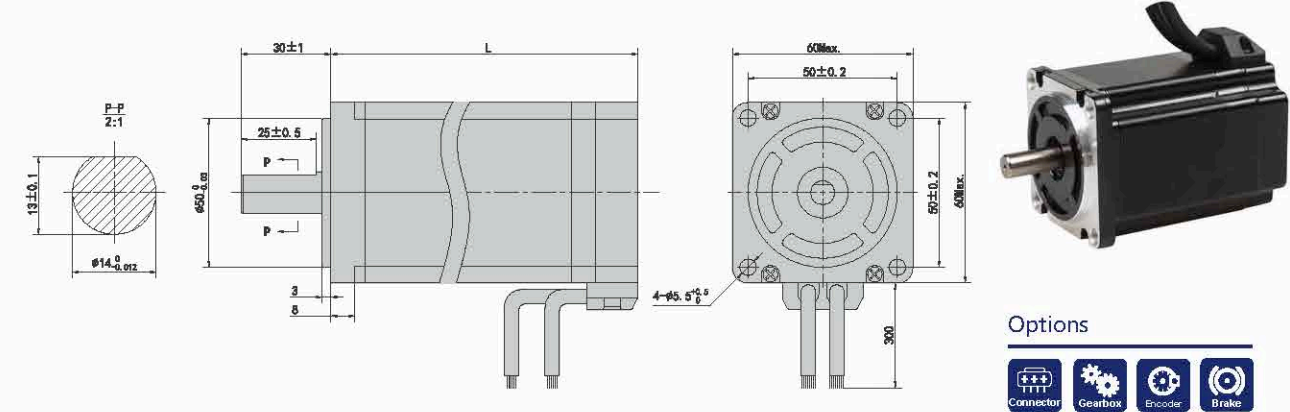
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS56HES486330	PBLS56HES481230	PBLS56HES481830
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.2	0.4	0.6
Rated Power	W	63	125	188
Rated Current	A	1.6	3.3	5.0
Peak Current	A	4.8	9.9	15.0
Peak Torque	N.m	0.6	1.2	1.8
Rotor Inertia	kg.cm ²	0.25	0.35	0.45
Torque Constant	N.m/A	0.125	0.121	0.12
Torque Constant	V/krpm	13.08	12.71	12.56
Line-Line Resistance	Q	1.11	0.93	0.52
Line-Line Inductance	mH	0.91	0.65	0.43
Length	mm	58	78	98
Weight	kg	1.0	1.4	1.8

PBLS60HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(115N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

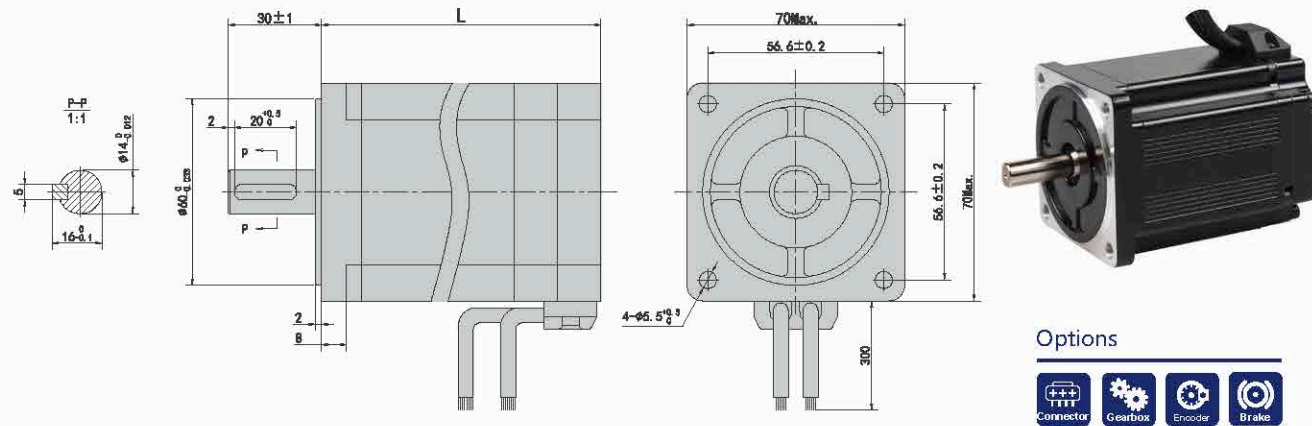
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS60HES487830	PBLS60HES481530	PBLS60HES482330
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.25	0.5	0.75
Rated Power	W	78	156	234
Rated Current	A	2.2	4.4	6.6
Peak Current	A	6.6	13.2	19.8
Peak Torque	N.m	0.75	1.5	2.25
Rotor Inertia	kg.cm ²	0.5	0.9	1.3
Torque Constant	N.m/A	0.11	0.11	0.11
Torque Constant	V/krpm	10.5	10.5	10.5
Line-Line Resistance	Q	1.5	0.6	0.5
Line-Line Inductance	mH	1.3	0.65	0.4
Length	mm	66	87	108
Weight	kg	0.9	1.25	1.0

PBL570HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(115N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

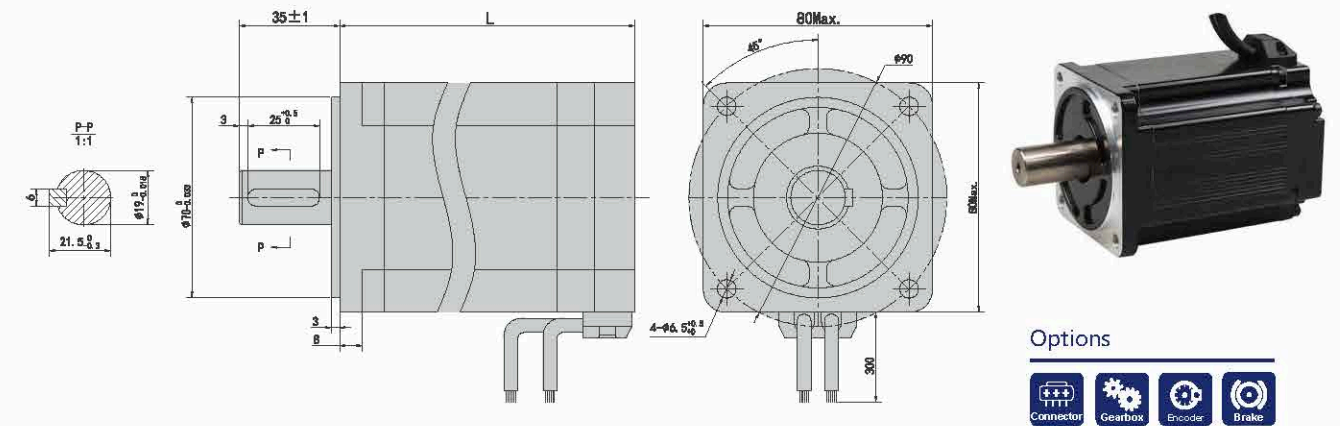
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG26	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBL570HES481530	PBL570HES482130
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.5	0.67
Rated Power	W	157	210
Rated Current	A	4.1	5.8
Peak Current	A	12.3	17.4
Peak Torque	N.m	1.5	2.01
Rotor Inertia	kg.cm ²	0.86	0.92
Torque Constant	N.m/A	0.122	0.115
Torque Constant	V/krpm	12.76	11.2
Line-Line Resistance	Q	0.93	0.8
Line-Line Inductance	mH	0.85	0.7
Length	mm	88	98
Weight	kg	1.34	1.5

PBL580HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(115N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

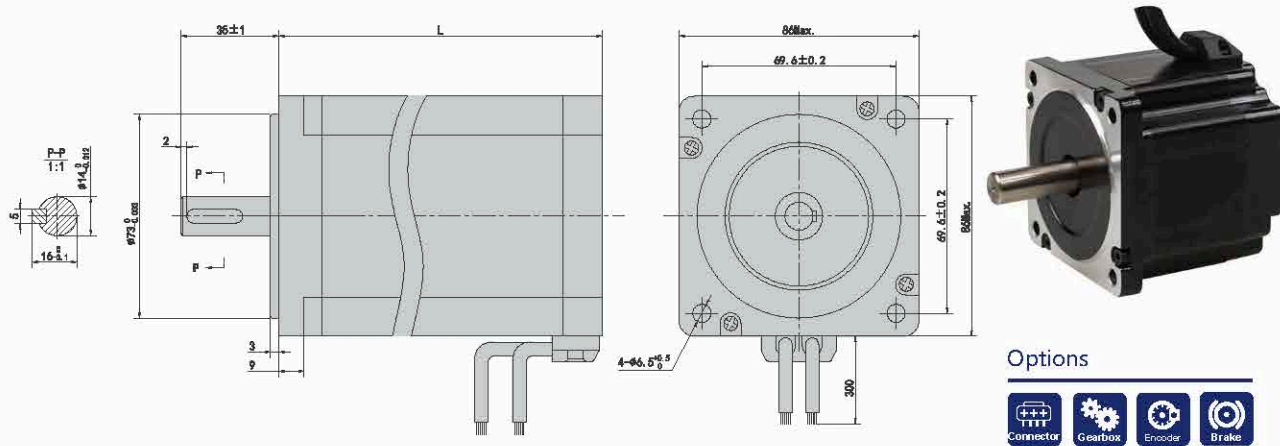
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBL580HES481830	PBL580HES482530
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.6	0.8
Rated Power	W	188	250
Rated Current	A	5.0	7.0
Peak Current	A	15.0	21.0
Peak Torque	N.m	1.8	2.4
Rotor Inertia	kg.cm ²	0.6	0.7
Torque Constant	N.m/A	0.11	0.11
Torque Constant	V/krpm	10.5	10.5
Line-Line Resistance	Q	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length	mm	99	109
Weight	kg	1.5	1.7

PBLS86HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(220N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

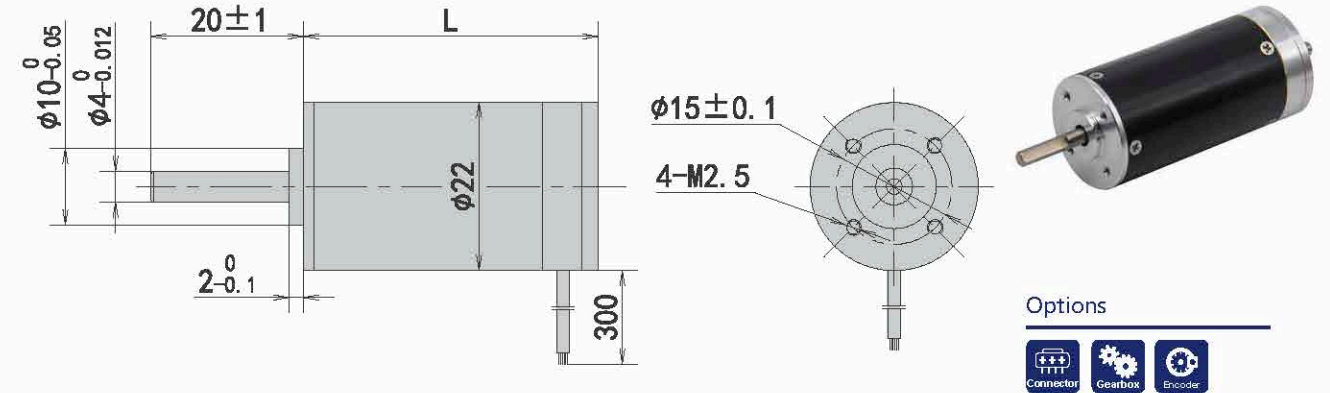
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLS86HES482230	PBLS86HES482130
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.5	0.67
Rated Power	W	157	210
Rated Current	A	4.1	5.8
Peak Current	A	12.3	17.4
Peak Torque	N.m	1.5	2.01
Rotor Inertia	kg.cm ²	0.86	0.92
Torque Constant	N.m/A	0.122	0.115
Torque Constant	V/krpm	12.76	11.2
Line-Line Resistance	Q	0.93	0.8
Line-Line Inductance	mH	0.85	0.7
Length	mm	88	98
Weight	kg	1.34	1.5

PBLR22HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	2N
Dielectric Strength	360VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

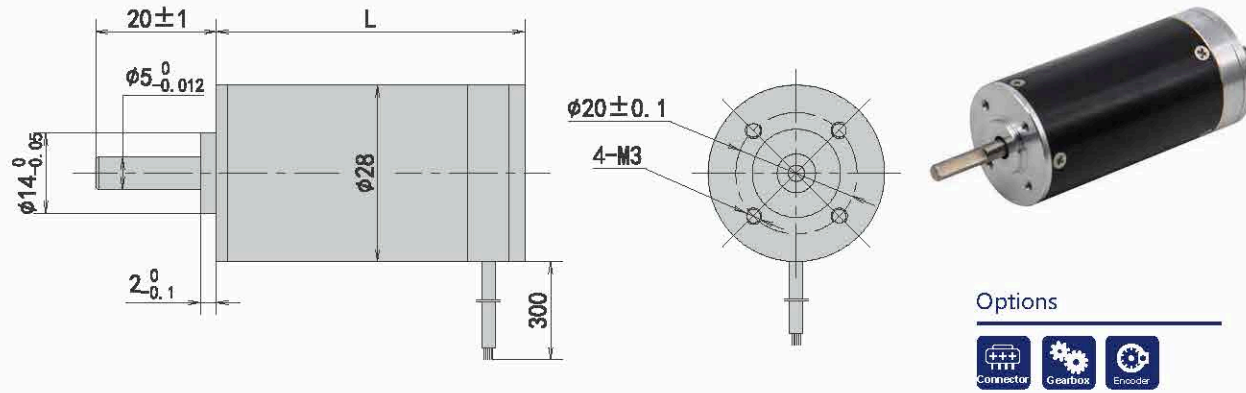
Type	Color	Functions
UL1007 AWG28	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG26	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLR22HEL240340	PBLR22HEL240640	PBLR22HEL240940
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.0075	0.015	0.0225
Rated Power	W	3	6	9
Rated Current	A	0.2	0.4	0.6
Peak Current	A	0.6	1.2	1.8
Peak Torque	N.m	0.0225	0.045	0.0675
Rotor Inertia	kg.cm ²	0.008	0.014	0.02
Torque Constant	N.m/A	0.04	0.04	0.04
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	34	44	54
Weight	kg	0.2	0.3	0.4

PBLR28HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(10N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

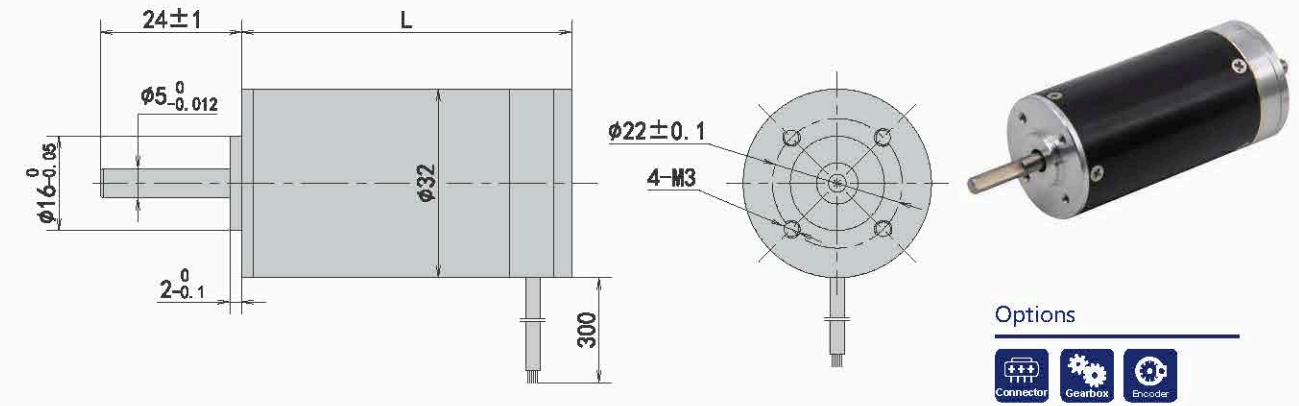
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG26	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLR28HEL240840	PBLR28HEL241240	PBLR28HEL241640
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.02	0.03	0.04
Rated Power	W	8	12.5	16.7
Rated Current	A	0.4	0.6	0.8
Peak Current	A	1.2	1.8	2.4
Peak Torque	N.m	0.06	0.09	0.12
Rotor Inertia	kg.cm ²	0.009	0.018	0.025
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	49	59	69
Weight	kg	0.2	0.3	0.5

PBLR32HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(10N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

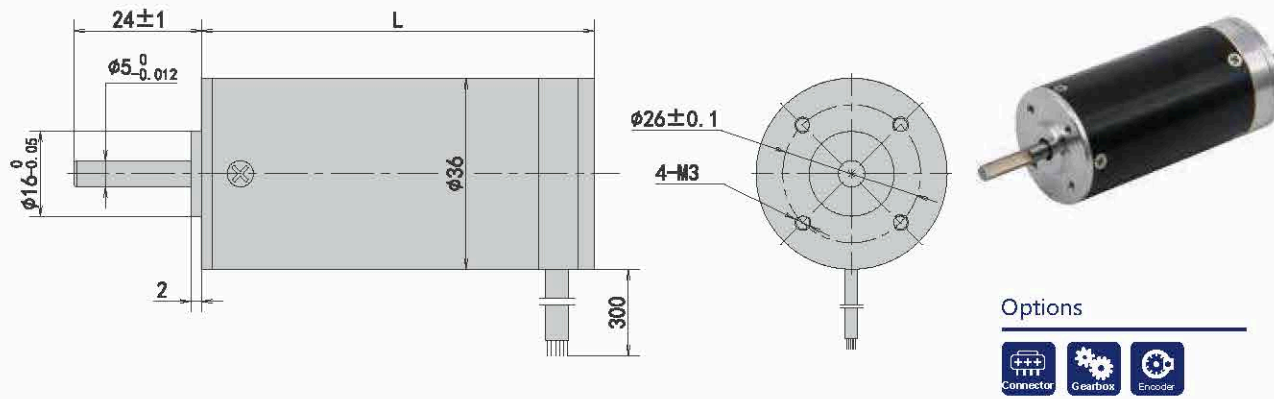
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG26	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLR32HEL241240	PBLR32HEL241840	PBLR32HEL242540
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.03	0.045	0.06
Rated Power	W	12.5	18.8	25
Rated Current	A	0.7	0.9	1.3
Peak Current	A	2.1	2.7	3.9
Peak Torque	N.m	0.09	0.13	0.18
Rotor Inertia	kg.cm ²	0.01	0.02	0.03
Torque Constant	N.m/A	0.04	0.04	0.04
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	56	66	76
Weight	kg	0.22	0.38	0.55

PBLR36HEL Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

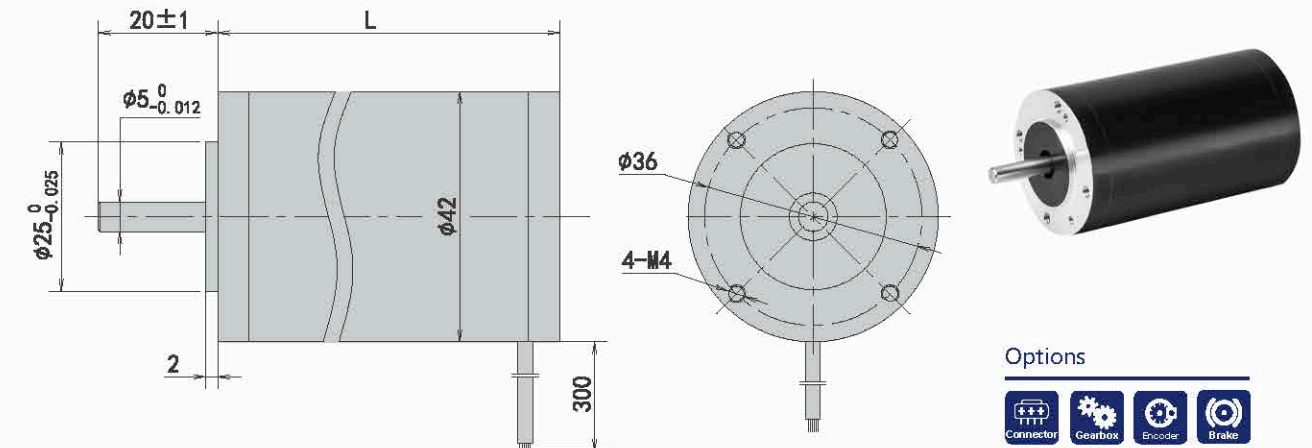
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLR36HEL241640	PBLR36HEL242540	PBLR36HEL243340
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.04	0.06	0.08
Rated Power	W	16.7	25	33.5
Rated Current	A	0.8	1.25	1.7
Peak Current	A	2.4	3.75	5.2
Peak Torque	N.m	0.12	0.18	0.24
Rotor Inertia	kg.cm ²	0.02	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.6	4.5
Line-Line Resistance	Q	2.5	3.1	3.4
Line-Line Inductance	mH	1.1	1.2	1.3
Length	mm	54	64	74
Weight	kg	0.34	0.5	0.66

PBLR42HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(15N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

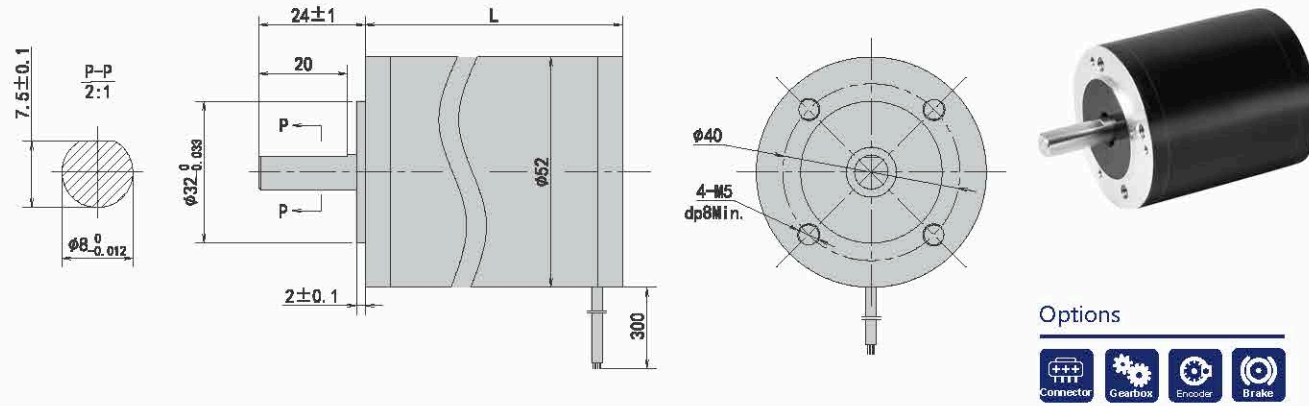
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Motor Specifications

Motor Model	Unit	PBLR42HES242830	PBLR42HES245630	PBLR42HES248430
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.09	0.18	0.27
Rated Power	W	28	56	84
Rated Current	A	1.7	3.4	5.4
Peak Current	A	5.1	10.2	16
Peak Torque	N.m	0.27	0.54	0.81
Rotor Inertia	kg.cm ²	0.25	0.35	0.45
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	5.23	5.23	5.23
Line-Line Resistance	Q	6	4	3
Line-Line Inductance	mH	4	3	2
Length	mm	52	72	92
Weight	kg	0.28	0.48	0.68

PBLR52HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	(Star connection)
Hall Effect Angle	(Electrical Angle of 120 degree)
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(75N 10mm From the flange)
Max axial force	15N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ, 500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

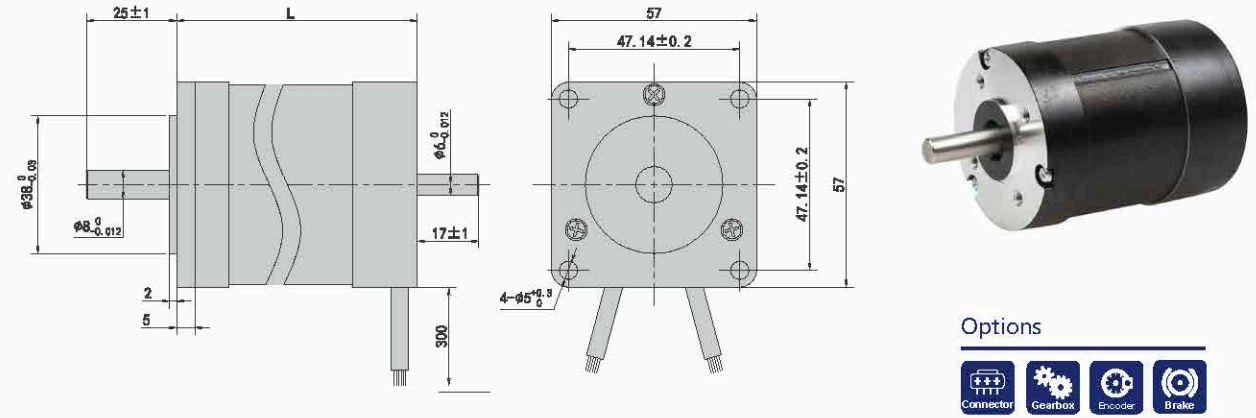
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR52HES243030	PBLR52HES246030	PBLR52HES249030
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.1	0.2	0.3
Rated Power	W	31	63	94
Rated Current	A	1.8	3.6	5.4
Peak Current	A	5.4	10.8	16
Peak Torque	N.m	0.3	0.6	0.9
Rotor Inertia	kg.cm ²	0.55	0.75	0.95
Torque Constant	N.m/A	0.055	0.055	0.055
Torque Constant	V/krpm	5.82	5.81	5.81
Line-Line Resistance	Q	3	1.5	0.6
Line-Line Inductance	mH	2.5	1.3	0.65
Length	mm	58.5	78.5	98.5
Weight	kg	0.38	0.88	1.37

PBLR57HFS Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	(Star connection)
Hall Effect Angle	(Electrical Angle of 120 degree)
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(115N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ, 500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

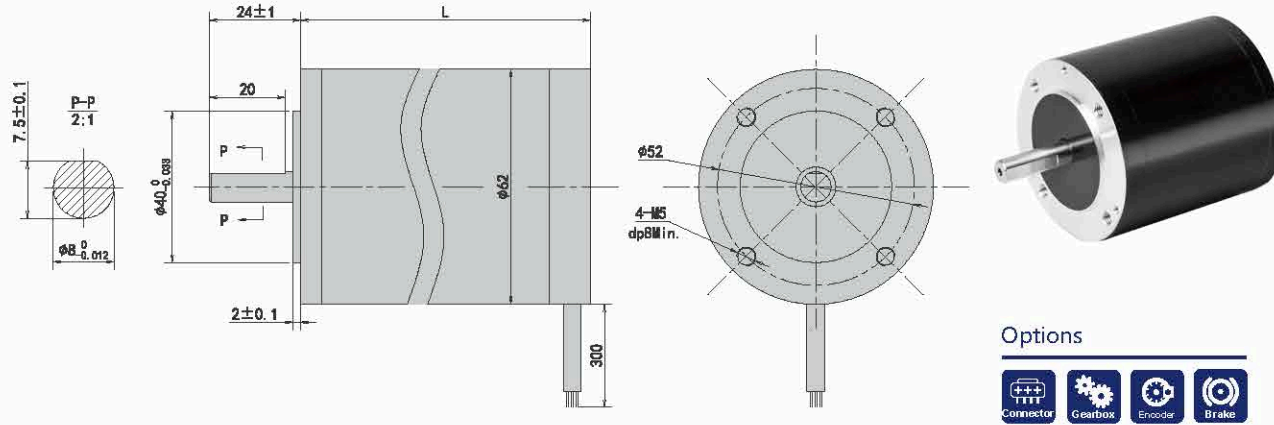
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR57HFS489040	PBLR57HFS481840	PBLR57HFS482740
Number of Phase		3		
Number of Poles		4		
Rated Voltage	VDC	48		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.22	0.44	0.66
Rated Power	W	92	184	276
Rated Current	A	2.5	5.1	7.6
Peak Current	A	7.7	15.3	22.8
Peak Torque	N.m	0.66	1.32	1.98
Rotor Inertia	kg.cm ²	1.19	1.73	1.73
Torque Constant	N.m/A	0.08	0.08	0.08
Torque Constant	V/krpm	9.2	9.2	9.2
Line-Line Resistance	Q	0.75	0.55	0.41
Line-Line Inductance	mH	2.2	2.1	1.1
Length	mm	55	75	95
Weight	kg	0.72	0.95	1.2

PBLR62HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	(Star connection)
Hall Effect Angle	(Electrical Angle of 120 degree)
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(75N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

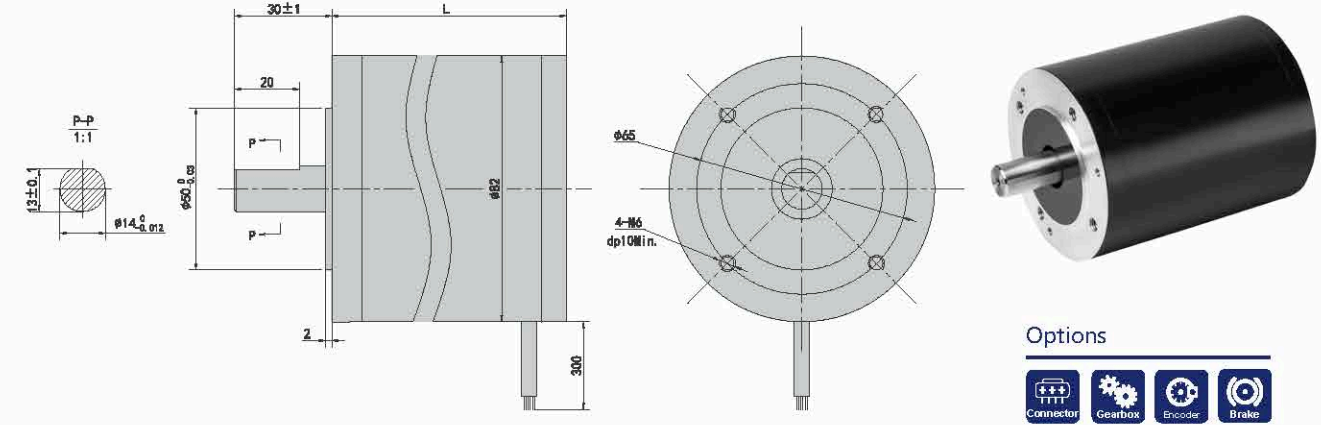
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR62H8S 487830	PBLR62H8S 481130	PBLR62H8S 481530	PBLR62H8S 481930	PBLR62H8S 482330
Number of Phase		3				
Number of Poles		8				
Rated Voltage	VDC	48				
Rated Speed	Rpm	3000				
Rated Torque	N.m	0.25	0.37	0.5	0.62	0.75
Rated Power	W	78	118	156	195	235
Rated Current	A	2.2	3.3	4.4	5.5	6.6
Peak Current	A	6.6	9.9	13.2	16.5	19.8
Peak Torque	N.m	0.75	1.11	1.5	1.86	2.25
Rotor Inertia	kg.cm ²	0.6	0.7	0.8	0.9	1.0
Torque Constant	N.m/A	0.11	0.11	0.11	0.11	0.11
Torque Constant	V/krpm	10.5	10.5	10.5	10.5	10.5
Line-Line Resistance	Q	1.8	1.5	1.2	0.9	0.6
Line-Line Inductance	mH	1.5	1.3	1.0	0.7	0.65
Length	mm	61	71	81	91	101
Weight	kg	0.72	0.88	1.04	1.2	1.37

PBLR82HES Series

Inner Rotor BLDC Motor



General Specifications

Winding Type	(Star connection)
Hall Effect Angle	(Electrical Angle of 120 degree)
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(115N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR82HES489040	PBLR82HES482540
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.6	0.8
Rated Power	W	188	250
Rated Current	A	5.0	7.0
Peak Current	A	15.0	21.0
Peak Torque	N.m	1.8	2.4
Rotor Inertia	kg.cm ²	0.6	0.7
Torque Constant	N.m/A	0.12	0.11
Torque Constant	V/krpm	11	10.5
Line-Line Resistance	Q	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length	mm	80	90
Weight	kg	1.5	1.7

OUTER ROTER BLDC MOTOR SERIES

B

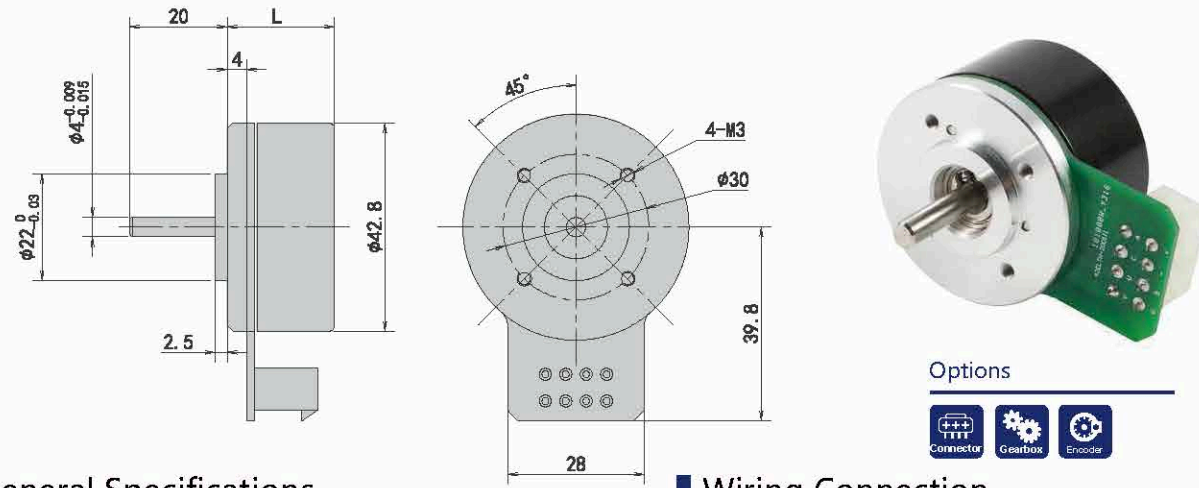


Outer Rotor BLDC Motor Series

Outer rotor brushless dc motor a rotor inside and a much higher moment of inertia of the rotor(on the main quality is concentrated in the shell of the rotor), so the speed slower than inner rotor motor, which can be used to directly drive the load, and eliminate the mechanical retarding mechanism, especially suitable for low speed high torque, small volume, high output power.

PBL42EHL Series

Outer Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(20N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

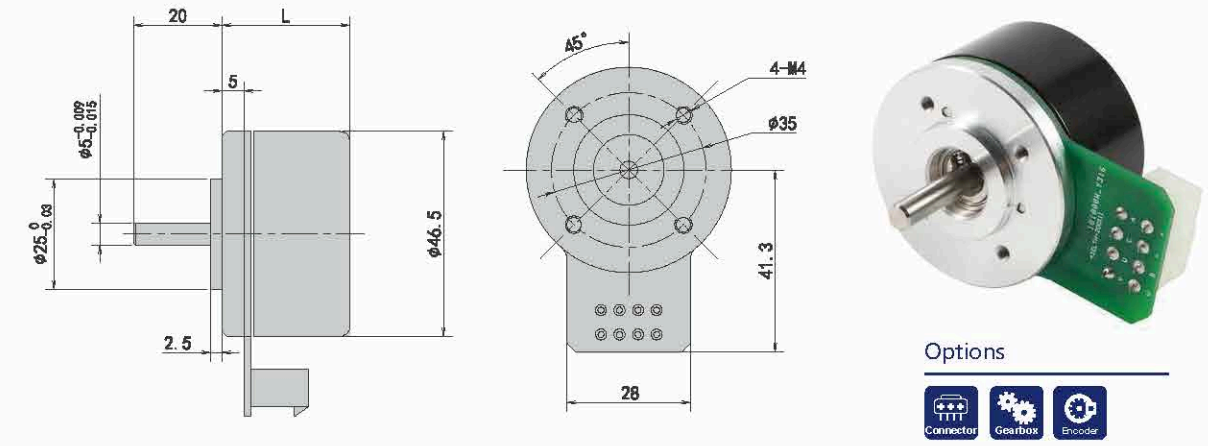
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBL42EHL243550	PBL42EHL245050	PBL42EHL247050
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	Rpm	5000		
Rated Torque	N.m	0.06	0.1	0.13
Rated Power	W	35	50	70
Rated Current	A	2.2	3.2	4.4
Peak Current	A	6.6	9.6	13.2
Peak Torque	N.m	0.18	0.3	0.39
Rotor Inertia	kg.cm ²	0.13	0.23	0.33
Torque Constant	N.m/A	0.03	0.03	0.03
Torque Constant	V/krpm	2.8	2.8	2.8
Line-Line Resistance	Q	2.0	1.5	1.0
Line-Line Inductance	mH	1.5	1.0	0.5
Length	mm	21.3	26.3	31.3
Weight	kg	0.12	0.18	0.24

PBL46EHL Series

Outer Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(20N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

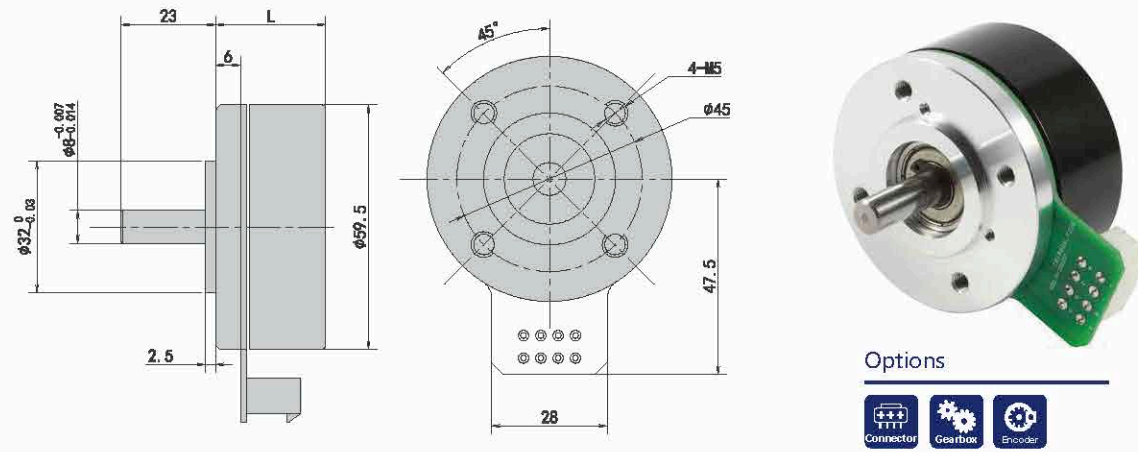
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBL46EHL244050	PBL46EHL246050	PBL46EHL248050
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	Rpm	5000		
Rated Torque	N.m	0.08	0.12	0.16
Rated Power	W	40	60	80
Rated Current	A	2.5	3.8	5.1
Peak Current	A	7.5	11.4	15.2
Peak Torque	N.m	0.24	0.36	0.48
Rotor Inertia	kg.cm ²	0.2	0.35	0.5
Torque Constant	N.m/A	0.03	0.03	0.03
Torque Constant	V/krpm	2.8	2.8	2.8
Line-Line Resistance	Q	1.5	0.9	0.4
Line-Line Inductance	mH	1.3	0.8	0.3
Length	mm	25.3	30.3	35.3
Weight	kg	0.2	0.3	0.4

PBL60EHL Series

Outor Rotor BLDC Motor



Options



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(75N 10mm From the flange)
Max axial force	15N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

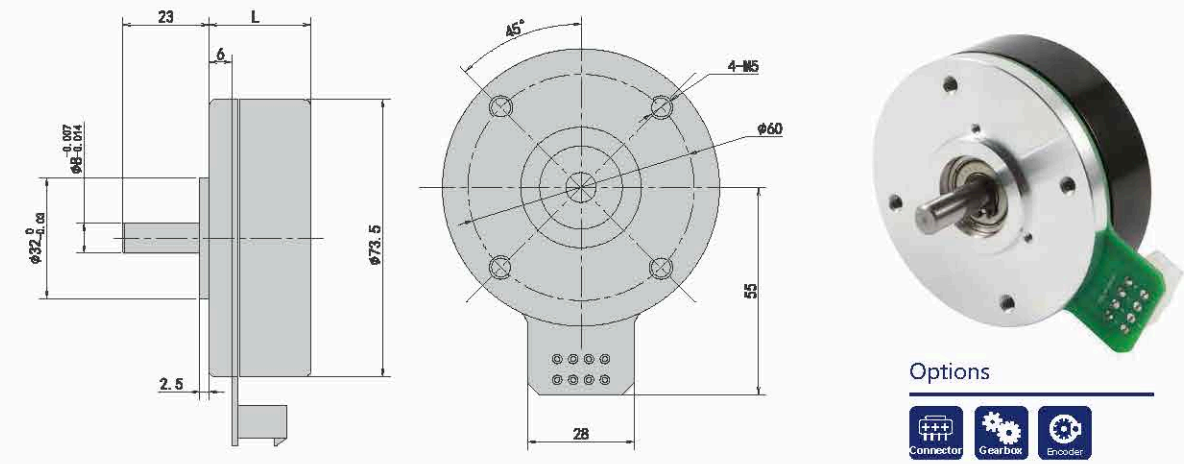
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBL60EHL244530	PBL60EHL246030	PBL60EHL249030
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.15	0.2	0.3
Rated Power	W	45	60	90
Rated Current	A	2.9	3.8	5.8
Peak Current	A	8.7	11.4	17.4
Peak Torque	N.m	0.45	0.6	0.9
Rotor Inertia	kg.cm ²	0.7	1.0	1.3
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Q	0.7	0.45	0.2
Line-Line Inductance	mH	0.25	0.15	0.1
Length	mm	26.3	31.3	36.3
Weight	kg	0.3	0.4	0.5

PBL75EHL Series

Outor Rotor BLDC Motor



Options



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(75N 10mm From the flange)
Max axial force	15N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Wiring Connection

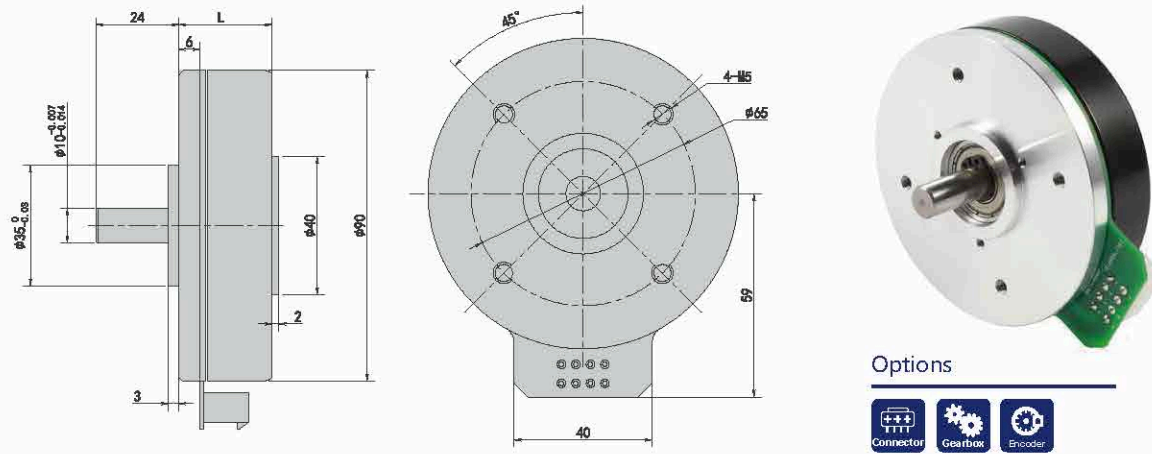
Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBL75EHL249030	PBL75EHL241430	PBL75EHL241830
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.3	0.45	0.6
Rated Power	W	90	140	180
Rated Current	A	5.8	8.9	11.6
Peak Current	A	17.4	26.7	34.8
Peak Torque	N.m	0.9	1.35	1.8
Rotor Inertia	kg.cm ²	1.5	1.9	2.3
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Q	0.5	0.4	0.3
Line-Line Inductance	mH	0.2	0.1	0.05
Length	mm	26.3	31.3	36.3
Weight	kg	0.5	0.7	0.9

PBL90EDL Series

Outer Rotor BLDC Motor



General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(110N 10mm From the flange)
Max axial force	45N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

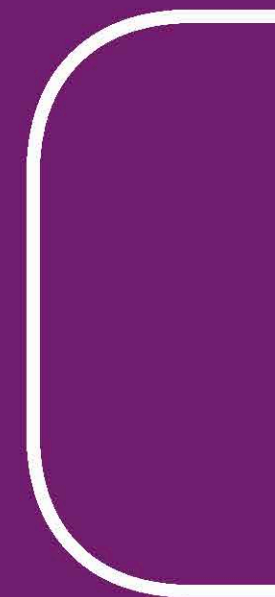
Wiring Connection

Type	Color	Functions
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBL90EDL241020	PBL90EDL241520	PBL90EDL242020
Number of Phase		3		
Number of Poles		24		
Rated Voltage	VDC	24		
Rated Speed	Rpm	2000		
Rated Torque	N.m	0.5	0.75	1.0
Rated Power	W	100	150	200
Rated Current	A	6.4	9.6	12.8
Peak Current	A	19.2	28.8	38.4
Peak Torque	N.m	1.5	2.25	3.0
Rotor Inertia	kg.cm ²	3.0	4.0	5.0
Torque Constant	N.m/A	0.08	0.08	0.08
Torque Constant	V/krpm	7.5	7.5	7.5
Line-Line Resistance	Q	0.4	0.25	0.15
Line-Line Inductance	mH	0.3	0.25	0.2
Length	mm	26.3	31.3	36.3
Weight	kg	0.6	0.8	1.0

ECONOMICAL BRUSHLESS MOTOR SERIES



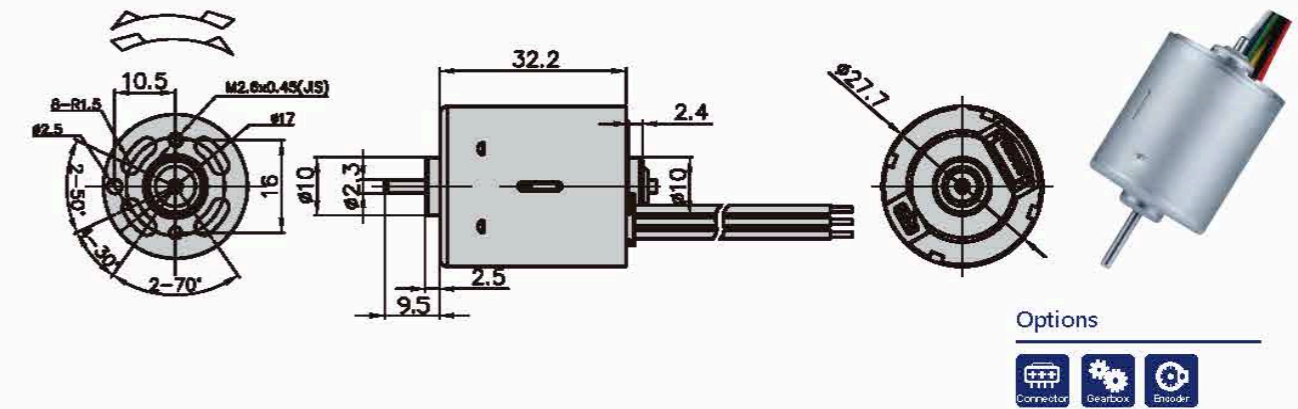
PBL27CEY-S Series

Economical BLDC Motor



Economical Brushless Motor Series

Referring to the structure design of brushless motor, brushless motor electromagnetic design is adopted to produce low cost brushless motor. Based on the excellent characteristics of brushless motor, the cost of motor is effectively optimized.



General Specifications

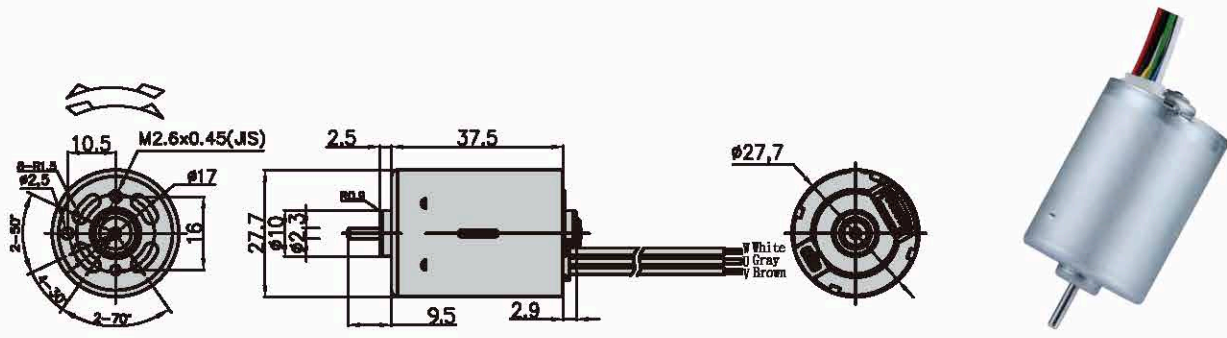
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL27CEY-S120135	PBL27CEY-S1206177	
Voltage	Operating Range		-----	-----	
	Nominal		12.0V Constant	12.0V Constant	
No Load	Speed	rpm	3500	17700	
	Current	A	0.67	0.17	
At Maximum Efficiency	Speed	rpm	2719	14144	
	Current	A	0.28	0.85	
	Torque	g-cm		53.11	46.87
		mN-m		5.21	4.60
	Output	W		1.48	6.81
Eff	%		55	73	
Stall	Current	A	0.86	4.23	
	Torque	g-cm		233.20	281.64
		mN-m		22.86	27.61

PBL27CEY-M Series

Economical BLDC Motor



Options



General Specifications

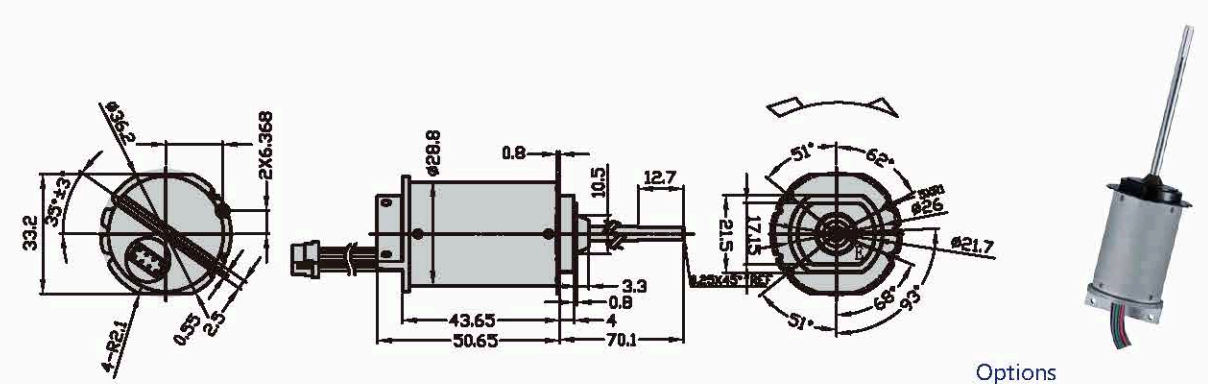
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model	PBL27CEY-M120129		PBL27CEY-M1215127	
Voltage	Operating Range		-----	-----
	Nominal		12.0V Constant	12.0V Constant
No Load	Speed	rpm	2900	12700
	Current	A	0.67	0.31
At Maximum Efficiency	Speed	rpm	2248	10730
	Current	A	0.28	1.79
	Torque	g-cm	62.55	140.3
		mN-m	6.13	13.75
Output	W	1.44	15.46	
Eff	%	55	76	
Stall	Current	A	0.82	8.61
	Torque	g-cm	267.59	803.31
		mN-m	26.23	78.76

PBL36CEY-SL Series

Economical BLDC Motor



Options



General Specifications

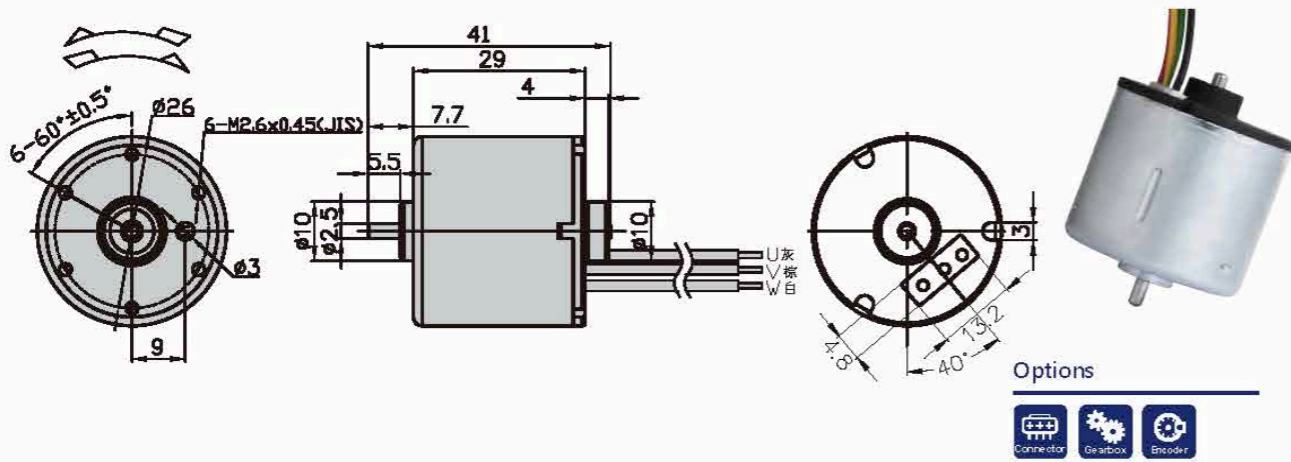
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model	PBL36CEY-SL120233	
Voltage	Operating Range	-----
	Nominal	12.0V Constant
No Load	Speed	rpm
	Current	A
At Maximum Efficiency	Speed	rpm
	Current	A
	Torque	g-cm
		mN-m
Output	W	
Eff	%	
Stall	Current	A
	Torque	g-cm
		mN-m

PBL32CEY Series

Economical BLDC Motor



Options



General Specifications

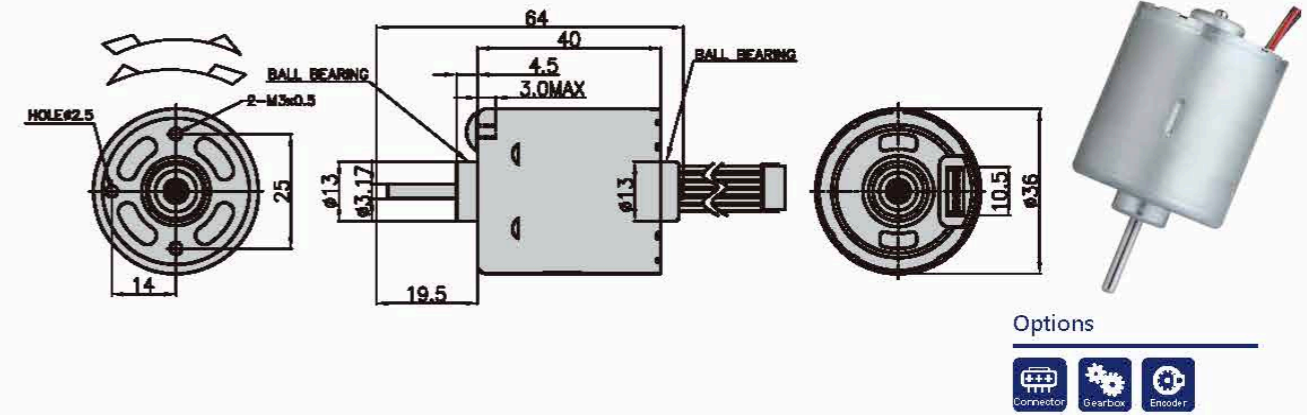
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL32CEY240460	PBL32CEY120240	
Voltage	Operating Range		-----	-----	
	Nominal		24.0V Constant	12.0V Constant	
No Load	Speed	rpm	6000	4000	
	Current	A	0.72	0.70	
At Maximum Efficiency	Speed	rpm	4864	3053	
	Current	A	0.39	0.36	
	Torque	g-cm		90.42	89.96
		mN-m		8.86	8.82
Output	W		4.52	2.82	
Eff	%		65	66	
Stall	Current	A	1.45	1.42	
	Torque	g-cm		499.32	409.56
		mN-m		48.95	40.15

PBL36CEY-M Series

Economical BLDC Motor



Options



General Specifications

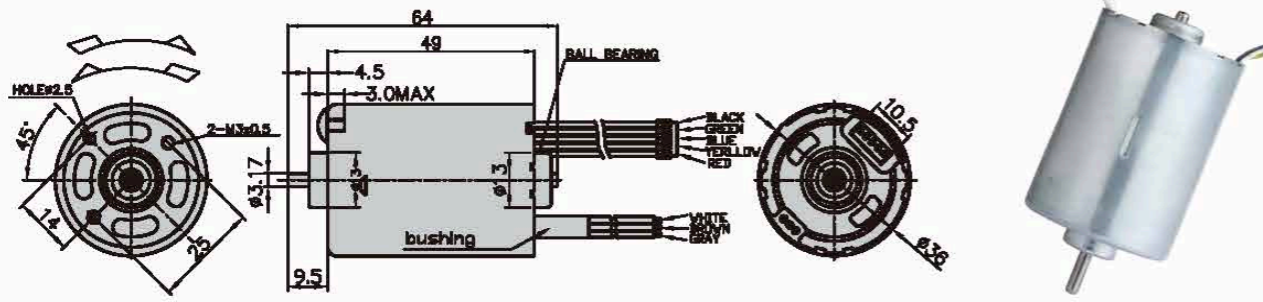
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(5N 10mm From the flange)
Max axial force	2N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL36CEY-M121480	PBL36CEY-M242390	
Voltage	Operating Range		-----	-----	
	Nominal		12.0V Constant	24.0V Constant	
No Load	Speed	rpm	8000	9000	
	Current	A	0.42	0.17	
At Maximum Efficiency	Speed	rpm	6596	7675	
	Current	A	2.05	1.38	
	Torque	g-cm		212	295
		mN-m		20.78	28.92
Output	W		14.36	23.25	
Eff	%		62	74	
Stall	Current	A	9.69	7.37	
	Torque	g-cm		1287	1859
		mN-m		126.18	182.25

PBL36CEY-S Series

Economical BLDC Motor



Options



General Specifications

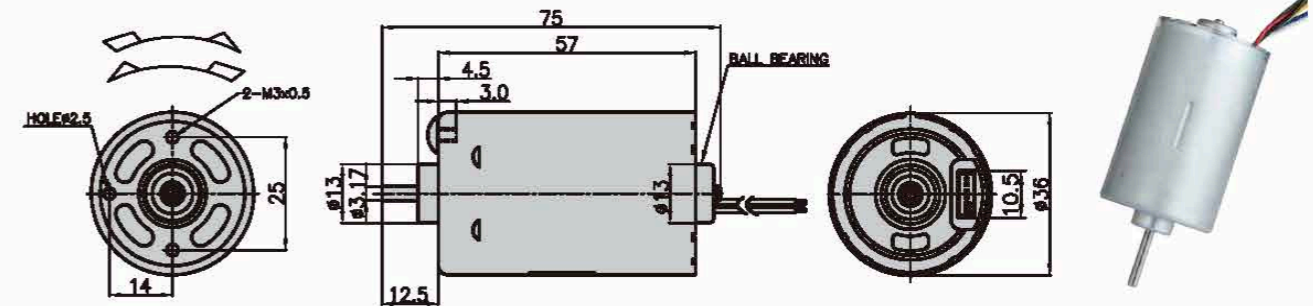
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(15N 10mm From the flange)
Max axial force	10N
Dielectric Strength	6000VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL36CEY-S241350	PBL36CEY-S120735	
Voltage	Operating Range		-----	-----	
	Nominal		24.0V Constant	12.0V Constant	
No Load	Speed	rpm	5000	3500	
	Current	A	0.16	0.16	
At Maximum Efficiency	Speed	rpm	4484	3135	
	Current	A	0.72	0.85	
	Torque	g-cm		286	242
		mN-m		28.04	23.73
	Output	W		13.17	7.79
Eff	%		81	78	
Stall	Current	A	5.23	6.04	
	Torque	g-cm		2379	1936
		mN-m		233.24	189.80

PBL36CEY-L Series

Economical BLDC Motor



Options



General Specifications

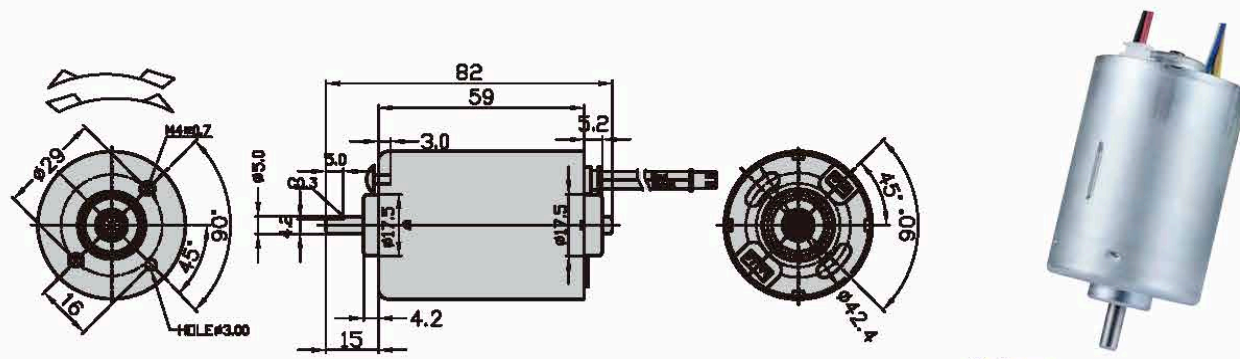
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(15N 10mm From the flange)
Max axial force	10N
Dielectric Strength	6000VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL36CEY-L120527	PBL36CEY-L2122460	
Voltage	Operating Range		-----	-----	
	Nominal		12.0V Constant	21.6V Constant	
No Load	Speed	rpm	2700	46000	
	Current	A	0.15	3.20	
At Maximum Efficiency	Speed	rpm	2408	40500	
	Current	A	0.65	13.91	
	Torque	g-cm		217.6	543.0
		mN-m		21.33	53.24
	Output	W		5.38	223.55
Eff	%		74	72	
Stall	Current	A	4.05	107.20	
	Torque	g-cm		1662.2	5274.0
		mN-m		162.96	517.06

PBL42CEY-S Series

Economical BLDC Motor



Options



General Specifications

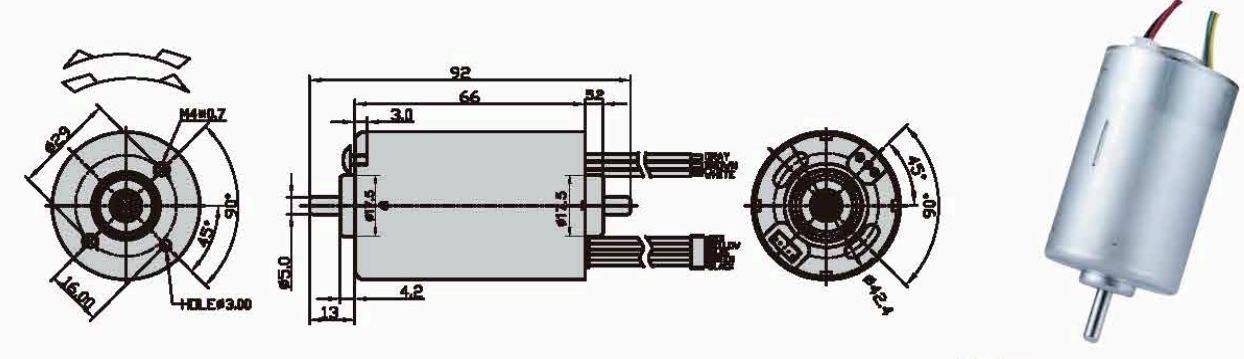
Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(15N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL42CEY-S245370	PBL42CEY-S182140
Voltage	Operating Range		-----	-----
	Nominal		24.0V Constant	18.0V Constant
No Load	Speed	rpm	7000	4000
	Current	A	0.34	0.19
At Maximum Efficiency	Speed	rpm	6464	3413
	Current	A	2.61	1.16
	Torque	g-cm	809	627
		mN-m	79.31	61.47
Output	W	53.70	21.97	
Eff	%	87	82	
Stall	Current	A	23.52	7.67
	Torque	g-cm	8127	4786
		mN-m	796.76	469.22

PBL42CEY-M Series

Economical BLDC Motor



Options



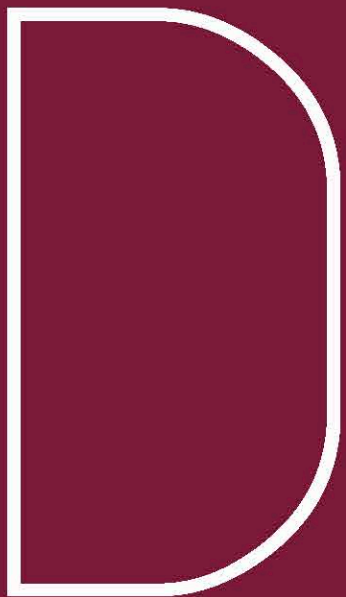
General Specifications

Winding Type	Star/Delta
Hall Effect Angle	Electrical Angle of 120 degree
Radial Play	0.02mm@450g
Axial Play	0.08mm@450g
Max radial force	(15N 10mm From the flange)
Max axial force	10N
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Motor Specifications

Motor Model			PBL42CEY-M124887	PBL42CEY-M244153
Voltage	Operating Range		-----	-----
	Nominal		12.0V Constant	24.0V Constant
No Load	Speed	rpm	8700	5300
	Current	A	1.18	0.30
At Maximum Efficiency	Speed	rpm	7651	4484
	Current	A	5.46	2.06
	Torque	g-cm	622	892
		mN-m	60.98	87.45
Output	W	48.87	41.07	
Eff	%	76	88	
Stall	Current	A	29.19	11.71
	Torque	g-cm	3971	5663
		mN-m	389.31	555.20

PLANETERY GEARBOX BRUSHLESS MOTOR

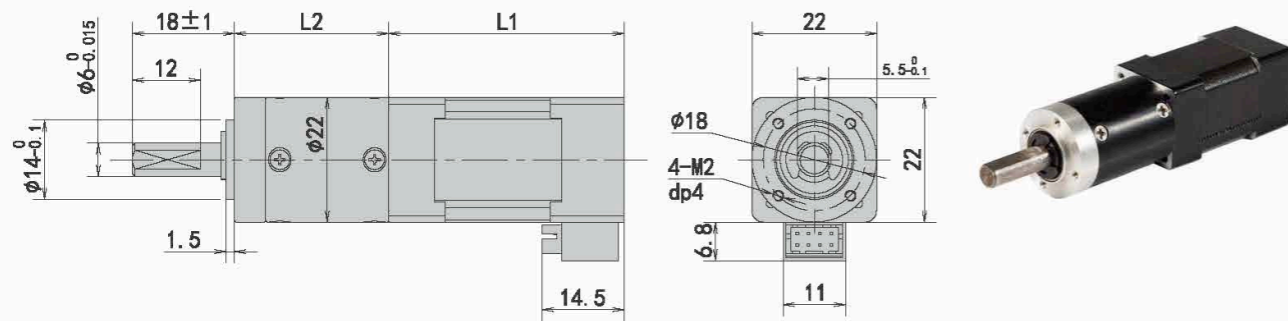


Planetary Gearbox Brushless Motor

Planetary gearbox brushless Motor has the characteristics of high precision, high rigidity, high load, high efficiency, high speed ratio, high life, low inertia, low vibration, low noise, low temperature rise, beautiful appearance, light structure, easy installation, accurate positioning and so on.

PBLS22GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

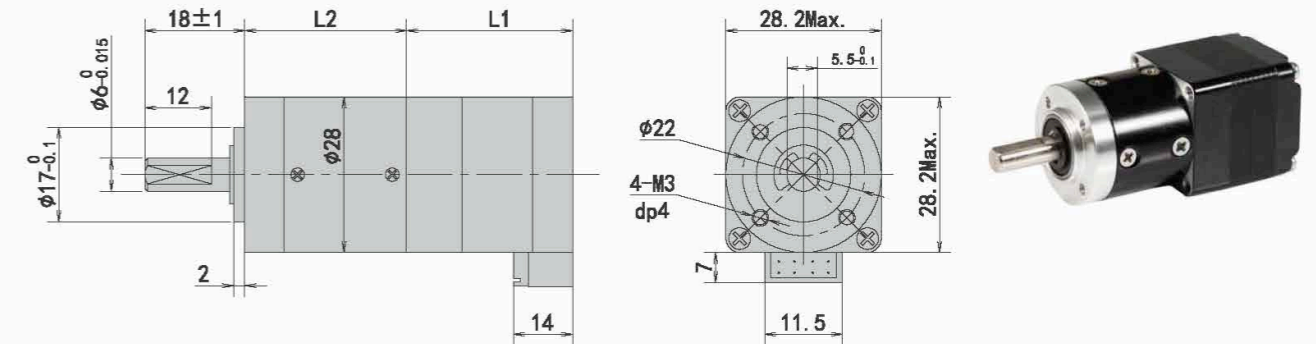
Motor Model	Unit	PBLS22GEL240440	PBLS22GEL240840	PBLS22GEL241840
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.01	0.02	0.03
Rated Power	W	4	8	12
Rated Current	A	0.2	0.4	0.6
Peak Current	A	0.6	1.2	1.8
Peak Torque	N.m	0.03	0.06	0.09
Rotor Inertia	kg.cm ²	0.01	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Q	2.1	3.2	3.9
Line-Line Inductance	mH	1.1	1.3	1.5
Length	mm	31.5	41.5	51.5
Weight	kg	0.2	0.3	0.4

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	73
Max radial load	N	10	10	10
Max axial load	N	6	6	6
Transmission torque	N.m	0.1	0.4	0.8
Reduction Ratio		3,7,1,5,18	14,19,27	57,71,100,139
L2 Length	mm	21	27.2	33.4

PBLS28GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

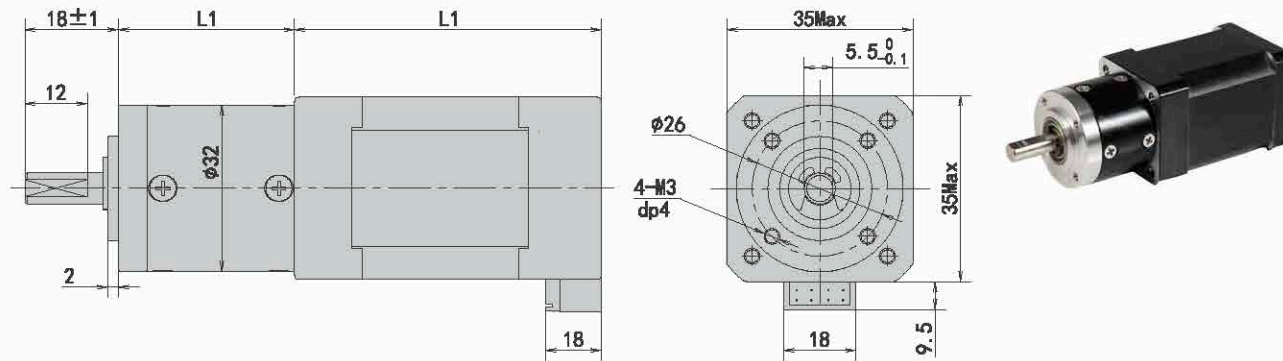
Motor Model	Unit	PBLS28GEL241240	PBLS28GEL241840	PBLS28GEL242540
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.03	0.045	0.06
Rated Power	W	12.5	18.8	25
Rated Current	A	0.7	0.9	1.3
Peak Current	A	2.1	2.7	3.9
Peak Torque	N.m	0.09	0.13	0.18
Rotor Inertia	kg.cm ²	0.01	0.02	0.03
Torque Constant	N.m/A	0.04	0.04	0.04
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	46	56	66
Weight (kg)	kg	0.22	0.38	0.55

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	75
Max radial load	N	35	35	35
Max axial load	N	20	20	20
Transmission torque	N.m	0.3	1.2	2.5
Reduction Ratio		3,7,5,2,6,7,5	14,19,25,27,35,45	51,71,100,139,181,236,307
L2 Length	mm	25.6	1.7	1.7

PBLS35GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

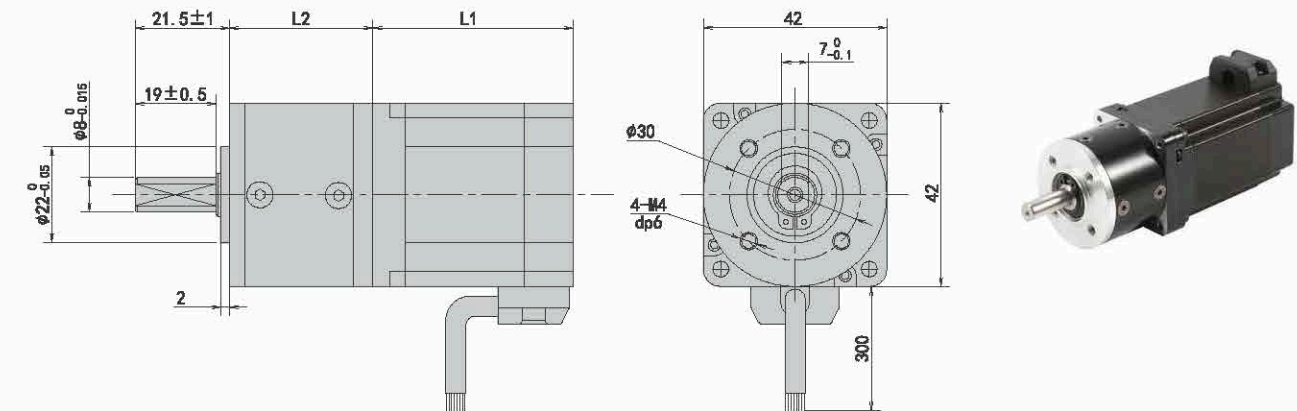
Motor Model	Unit	PBLS35GEL241640	PBLS35GEL242540	PBLS35GEL243340
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.04	0.06	0.08
Rated Power	W	16.7	25	33.5
Rated Current	A	0.8	1.25	1.7
Peak Current	A	2.4	3.75	5.2
Peak Torque	N.m	0.12	0.18	0.24
Rotor Inertia	kg.cm ²	0.02	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.6	4.5
Line-Line Resistance	Q	2.5	3.1	3.4
Line-Line Inductance	mH	1.1	1.2	1.3
Length	mm	49	59	69
Weight	kg	0.34	0.5	0.66

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	73
Max radial load	N	35	35	35
Max axial load	N	20	20	20
Transmission torque	N.m	0.3	1.2	2.5
Reduction Ratio		3.7,5,18, 6.75	14,19,25,35,45	51,71,93,100,139,181,236,307
L2 Length	mm	25.6	34	33.4

PBLS42GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

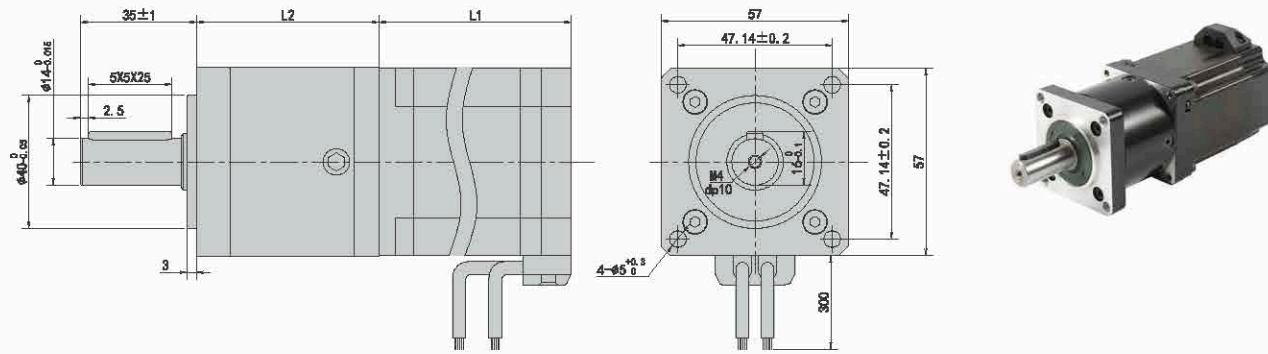
Motor Model	Unit	PBLS42GES483030	PBLS42GES486030	PBLS42GES489030
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.1	0.2	0.3
Rated Power	W	31	63	94
Rated Current	A	0.87	1.74	2.61
Peak Current	A	2.6	5.2	7.8
Peak Torque	N.m	0.3	0.6	0.9
Rotor Inertia	kg.cm ²	0.039	0.045	0.052
Torque Constant	N.m/A	0.115	0.115	0.115
Torque Constant	V/krpm	12	12	12
Line-Line Resistance	Q	1.9	1.4	0.8
Line-Line Inductance	mH	1.5	1.1	0.6
Length	mm	47	67	87
Weight	kg	0.4	0.9	1.0

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	90	81
Max radial load	N	200	200
Max axial load	N	100	100
Transmission torque	N.m	6	12
Reduction Ratio		5,10	20,25,35,40,45,50,100
L2 Length	mm	33.5	43

PBLS57GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

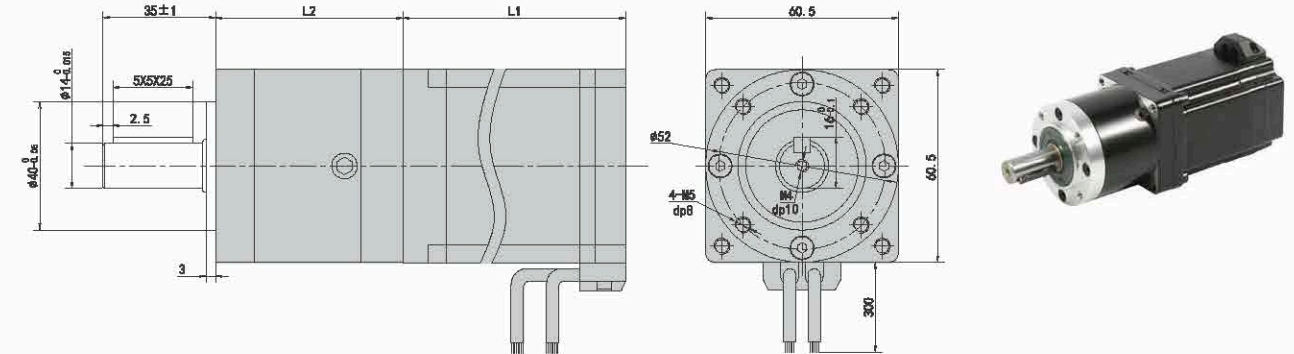
Motor Model	Unit	PBLS57GES486030	PBLS57GES481230	PBLS57GES481830
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.2	0.4	0.6
Rated Power	W	63	125	188
Rated Current	A	1.6	3.3	5.0
Peak Current	A	4.8	9.9	15.0
Peak Torque	N.m	0.6	1.2	1.8
Rotor Inertia	kg.cm ²	0.25	0.35	0.45
Torque Constant	N.m/A	0.125	0.121	0.12
Torque Constant	V/krpm	13.08	12.71	12.56
Line-Line Resistance	Q	1.11	0.93	0.52
Line-Line Inductance	mH	0.91	0.65	0.43
Length	mm	58	78	98
Weight	kg	1.0	1.4	1.8

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	580	580
Max axial load	N	340	340
Transmission torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	55	71

PBLS60GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

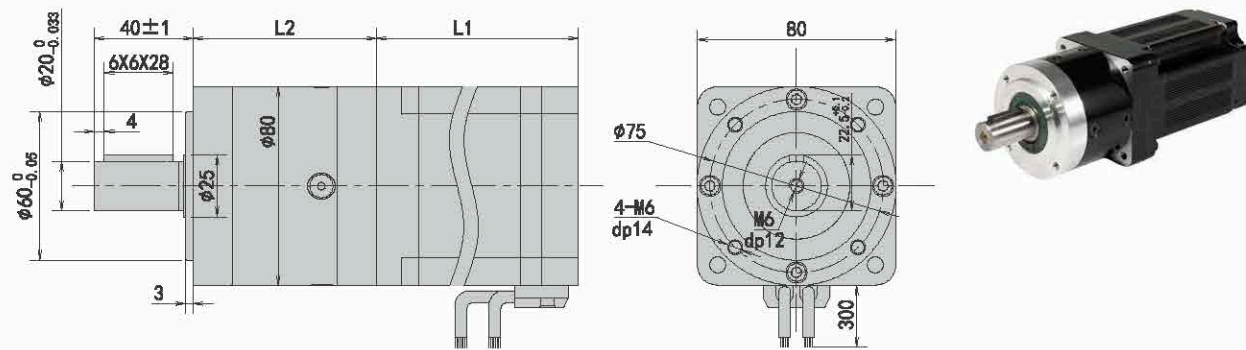
Motor Model	Unit	PBLS60GES487830	PBLS60GES481530	PBLS60GES482330
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.25	0.5	0.75
Rated Power	W	78	156	234
Rated Current	A	2.2	4.4	6.6
Peak Current	A	6.6	13.2	19.8
Peak Torque	N.m	0.75	1.5	2.25
Rotor Inertia	kg.cm ²	0.5	0.9	1.3
Torque Constant	N.m/A	0.11	0.11	0.11
Torque Constant	V/krpm	10.5	10.5	10.5
Line-Line Resistance	Q	1.5	0.6	0.5
Line-Line Inductance	mH	1.3	0.65	0.4
Length	mm	66	87	108
Weight	kg	0.9	1.25	1.0

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	580	580
Max axial load	N	340	340
Transmission torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	58	75

PBLS80GES Series

Planetary Gearbox BLDC Motor



Electrical Specifications

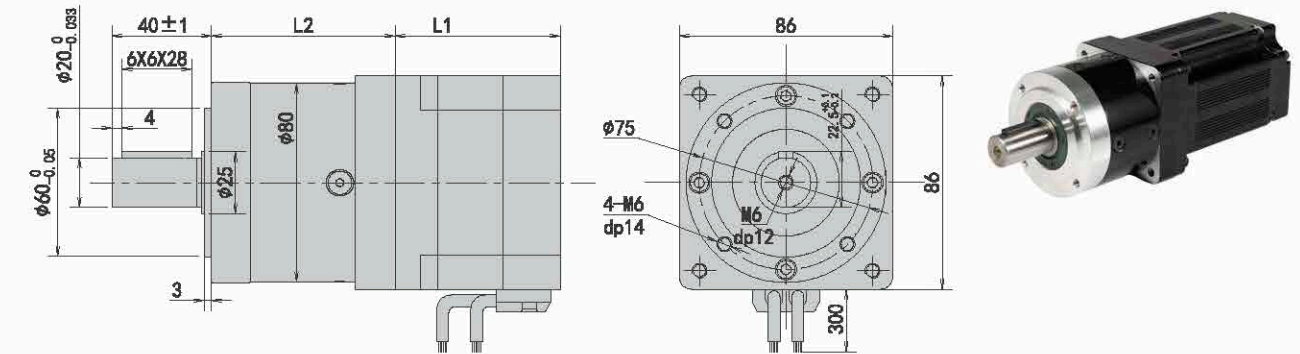
Motor Model	Unit	PBLS80GES481830	PBLS80GES482530
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.6	0.8
Rated Power	W	188	250
Rated Current	A	5.0	7.0
Peak Current	A	15.0	21.0
Peak Torque	N.m	1.8	2.4
Rotor Inertia	kg.cm ²	0.6	0.7
Torque Constant	N.m/A	0.11	0.11
Torque Constant	V/krpm	10.5	10.5
Line-Line Resistance	Q	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length	mm	99	109
Weight	kg	1.5	1.7

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	1000	1000
Max axial load	N	500	500
Transmission torque	N.m	50	80
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	74	93

PBLS86GES Series

Planetary Gearbox BLDC Motor



Electrical Specifications

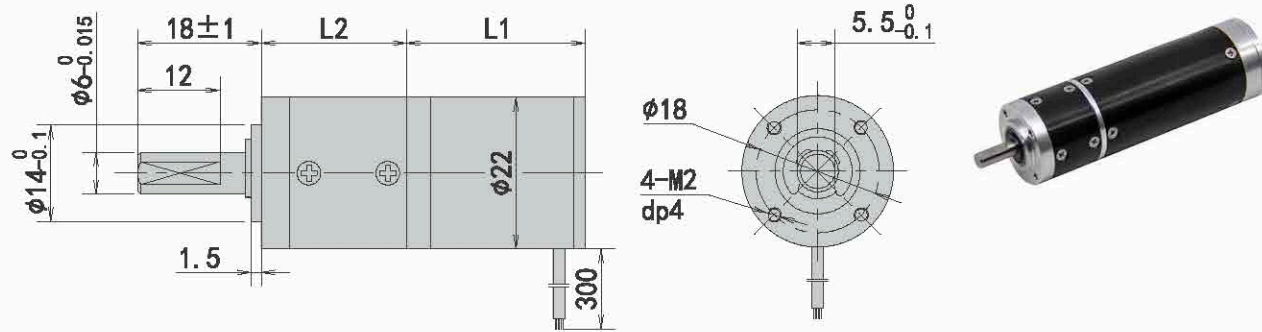
Motor Model	Unit	PBLS86GES482230	PBLS86GES483130
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.5	0.67
Rated Power	W	157	210
Rated Current	A	4.1	5.8
Peak Current	A	12.3	17.4
Peak Torque	N.m	1.5	2.01
Rotor Inertia	kg.cm ²	0.86	0.92
Torque Constant	N.m/A	0.122	0.115
Torque Constant	V/krpm	12.76	11.2
Line-Line Resistance	Q	0.93	0.8
Line-Line Inductance	mH	0.85	0.7
Length	mm	88	98
Weight	kg	1.34	1.5

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	1000	1000
Max axial load	N	500	500
Transmission torque	N.m	50	80
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	74	93

PBLR22GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

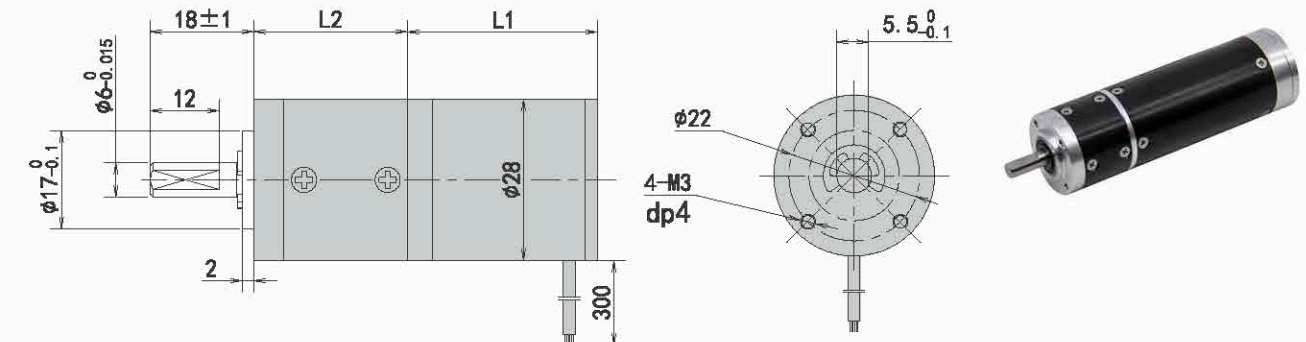
Motor Model	Unit	PBLR22GEL240340	PBLR22GEL240640	PBLR22GEL240940
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.0075	0.015	0.0225
Rated Power	W	3	6	9
Rated Current	A	0.2	0.4	0.6
Peak Current	A	0.6	1.2	1.8
Peak Torque	N.m	0.0225	0.045	0.0675
Rotor Inertia	kg.cm ²	0.008	0.014	0.02
Torque Constant	N.m/A	0.04	0.04	0.04
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	34	44	54
Weight	kg	0.2	0.3	0.4

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	73
Max radial load	N	10	10	10
Max axial load	N	6	6	6
Transmission torque	N.m	0.1	0.4	0.8
Reduction Ratio		3.71,5.18	14,19,27	51,71,100,139
L2 Length	mm	21	27.2	33.4

PBLR28GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

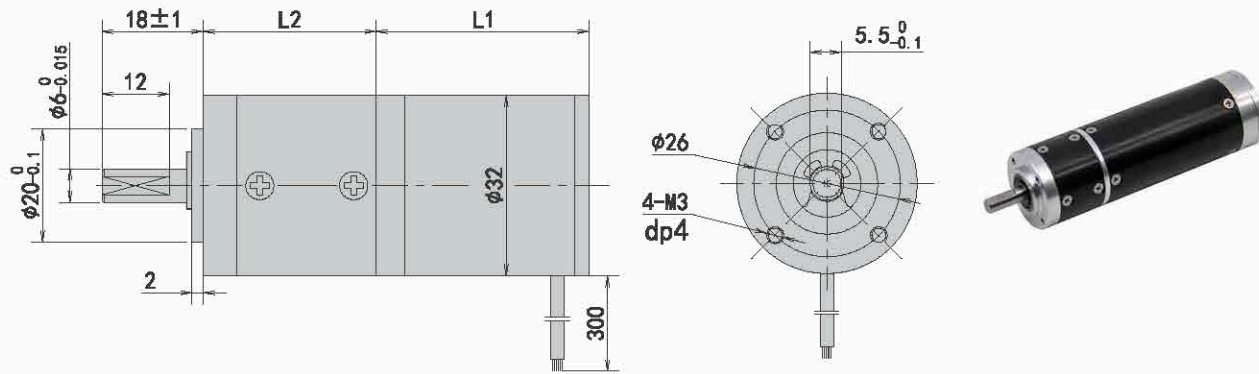
Motor Model	Unit	PBLR28GEL240840	PBLR28GEL241240	PBLR28GEL241640
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.02	0.03	0.04
Rated Power	W	8	12.5	16.7
Rated Current	A	0.4	0.6	0.8
Peak Current	A	1.2	1.8	2.4
Peak Torque	N.m	0.06	0.09	0.12
Rotor Inertia	kg.cm ²	0.009	0.018	0.025
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	49	59	69
Weight	kg	0.2	0.3	0.5

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	73
Max radial load	N	35	35	35
Max axial load	N	20	20	20
Transmission torque	N.m	0.3	1.2	2.5
Reduction Ratio		3.7,5.18,6.75	14,19,25,27,35,45	51,71,100,139,181,236,307
L2 Length	mm	25.6	34	42

PBLR32GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

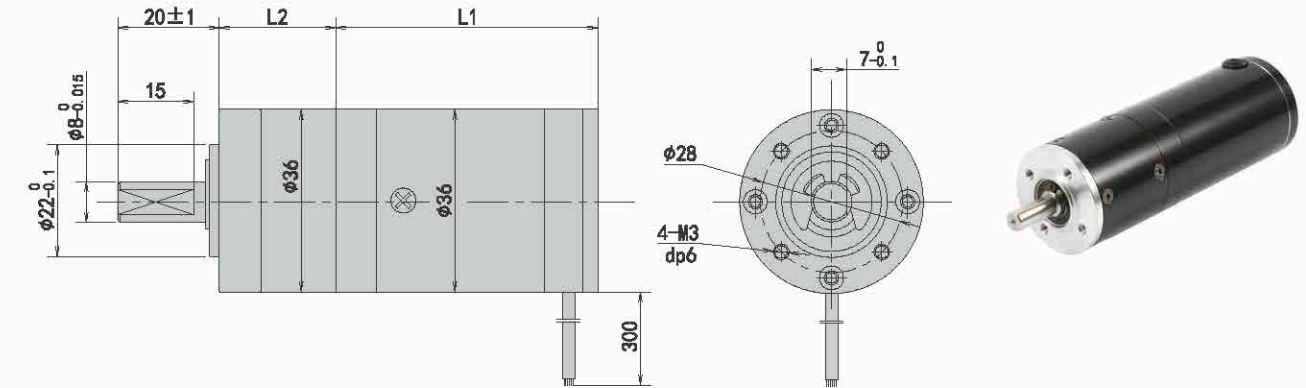
Motor Model	Unit	PBLR32GEL241240	PBLR32GEL241840	PBLR32GEL242540
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.03	0.045	0.06
Rated Power	W	12.5	18.8	25
Rated Current	A	0.7	0.9	1.3
Peak Current	A	2.1	2.7	3.9
Peak Torque	N.m	0.09	0.13	0.18
Rotor Inertia	kg.cm ²	0.01	0.02	0.03
Torque Constant	N.m/A	0.04	0.04	0.04
Torque Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Q	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length	mm	56	66	76
Weight	kg	0.22	0.38	0.55

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	73
Max radial load	N	35	35	35
Max axial load	N	20	20	20
Transmission torque	N.m	0.3	1.2	2.5
Reduction Ratio		3.71,5.18,6.75	14,19,25,27,35,45	51,71,93,100,139,181,236,307
L2 Length	mm	25.6	27.2	33.4

PBLR36GEL Series

Planetary Gearbox BLDC Motor



Motor Specifications

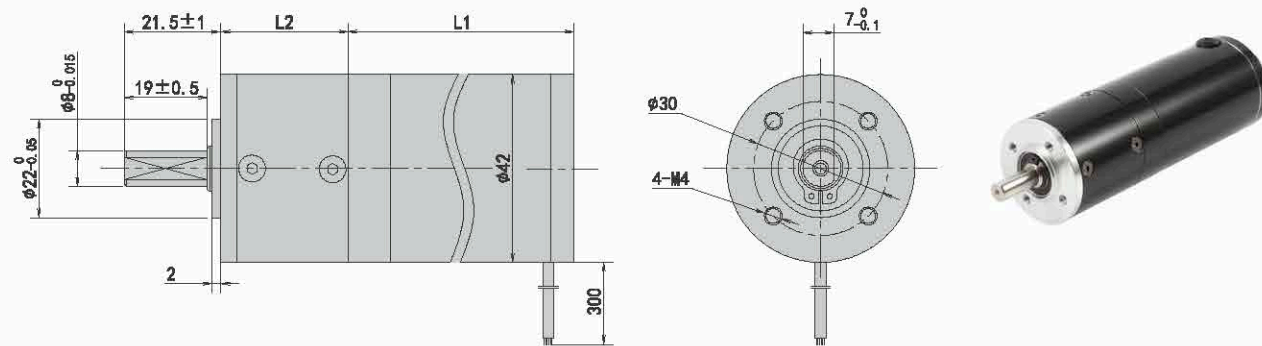
Motor Model	Unit	PBLR36GEL241640	PBLR36GEL242540	PBLR36GEL243340
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.04	0.06	0.08
Rated Power	W	16.7	25	33.5
Rated Current	A	0.8	1.25	1.7
Peak Current	A	2.4	3.75	5.2
Peak Torque	N.m	0.12	0.18	0.24
Rotor Inertia	kg.cm ²	0.02	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	4.5	4.6	4.5
Line-Line Resistance	Q	2.5	3.1	3.4
Line-Line Inductance	mH	1.1	1.2	1.3
Length	mm	54	64	74
Weight	kg	0.34	0.5	0.66

Gearbox Electrical Specifications

Reducer Series	Unit	1	2	3
Transmission efficiency	%	90	81	73
Max radial load	N	40	40	40
Max axial load	N	20	20	20
Transmission torque	N.m	0.3	1.2	2.5
Reduction Ratio		3.7,5.18,6.75	14,19,25,27,35,45	51,71,100,139,181,236,307
L2 Length	mm	25.6	34	42

PBLR42GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

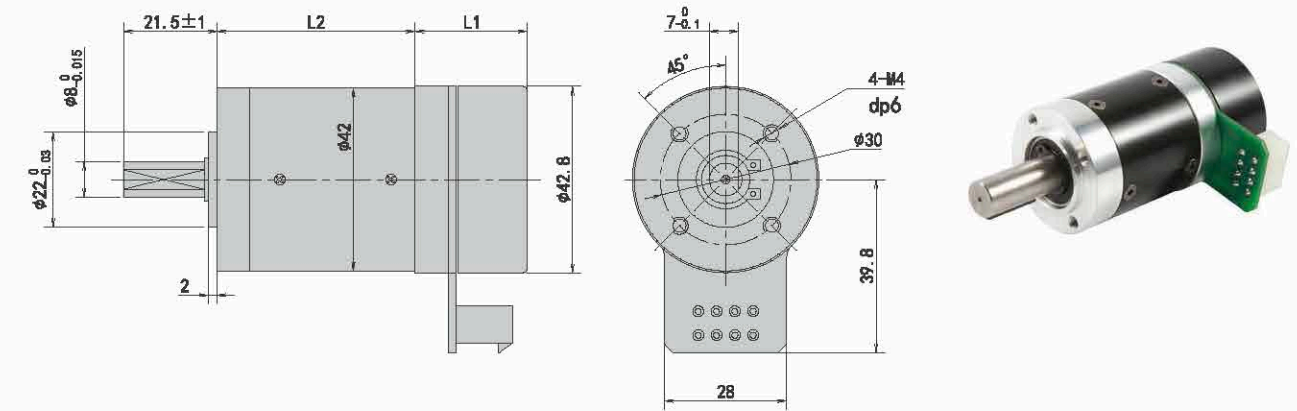
Motor Model	Unit	PBLR42GES242830	PBLR42GES245630	PBLR42GES248430
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.09	0.18	0.27
Rated Power	W	28	56	84
Rated Current	A	1.7	3.4	5.4
Peak Current	A	5.1	10.2	16
Peak Torque	N.m	0.27	0.54	0.81
Rotor Inertia	kg.cm ²	0.25	0.35	0.45
Torque Constant	N.m/A	0.05	0.05	0.05
Torque Constant	V/krpm	5.23	5.23	5.23
Line-Line Resistance	Q	6	4	3
Line-Line Inductance	mH	4	3	2
Length	mm	52	72	92
Weight	kg	0.28	0.48	0.68

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	200	200
Max axial load	N	100	100
Transmission torque	N.m	6	12
Reduction Ratio		5,10	20,25,40,45,50,100
L2 Length	mm	28.5	27.2

PBLR42GEL Series

Planetary Gearbox BLDC Motor



Electrical Specifications

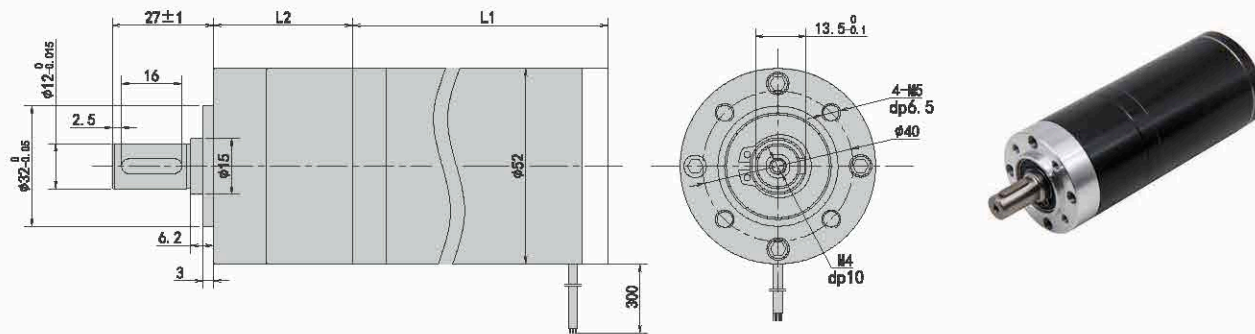
Motor Model	Unit	PBLR42GEL243550	PBLR42GEL245050	PBLR42GEL247050
Rated Voltage	VDC	24		
Rated Speed	Rpm	5000		
Rated Torque	N.m	0.06	0.1	0.13
Rated Power	W	35	50	70
L1 Length	mm	21.3	26.3	31.3

Gearbox Electrical Specifications

Reducer Series		1	2
Transmission efficiency	%	95	90
Max radial load	N	200	200
Max axial load	N	100	100
Transmission torque	N.m	6	12
Reduction Ratio		5,10	20,25,35,40,45,50,100
L2 Length	mm	36	1.7

PBLR52GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

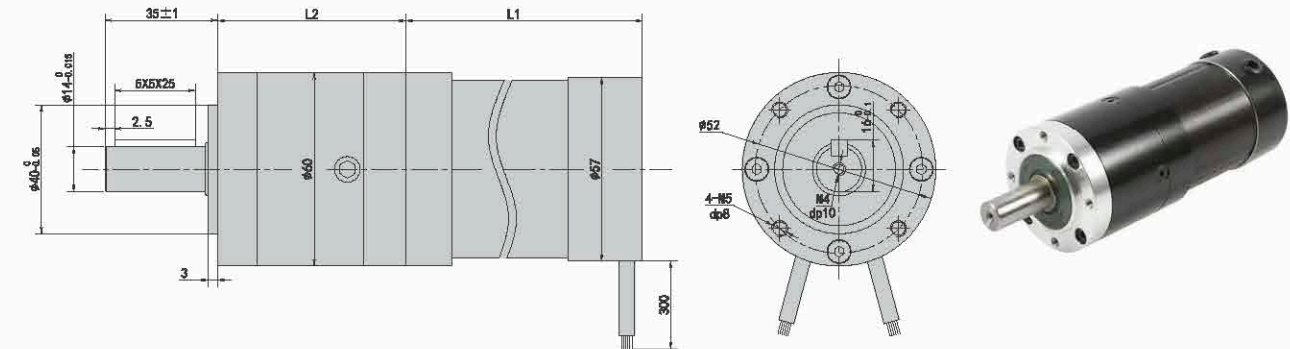
Motor Model	Unit	PBLR52GES243030	PBLR52GES246030	PBLR52GES249030
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3000		
Rated Torque	N.m	0.1	0.2	0.3
Rated Power	W	31	63	94
Rated Current	A	1.8	3.6	5.4
Peak Current	A	5.4	10.8	16
Peak Torque	N.m	0.3	0.6	0.9
Rotor Inertia	kg.cm ²	0.55	0.75	0.95
Torque Constant	N.m/A	0.055	0.055	0.055
Torque Constant	V/krpm	5.82	5.81	5.81
Line-Line Resistance	Q	3	1.5	0.6
Line-Line Inductance	mH	2.5	1.3	0.65
Length	mm	58.5	78.5	98.5
Weight	kg	0.38	0.88	1.37

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	90	81
Max radial load	N	200	200
Max axial load	N	100	100
Transmission torque	N.m	6	12
Reduction Ratio		5,10	20,25,35,40,45,50,100
L2 Length	mm	35.5	45

PBLR57GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

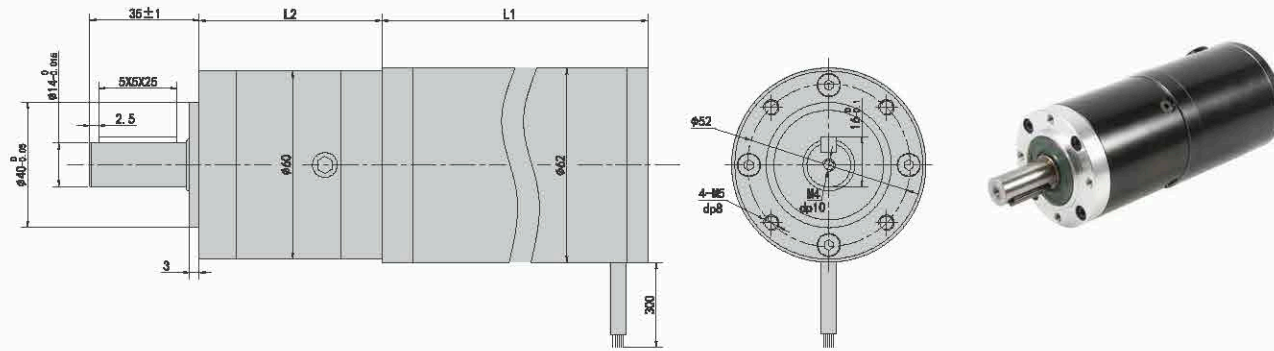
Motor Model	Unit	PBLR57GES489040	PBLR57GES481840	PBLR57GES482740
Number of Phase		3		
Number of Poles		4		
Rated Voltage	VDC	48		
Rated Speed	Rpm	4000		
Rated Torque	N.m	0.22	0.44	0.66
Rated Power	W	92	184	276
Rated Current	A	2.5	5.1	7.6
Peak Current	A	7.7	15.3	22.8
Peak Torque	N.m	0.66	1.32	1.98
Rotor Inertia	kg.cm ²	1.19	1.73	1.73
Torque Constant	N.m/A	0.08	0.08	0.08
Torque Constant	V/krpm	9.2	9.2	9.2
Line-Line Resistance	Q	0.75	0.55	0.41
Line-Line Inductance	mH	2.2	2.1	1.1
Length	mm	55	75	95
Weight	kg	0.72	0.95	1.2

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	580	580
Max axial load	N	340	340
Transmission torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	48	64

PBLR62GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

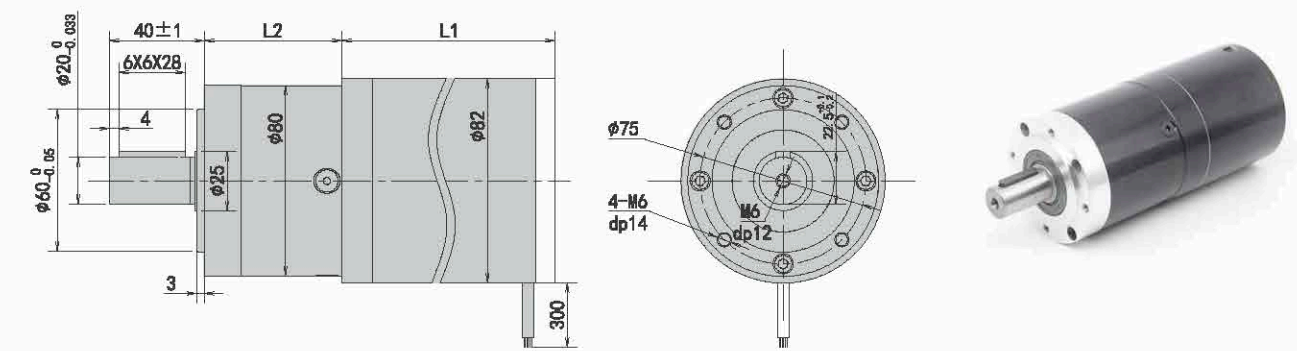
Motor Model	Unit	PBLR62GES 487830	PBLR62GES 481130	PBLR62GES 481530	PBLR62GES 481930	PBLR62GES 482330
Number of Phase		3				
Number of Poles		8				
Rated Voltage	VDC	48				
Rated Speed	Rpm	3000				
Rated Torque	N.m	0.25	0.37	0.5	0.62	0.75
Rated Power	W	78	118	156	195	235
Rated Current	A	2.2	3.3	4.4	5.5	6.6
Peak Current	A	6.6	9.9	13.2	16.5	19.8
Peak Torque	N.m	0.75	1.11	1.5	1.86	2.25
Rotor Inertia	kg.cm ²	0.6	0.7	0.8	0.9	1.0
Torque Constant	N.m/A	0.11	0.11	0.11	0.11	0.11
Torque Constant	V/krpm	10.5	10.5	10.5	10.5	10.5
Line-Line Resistance	Q	1.8	1.5	1.2	0.9	0.6
Line-Line Inductance	mH	1.5	1.3	1.0	0.7	0.65
Length	mm	61	71	81	91	101
Weight	kg	0.72	0.88	1.04	1.2	1.37

Gearbox Electrical Specifications

Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	460	460
Max axial load	N	230	230
Transmission torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	48	64

PBLR82GES Series

Planetary Gearbox BLDC Motor



Motor Specifications

Motor Model	Unit	PBLR82GES481830	PBLR82GES482530
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	Rpm	3000	
Rated Torque	N.m	0.6	0.8
Rated Power	W	188	250
Rated Current	A	5.0	7.0
Peak Current	A	15.0	21.0
Peak Torque	N.m	1.8	2.4
Rotor Inertia	kg.cm ²	0.6	0.7
Torque Constant	N.m/A	0.12	0.11
Torque Constant	V/krpm	11	10.5
Line-Line Resistance	Q	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length	mm	80	90
Weight	kg	1.5	1.7

Gearbox Electrical Specifications

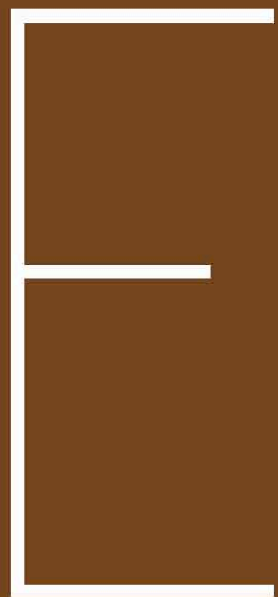
Reducer Series	Unit	1	2
Transmission efficiency	%	95	90
Max radial load	N	1000	1000
Max axial load	N	500	500
Transmission torque	N.m	50	80
Reduction Ratio		5,10	15,20,25,30,40,50
L2 Length	mm	58	77

FRAMELESS BRUSHLESS DC MOTOR



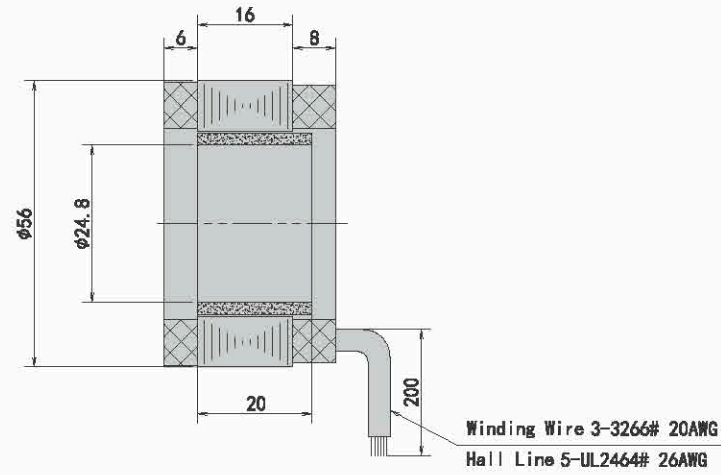
Frameless Brushless DC Motor

The multi-pole torque servo motor has the characteristics of low speed, large torque, strong overload capacity, fast response, good linearity and small torque fluctuation, which can drive the load directly without reducing gear, thus improving the operation accuracy of the system.



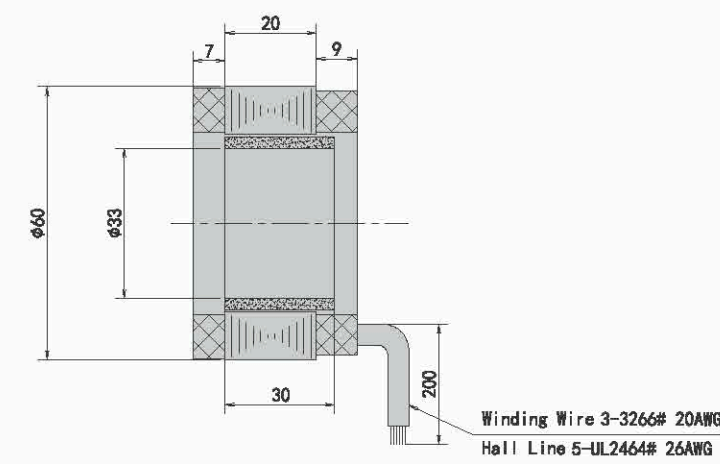
PBL56FHS Series

Frameless brushless DC motor



PBL60FHS Series

Frameless brushless DC motor



General Specifications

Winding Type	Star/Delta
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

General Specifications

Winding Type	Star/Delta
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Electrical Specifications

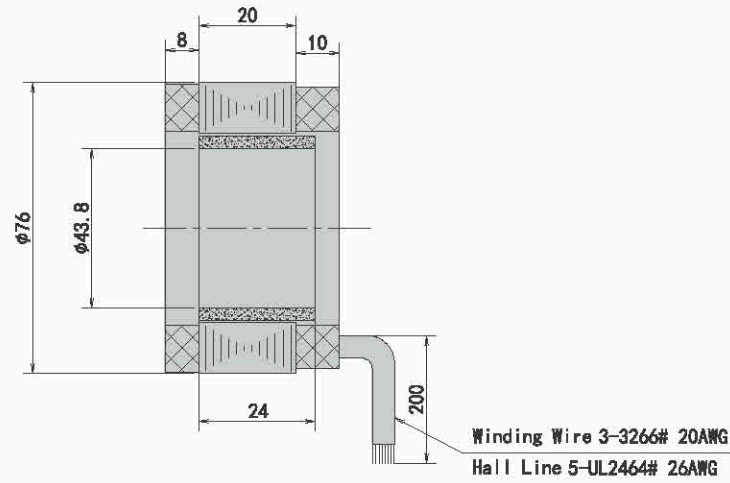
Motor Model	Unit	PBL56FHS489030
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	Rpm	3000
Rated Torque	N.m	0.3
Rated Power	W	95
Rated Current	A	2.9
Peak Current	A	8.7
Peak Torque	N.m	0.9
Rotor Inertia	kg.cm ²	0.15
Torque Constant	N.m/A	0.1
Torque Constant	V/krpm	9.5
Line-Line Resistance	Q	1.5
Line-Line Inductance	mH	2.1
Length	mm	16
Weight	kg	0.5

Electrical Specifications

Motor Model	Unit	PBL60FHS481530
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	Rpm	3000
Rated Torque	N.m	0.5
Rated Power	W	157
Rated Current	A	4.4
Peak Current	A	13.2
Peak Torque	N.m	1.5
Rotor Inertia	kg.cm ²	0.15
Torque Constant	N.m/A	0.1
Torque Constant	V/krpm	9.5
Line-Line Resistance	Q	1.0
Line-Line Inductance	mH	1.8
Length	mm	20
Weight	kg	0.7

PBL76FHS Series

Frameless brushless DC motor



General Specifications

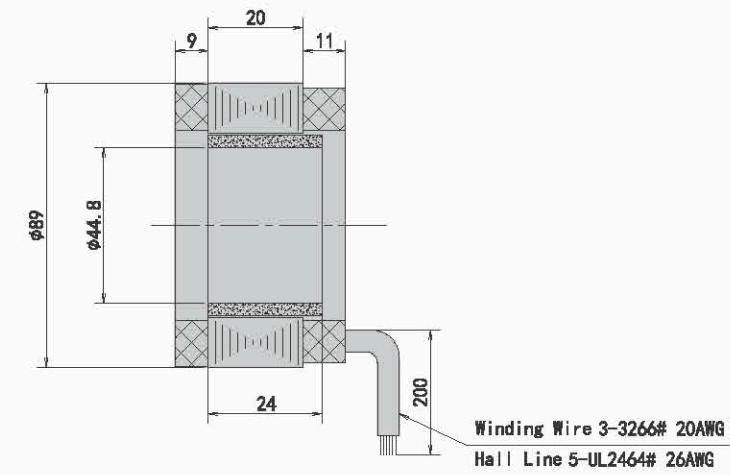
Winding Type	Star/Delta
Dielectric Strength	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Electrical Specifications

Motor Model	Unit	PBL76FHS483030
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	Rpm	3000
Rated Torque	N.m	1.0
Rated Power	W	314
Rated Current	A	8.7
Peak Current	A	26.1
Peak Torque	N.m	3.1
Rotor Inertia	kg.cm ²	0.38
Torque Constant	N.m/A	0.1
Torque Constant	V/krpm	9.5
Line-Line Resistance	Q	0.8
Line-Line Inductance	mH	1.5
Length	mm	20
Weight	kg	0.9

PBL89FHS Series

Frameless brushless DC motor



General Specifications

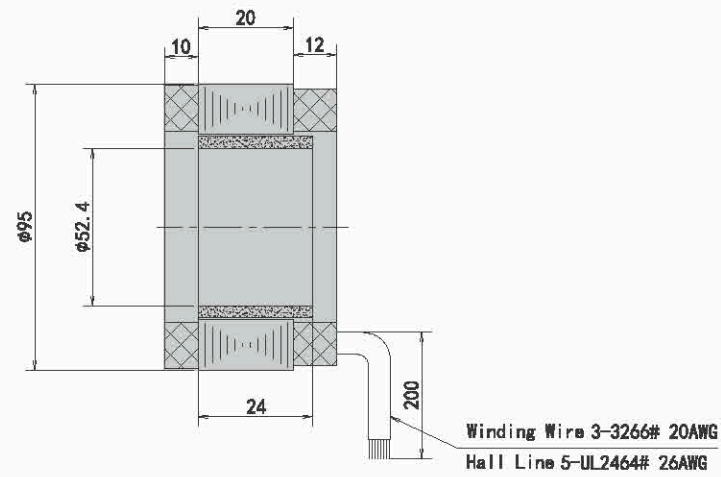
Winding Type	Star/Delta
Dielectric Strength	
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Electrical Specifications

Motor Model	Unit	PBL89FHS484730
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	Rpm	3000
Rated Torque	N.m	1.5
Rated Power	W	470
Rated Current	A	13.1
Peak Current	A	39.3
Peak Torque	N.m	4.5
Rotor Inertia	kg.cm ²	0.41
Torque Constant	N.m/A	0.11
Torque Constant	V/krpm	10.5
Line-Line Resistance	Q	0.6
Line-Line Inductance	mH	1.1
Length	mm	20
Weight	kg	1.0

PBL95FHS Series

Frameless brushless DC motor



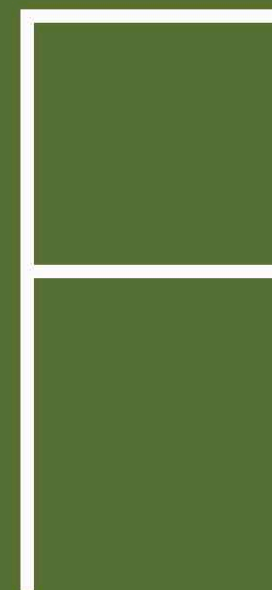
BLDC MOTOR DRIVERS

General Specifications

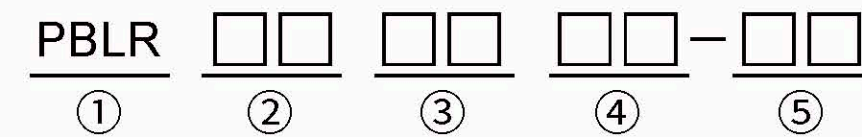
Winding Type	Star/Delta
Dielectric Strength	
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20°C~+50°C
Insulation Class	Class B

Electrical Specifications

Motor Model	Unit	PBL95FHS486230
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	Rpm	3000
Rated Torque	N.m	2.0
Rated Power	W	628
Rated Current	A	17.5
Peak Current	A	52.5
Peak Torque	N.m	6.0
Rotor Inertia	kg.cm ²	0.52
Torque Constant	N.m/A	0.11
Torque Constant	V/krpm	10.5
Line-Line Resistance	Q	0.4
Line-Line Inductance	mH	0.8
Length	mm	20
Weight	kg	1.3



Part Number Naming Rule



- ① Primopal BLDC Motor Drive
- ② Input Voltage
- ③ Continuous Current
- ④ D:DC Input
A:AC Input
- ⑤ L:Digital display function

How to choose a suitable drive

Driver voltage :

Working voltage is the driving voltage to the motor supplied by customer. The suitable voltage has a great influence on the driver. With a certain power, the higher the voltage, the smaller the current. The conventional power supply voltage are 24V, 36V, 48V , 110VAC and 220VAC.

Drive current :

Current is the indicators to judge the drive capability, is one of important indicators to select the drive, usually the maximum continuous current of the drive is slightly more than the rated current of the motor. Normally drive current is 4A, 5A, 8A, 10A, 15A, 30A.

1. According to the power supply voltage, the working conditions, drag the object to choose a brushless drive and motor. Requires power supply voltage and motor rated voltage.
2. Choose different types of brushless drive and motor according to the installation location and working environment.
3. According to the capacity, power, power factor, speed to choose brushless drive and motor, If the capacity choice is too small, the motor will be in a critical condition for a long time, which affects the life of the brushless driver, and even burned.



BLDC Motor Drivers

DBLS series DC input driver is based on advanced digital current and speed control technology, can provide strong torque output, stable rotational speed, low noise. Hope that our products with superior performance, high quality and excellent cost performance can help you to complete the motion control project successfully. According to customer demand for different voltage, different power, different speed, brushless drives divided into various types of high voltage and low voltage with different current.

	Model No.	Input Voltage	Continuous Current	Adapt Motor (mm)	Dimension	Weight
Low Voltage Drives	PBLR3605D	24-36VDC	5.0A	42、 57、 60	163*83*30mm	0.35Kg
	PBLR3615D	24-36VDC	15.0A	42、 57、 60	163*83*30mm	0.35Kg
	PBLR4815D	24-48VDC	15.0A	42、 57、 60、 80	150*97*48mm	0.3Kg
	PBLR4820D-L	24-48VDC	20.0A	57、 60、 80	166*67*102mm	0.5Kg
	PBLR4830D-L	24-48VDC	30.0A	57、 60、 80	166*67*102mm	0.85Kg
	PBLR4810D	24-48VDC	10.0A	57、 60、 80	118*76*33mm	0.9Kg
	PBLR3004D	12-24VDC	4.0A	42、 57	86*55*20mm	0.1Kg
	PBLR4810D-L	24-48VDC	10.0A	57、 60、 80	166*51*102mm	0.75Kg
High Voltage Drives	PBLR22003A-L	110/220VAC	3.5A	80、 110	166*51*102mm	0.95Kg
	PBLR22002A-L	110/220VAC	2.0A	60、 80	145*80*125mm	0.65Kg
	PBLR22004A-L	110/220VAC	4.0A	80、 110	145*60*125mm	0.75Kg
	PBLR22005A-L	110/220VAC	5.0A	60、 80	180*60*150mm	1.0Kg
	PBLR22007A-L	110/220VAC	7.0A	80、 110、 130	180*80*150mm	1.4Kg
	PBLR22008A-L	110/220VAC	7.5A	80、 110、 130	180*80*190mm	1.85Kg
	PBLR22015A-L	110/220VAC	15.0A	80、 110、 130	180*80*190mm	2.6Kg

PBLR3605D

BLDC Motor Drivers



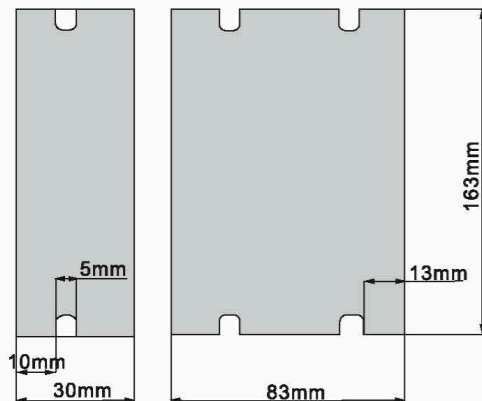
Characteristics

- Standard Input voltage 24VDC/36VDC
- Max. input overload current protection:5A
- Accelerate time constant Default:2sec others can be customized

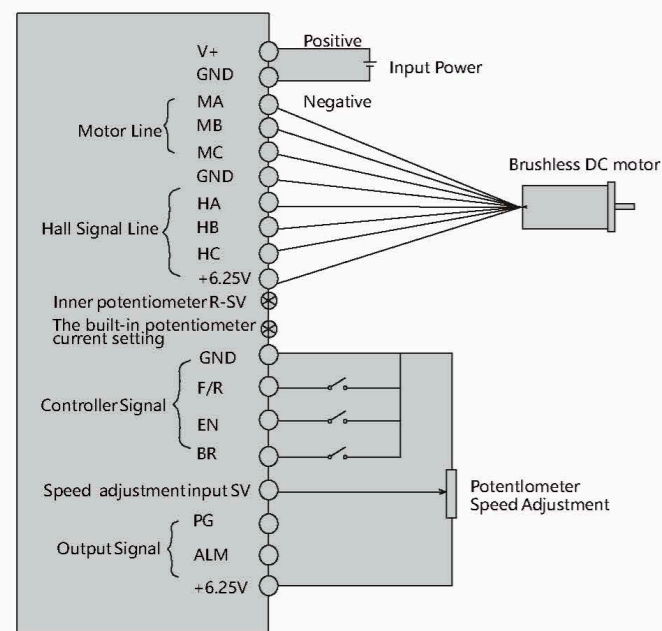
Specification

- PID speed, current double loop regulator
- High performance, low price
- 20KHZ Chopper frequency
- Star/stop control, CW/CCW control
- Blocking protection
- Speed split function, get different speed by dialing code switch
- Electrical stop to ensure the quickly action of motor
- Over load ratio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 163x83x30mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V/36V input
2	GND	GND

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+6.25V	Hall signal power supply

PBLR3615D

BLDC Motor Drivers



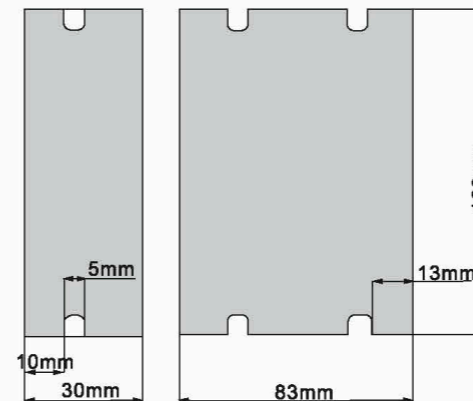
Characteristics

- Standard Input voltage 24VDC/36VDC
- Max. input overload current protection:15A
- Accelerate time constant Default:2sec others can be customized

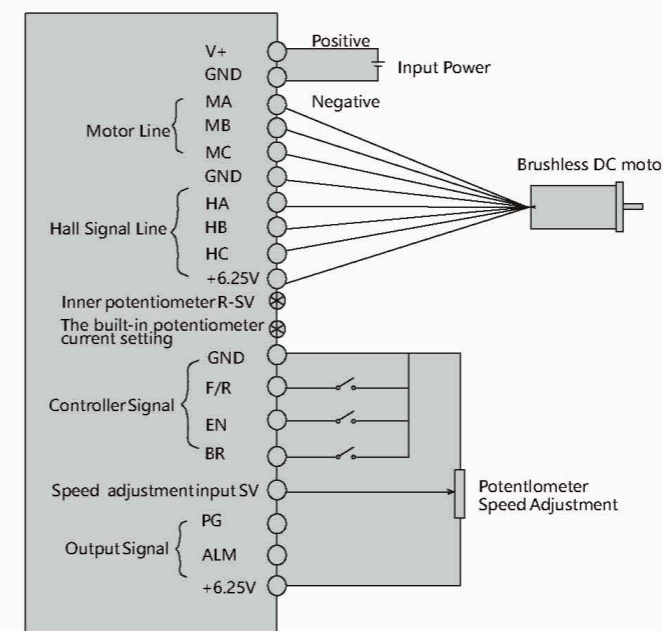
Specification

- PID speed, current double loop regulator
- High performance, low price
- 20KHZ Chopper frequency
- Star/stop control, CW/CCW control
- Blocking protection
- Speed split function, get different speed by dialing code switch
- Electrical stop to ensure the quickly action of motor
- Over load ratio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 163x83x30mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V/36V input
2	GND	GND

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+6.25V	Hall signal power supply

PBLR4815D

BLDC Motor Drivers



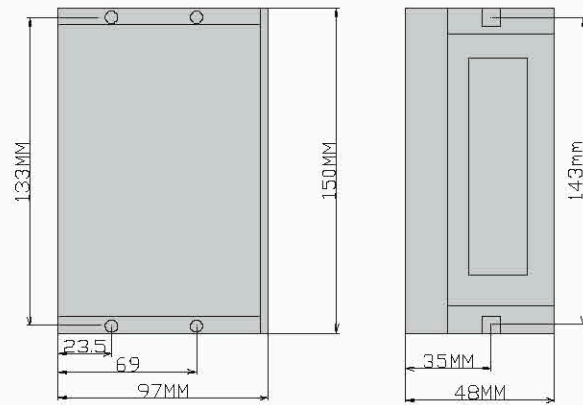
Characteristics

- Input Voltage: 24VDC~48VDC
- Continuous output current: 15A
- Max input over-load protection current: 30A
- Max input protection voltage: 70VDC
- Working temp.: 0~+45
- Storage temp.: -20~+85

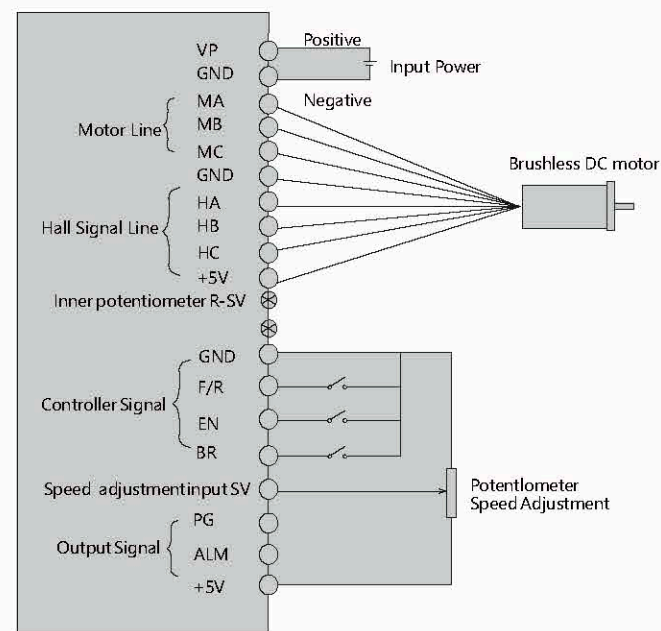
Specification

- PID speed, current double loop regulator
- High performance, low price
- 20KHZ Chopper frequency
- Star/stop control, CW/CCW control
- Blocking protection
- Electrical stop to ensure the quickly action of motor
- Over load radio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 150x97x48mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V input
2	GND	GND

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+5V	Hall signal power supply

PBLR4820D-L

BLDC Motor Drivers



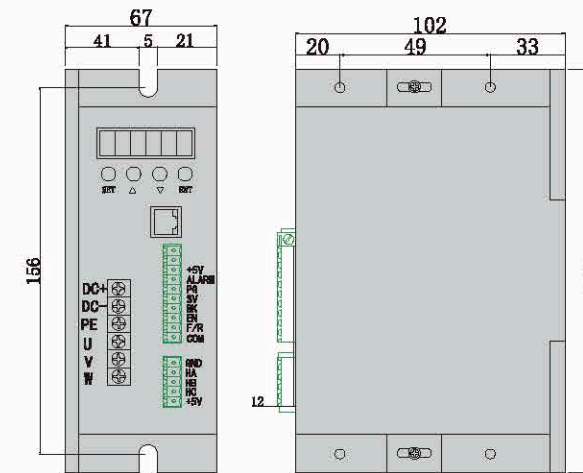
Characteristics

- Input Voltage: 24VDC~48VDC
- Continuous output current: 20A
- Max input over-load protection current: 40A
- Working temp.: 0~+45
- Storage temp.: -20~+85

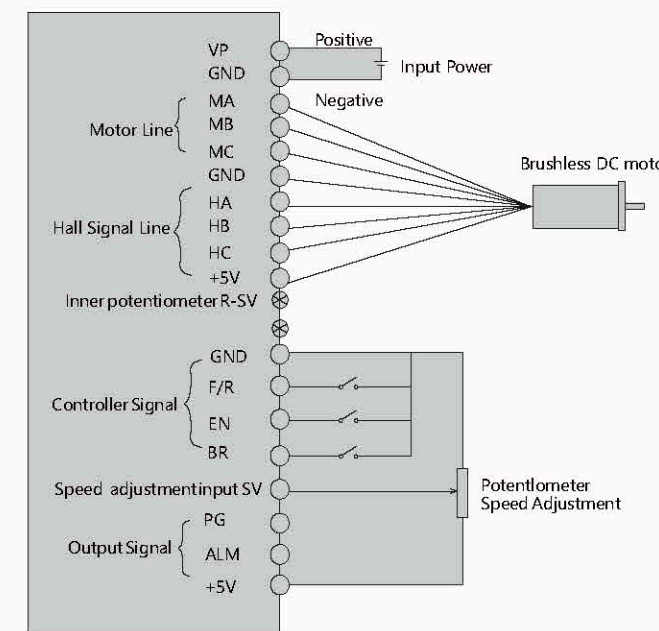
Specification

- PID speed, current double loop regulator
- Standard Modbus protocol, RS485 mult axis control
- 20KHZ Chopper frequency
- Star/stop control, CW/CCW control
- Blocking protection
- Electrical stop to ensure the quickly action of motor
- Over load radio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 166x67x102mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V input
2	GND	GND

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+5V	Hall signal power supply

PBLR4830D-L

BLDC Motor Drivers



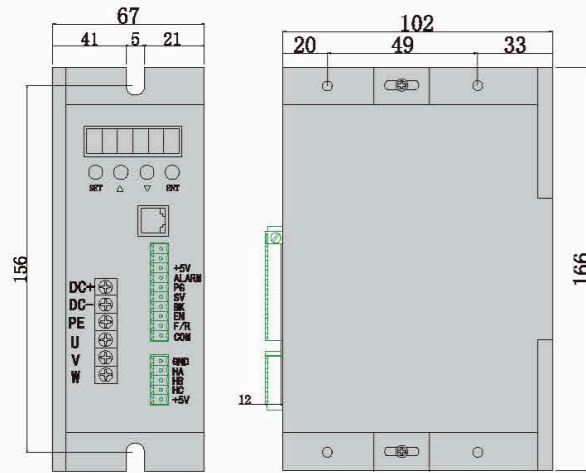
Characteristics

- Input Voltage: 24VDC~48VDC
- Continuous output current: 30A
- Max input over-load protection current: 60A
- Max input protection voltage: 70VDC
- Working temp.: 0~+45
- Storage temp.: -20~+85

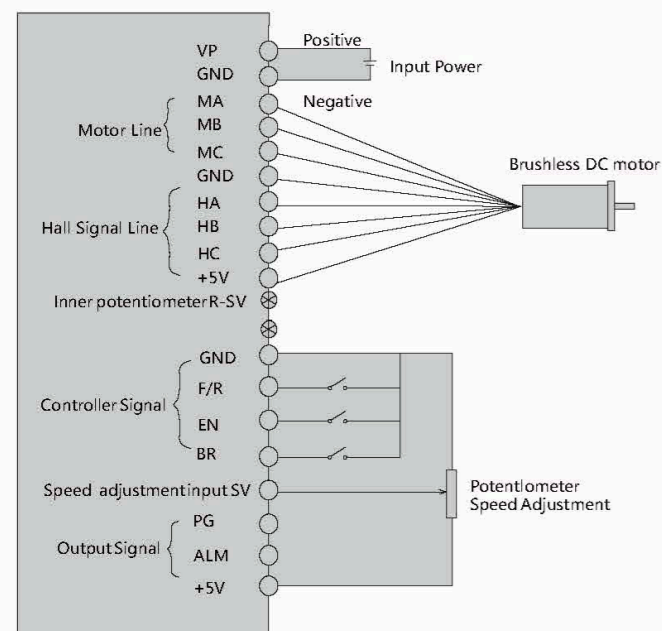
Specification

- PID speed, current double loop regulator
- Standard Modbus protocol, RS485 mult axis control
- 20KHZ Chopper frequency
- Star/stop control, CW/CCW control
- Blocking protection
- Electrical stop to ensure the quickly action of motor
- Over load radio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 166x67x102mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V input
2	GND	GND

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+5V	Hall signal power supply

PBLR4810D

BLDC Motor Drivers



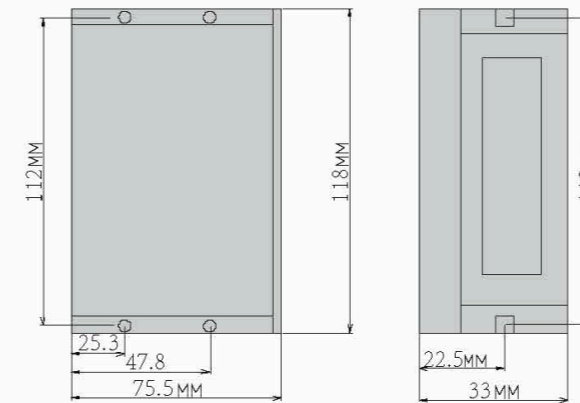
Characteristics

- Input Voltage: 24VDC~48VDC
- Continuous output current: 10A
- Max input over-load protection current: 20A
- Current protection: current >10A for 3-6 sec, off output
- Working temp.: 0~+45
- Storage temp.: -20~+85

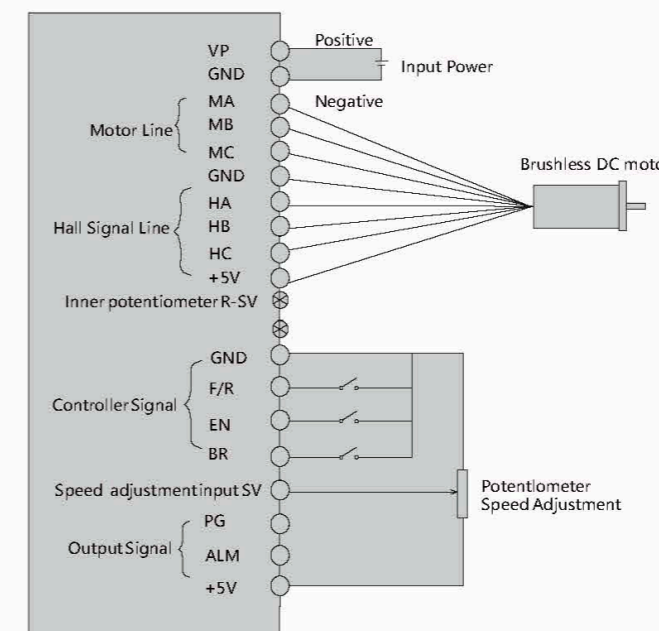
Specification

- PID speed, current double loop regulator
- Standard Modbus protocol, RS485 mult axis control
- 20KHZ Chopper frequency
- Star/stop control, CW/CCW control
- Blocking protection
- Electrical stop to ensure the quickly action of motor
- Over load radio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 118x76x33mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V input
2	GND	DC 0V input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+5V	Hall signal power supply

PBLR3007D

BLDC Motor Drivers



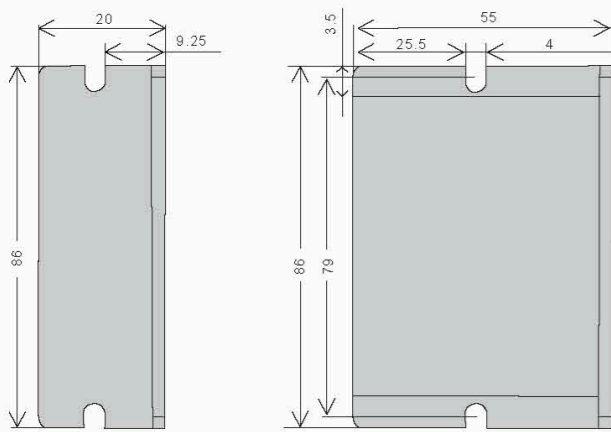
Characteristics

- Input Voltage: 24VDC (8VDC~ 30VDC)
- Continuous Output current: 4A(for < 100W motors)
- Max. Output current: 7A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C

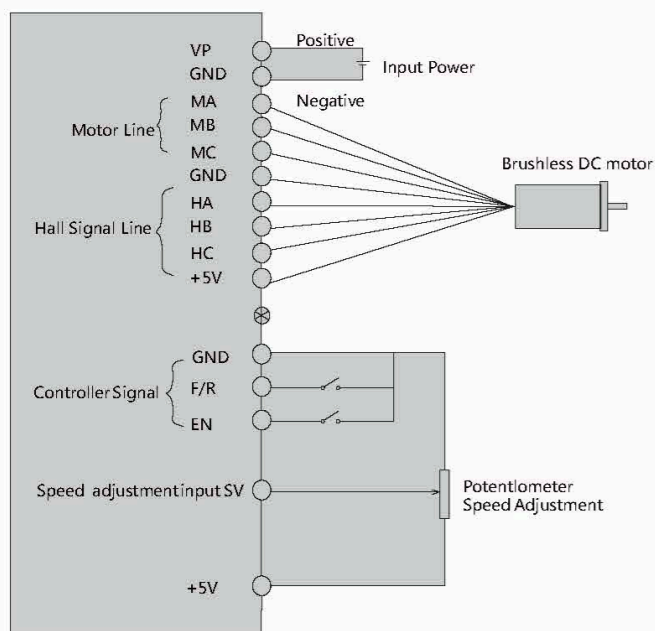
Specification

- Closed-loop control, constant torque output
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quickly action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Dimension: 86x55x20mm

Dimension



Connection Diagram



Power input terminal

1	V+	DC+24V input
2	GND	GND

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	GND	GND
5	HA	Hall signal A
6	HB	Hall signal B
7	HC	Hall signal C
8	+5DC	Hall signal power supply

PBLR4810A-L

BLDC Motor Drivers



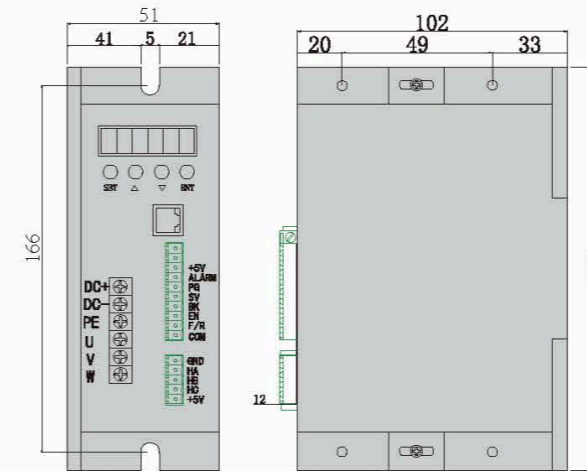
Characteristics

- Input Voltage: 24VDC~48VDC
- Input Voltage: 24VDC~48VDC
- Continuous output current: 10A
- Max input over-load protection current: 20A
- Current protection: current > 10A for 3-6 sec, off output
- Working temp.: 0~+45
- Storage temp.: -20~+85
- Storage temp.: -20~+85

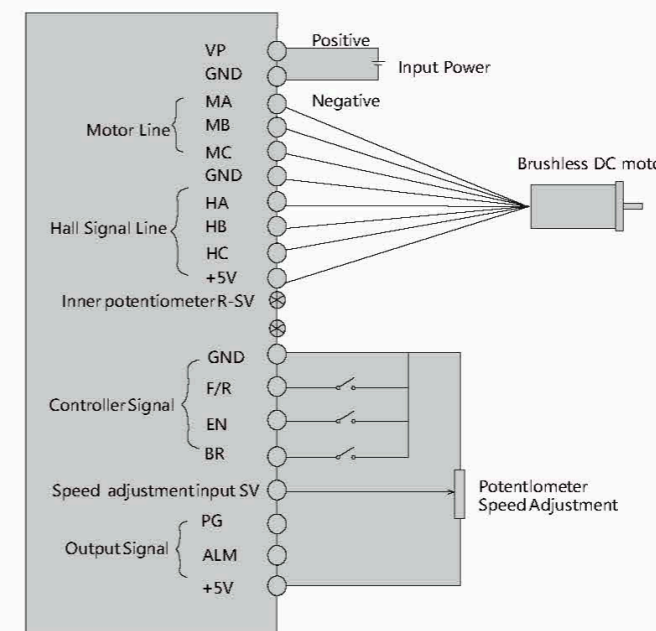
Specification

- Closed-loop control, constant torque output
- Standard Modbus protocol, RS485 mult axis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quickly action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger then 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal horal signal and other fault alarm
- Panel: 6 digit LED display, 4 digit keypad operation
- Dimension: 166x102x51mm

Dimension



Connection Diagram



Motor input terminal

1	+5V	Output power terminal
2	SV	Input signal terminal
3	COM	Com terminal
4	F/R	CW/CCW terminal
5	EN	Enable terminal
6	BR	Brake terminal
7	ALARM	Alarm terminal
8	PG	Speed terminal

PBLR22007A-L

BLDC Motor Drivers



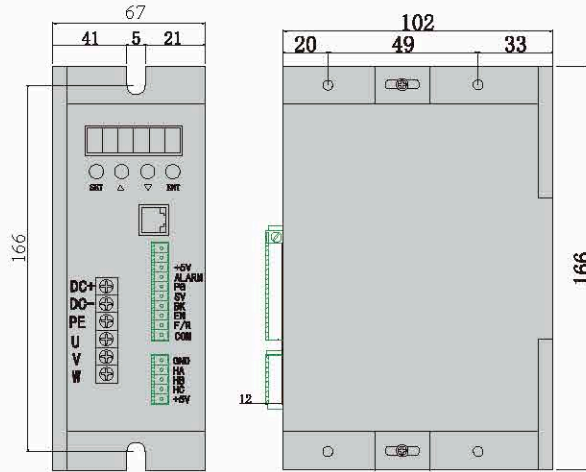
Characteristics

- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 3.5A(for <750W motor)
- Max. Output current: 7A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

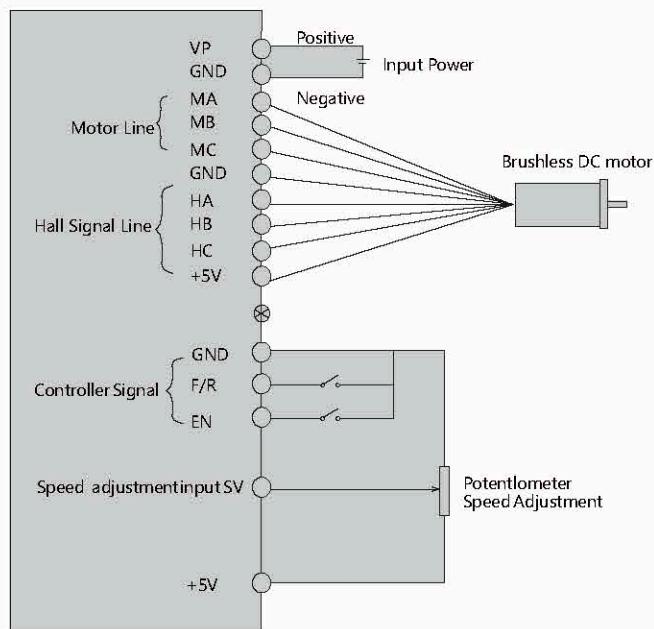
Specification

- Closed-loop control, constant torque output
- Standard Modbus protocol, RS485 multiaxis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quick action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger than 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal signal and other fault alarm
- Panel: 6 digit LED display, 4 digit keypad operation
- Dimension: 165x102x51 mm

Dimension



Connection Diagram



Motor input terminal

1	+5V	Output power terminal
2	SV	Input signal terminal
3	COM	Com terminal
4	F/R	CW/CCW terminal
5	EN	Enable terminal
6	BR	Brake terminal
7	ALARM	Alarm terminal
8	PG	Speed terminal

PBLR22004A-L

BLDC Motor Drivers



Characteristics

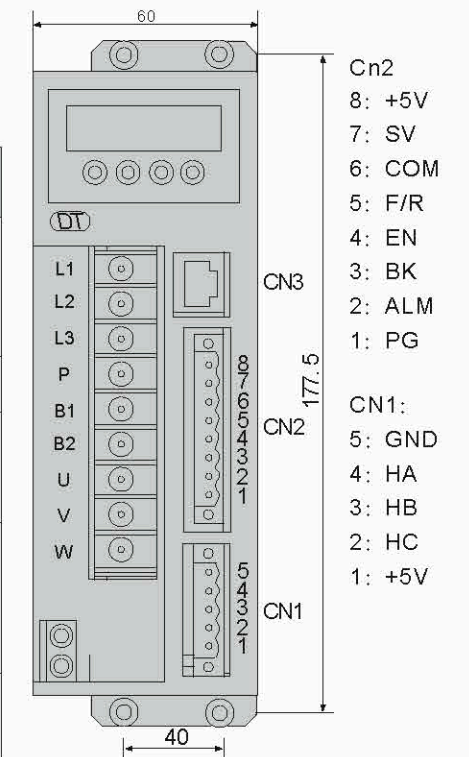
- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 2.0A(for <500W motors)
- Max. Output current: 4A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

Specification

- Closed-loop control, constant torque output
- Standard Modbus protocol, RS485 multiaxis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quick action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger than 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal signal and other fault alarm
- Panel: 6 digit LED display, 4 digit keypad operation
- Dimension: 145x60x125mm

Power Terminal and Motor Terminal

No.	Terminal Name	Signal	Function
1	L1(L)®	Power input of main circuit	Main circuit power input terminal AC220V 50Hz, Connect L1 and L2 while using single phase voltage 220V
2	L2(N)(S)		
3	L3(T)		
4	P	High voltage DC bus line terminal	DC bus line terminal in driver, rated power 315V
5	B1	internal brake resistance	When using internal brake resistance, short circuit B1 and B2, when the power is not enough, need to use external brake resistance, break B1 and B2, connect external brake resistance with P and B2
6	B2	external brake resistance	
7	U(MA)	Output	The motor terminals must be connected with U,V,W one-to-one. Attention: do not reverse the motor by exchange 3 phase terminals, it is completely different with asynchronous motor
8	V(MB)		
9	W(MC)		
	PE	Protection	The release way is supplied for protection motor and drive when current leakage



PBLR22004A-L

BLDC Motor Drivers



Characteristics

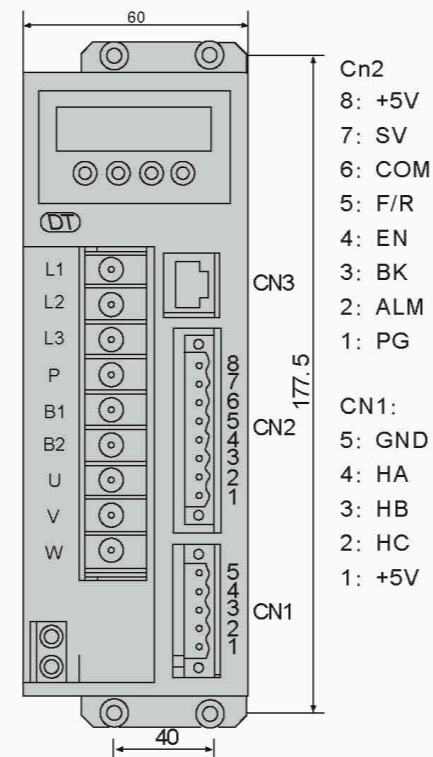
- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 2.0A(for <500W motors)
- Max. Output current: 4A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

Specification

- Closed-loop control, constant torque output
- Standard Modbus protocol, RS485 multiaxis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quick action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger than 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal signal and other fault alarm
- Panel: 6 digit LED display, 4 digit keypad operation
- Dimension: 145x60x125mm

Power Terminal and Motor Terminal

No.	Terminal Name	Signal	Function
1	L1(L)®	Power input of main circuit	Main circuit power input terminal AC220V 50Hz, Connect L1 and L2 while using single phase voltage 220V
2	L2(N)(S)		
3	L3(T)		
4	P	High voltage DC bus line terminal	DC bus line terminal in driver, rated power 315V
5	B1	internal brake resistance	When using internal brake resistance, short circuit B1 and B2, when the power is not enough, need to use external brake resistance, break B1 and B2, connect external brake resistance with P and B2
6	B2	external brake resistance	
7	U(MA)	Output	The motor terminals must be connected with U,V,W one-to-one. Attention: do not reverse the motor by exchange 3 phase terminals, it is completely different with asynchronous motor
8	V(MB)		
9	W(MC)		
	PE	Protection	The release way is supplied for protection motor and drive when current leakage



PBLR22005A-L

BLDC Motor Drivers



Characteristics

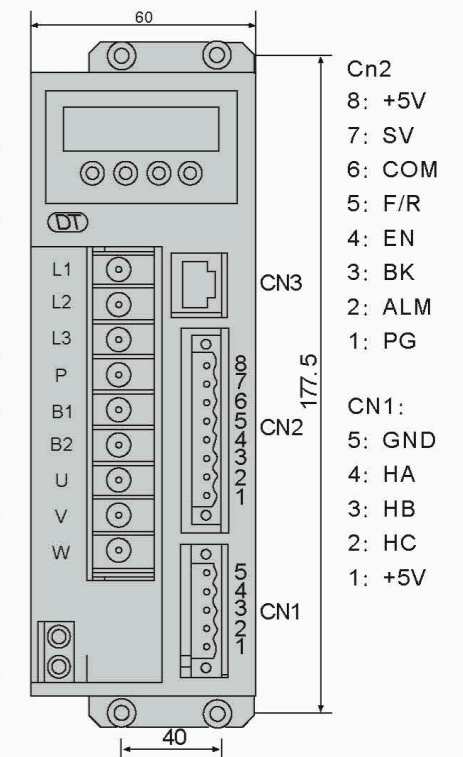
- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 2.5A(for <500W motors)
- Max. Output current: 5A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

Specification

- Closed-loop control, constant torque output
- Standard Modbus protocol, RS485 multiaxis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quick action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger than 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal signal and other fault alarm
- Panel: 6 digit LED display, 4 digit keypad operation
- Dimension: 180x60x150mm

Power Terminal and Motor Terminal

No.	Terminal Name	Signal	Function
1	L1(L)®	Power input of main circuit	Main circuit power input terminal AC220V 50Hz, Connect L1 and L2 while using single phase voltage 220V
2	L2(N)(S)		
3	L3(T)		
4	P	High voltage DC bus line terminal	DC bus line terminal in driver, rated power 315V
5	B1	internal brake resistance	When using internal brake resistance, short circuit B1 and B2, when the power is not enough, need to use external brake resistance, break B1 and B2, connect external brake resistance with P and B2
6	B2	external brake resistance	
7	U(MA)	Output	The motor terminals must be connected with U,V,W one-to-one. Attention: do not reverse the motor by exchange 3 phase terminals, it is completely different with asynchronous motor
8	V(MB)		
9	W(MC)		
	PE	Protection	The release way is supplied for protection motor and drive when current leakage



PBLR22003A-L

BLDC Motor Drivers



Characteristics

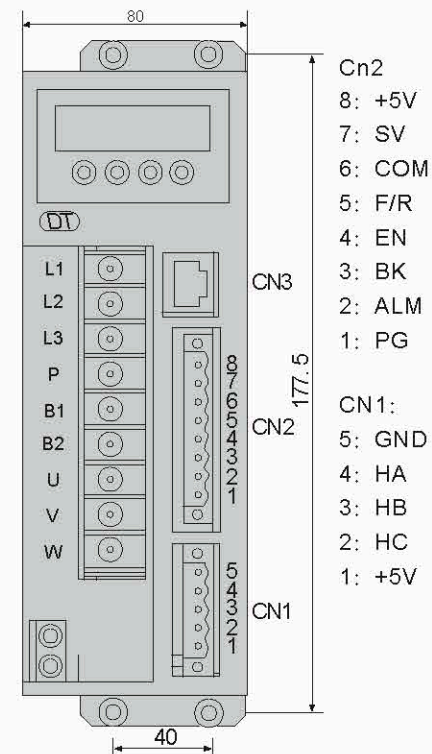
- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 3.5A(for <1000W motors)
- Max. Output current: 7.0A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

Specification

- Closed-loop control,constant torque output
- Standard Modbus protocol, RS485 mult axis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control,CW/CCW control
- Electrical stop to ensure the quickly action of motor
- Blocking protection,fast response and high control precision
- Loading does not slow down,power compensation, strong starting torque
- Over load ratio larger then 2,torque always can achieve the max in low speed
- Provide OVP,LVP,OCP,OTP,illegal horal signal and other fault alarm
- Dimension: 180x80x150mm

Power Terminal and Motor Terminal

No.	Terminal Name	Signal	Function
1	L1(L)®	Power input of main circuit	Main circuit power input terminal AC220V 50Hz, Connect L1 and L2 while using single phase voltage 220V
2	L2(N)(S)		
3	L3(T)		
4	P	High voltage DC bus line terminal	DC bus line terminal in driver, rated power 315V
5	B1	internal brake resistance	When using internal brake resistance, short circuit B1 and B2, when the power is not enough, need to use external brake resistance, break B1 and B2, connect external brake resistance with P and B2
6	B2	external brake resistance	
7	U(MA)	Output	The motor terminals must be connected with U,V,W one-to- one. Attention: do not reverse the motor by exchange 3 phase terminals, it is completely different with asynchronous motor
8	V(MB)		
9	W(MC)		
	PE	Protection	The release way is supplied for protection motor and drive when current leakage



PBLR22007A-L

BLDC Motor Drivers



Characteristics

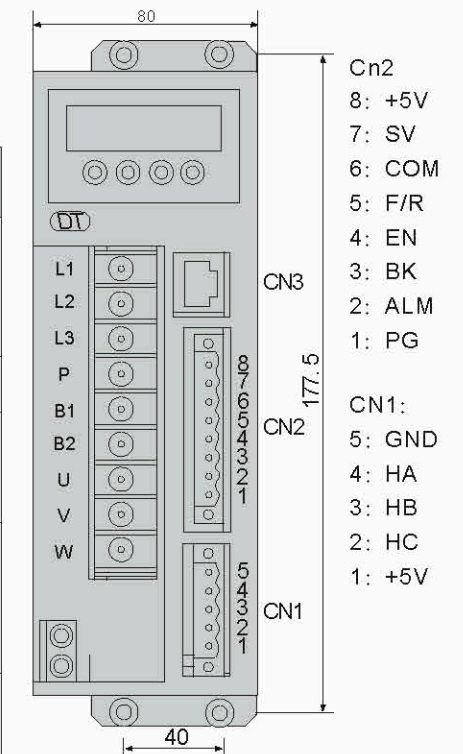
- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 7.5A(for <1500W motors)
- Max. Output current: 15A
- Working temp.: 0~+45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

Specification

- Closed-loop control,constant torque output
- Standard Modbus protocol, RS485 mult axis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control,CW/CCW control
- Electrical stop to ensure the quickly action of motor
- Blocking protection,fast response and high control precision
- Loading does not slow down,power compensation, strong starting torque
- Over load ratio larger then 2,torque always can achieve the max in low speed
- Provide OVP,LVP,OCP,OTP,illegal horal signal and other fault alarm
- Panel:6 digit LED display,4 digit keypad operation
- Dimension: 180x80x190mm

Power Terminal and Motor Terminal

No.	Terminal Name	Signal	Function
1	L1(L)®	Power input of main circuit	Main circuit power input terminal AC220V 50Hz, Connect L1 and L2 while using single phase voltage 220V
2	L2(N)(S)		
3	L3(T)		
4	P	High voltage DC bus line terminal	DC bus line terminal in driver, rated power 315V
5	B1	internal brake resistance	When using internal brake resistance, short circuit B1 and B2, when the power is not enough, need to use external brake resistance, break B1 and B2, connect external brake resistance with P and B2
6	B2	external brake resistance	
7	U(MA)	Output	The motor terminals must be connected with U,V,W one-to- one. Attention: do not reverse the motor by exchange 3 phase terminals, it is completely different with asynchronous motor
8	V(MB)		
9	W(MC)		
	PE	Protection	The release way is supplied for protection motor and drive when current leakage



PBLR22015A-L

BLDC Motor Drivers



Characteristics

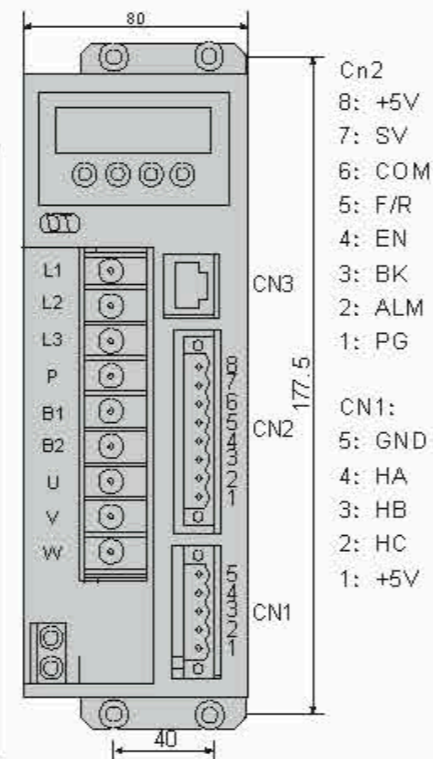
- Input Voltage: 110/ 220VAC, 50/60Hz
- Continuous Output current: 15A(for <3000W motors)
- Max. Output current: 30A
- Working temp.: 0~ +45°C
- Storage temp.: -20~+85°C
- Structure: wall-mountable box type
- Cooling: Radiator
- Control terminals: Isolation

Specification

- Closed-loop control, constant torque output
- Standard Modbus protocol, RS485 multi-axis control
- Photoelectric isolation of input and output signal
- External analog quantity and external pulse width input
- Start/stop control, CW/CCW control
- Electrical stop to ensure the quick action of motor
- Blocking protection, fast response and high control precision
- Loading does not slow down, power compensation, strong starting torque
- Over load ratio larger than 2, torque always can achieve the max in low speed
- Provide OVP, LVP, OCP, OTP, illegal hold signal and other fault alarm
- Panel: 6 digit LED display, 4 digit keypad operation
- Dimension: 180x80x190mm

Power Terminal and Motor Terminal

No.	Terminal Name	Signal	Function
1	L1(L)Ⓟ	Power input of main circuit	Main circuit power input terminal AC220V 50Hz, Connect L1 and L2 while using single phase voltage 220V
2	L2(N)(S)		
3	L3(T)		
4	P	High voltage DC bus line terminal	DC bus line terminal in driver, rated power 315V
5	B1	internal brake resistance	When using internal brake resistance, short circuit B1 and B2, when the power is not enough, need to use external brake resistance, break B1 and B2, connect external brake resistance with P and B2
6	B2	external brake resistance	
7	U(MA)	Output	The motor terminals must be connected with U, V, W one-to-one. Attention: do not reverse the motor by exchange 3 phase terminals, it is completely different with asynchronous motor
8	V(MB)		
9	W(MC)		
	PE	Protection	The release way is supplied for protection motor and drive when current leakage

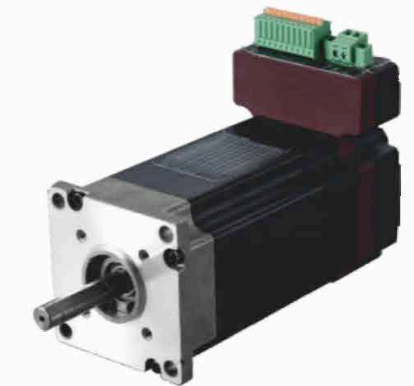
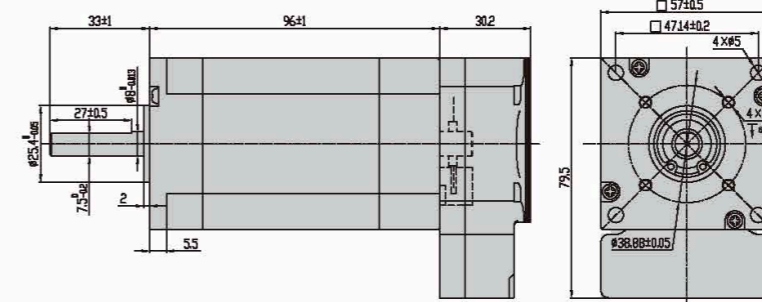


INTEGRATED BRUSHLESS DC MOTOR



PBLT57 Series

Integrated brushless DC motor



Integrated Brushless DC motor

- Working voltage: DC input voltage 15VDC~50VDC, recommended working voltage 36V
- The maximum continuous output current is 10A, and the maximum peak current is 22A (3 times the overload capacity)
- Accept differential and single-ended pulse/direction commands, with position/speed/torque three control modes
- Adopt FOC magnetic field positioning control technology and space vector pulse width modulation (SVPWM) control technology
- The number of pulses per revolution can be set by debugging software or dialling code (electronic gear ratio)
- Can choose 100W, 140W and 200W three brushless DC servo motors
- With protection functions such as overvoltage, under voltage, overcurrent and over-tolerance
- Single/double pulse mode, pulse valid edge optional
- The maximum pulse frequency of the control command is 500KHz (the factory default is 200KHz)
- Pulse, direction and enable signal input interface level is 5-24V compatible
- With serial port RS232 debugging function, but the company's dedicated serial port debugging cable is required
- Performance: stable speed, small overshoot, small tracking error, low heat of motor and driver

Electronic gear ratio(driver breakdown table)

Pulse/rew	SW1	SW2	SW3	SW4
Default	on	on	on	on
800	off	on	on	on
1600	on	off	on	on
3200	off	off	on	on
6400	on	on	off	on
12800	off	on	off	on
25600	on	off	off	on
51200	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
40000	off	off	off	off

Suitable for standard motor

Model No.	Rated power	Drive+encoder+length
	W	Length(mm)
PBLT57-09	100W	107±1
PBLT57-13	140W	127±1
PBLT57-18	200W	147±1

Function setting

Initial orientation of motor		
Direction	SW5	Remark
CCW	off	Counterclockwise
CW	on	Clockwise
Drive control mode setting		
Drive control mode	SW6	Remark
FOC	off	Apply to screw
PM	on	Apply to belt

Electrical Specifications

Parameters	Minimum value	Typical value	Minimum value	Unit
Output	0	-	10	A
Power Supply Voltage(DC)	15	36	50	Vdc
Control signal input current	6	10	16	mA
Logic input voltage	5	5	24	Vdc
Pulse frequency	0	-	200	kHz
Pulse high-level width	1.5	-	-	uS
Accuracy of position error control	-	±1	-	Pulse
Speed control accuracy	-	±2	-	rpm
Maximum acceleration(no load)	-	100	-	rpm/ms
Motor speed	3500	-	-	RPM
Insulation Resistance	100	-	-	MΩ

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MEMO

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Lined area for writing the memo.