PRIMOPAL

BRUSHLESS DC MOTOR

2024
2025
Ver.4.1

Company Profile

Primopal entered the hybrid stepper motor business in 2007 and has since expanded its business lines to four major production lines: stepper motors, brushless DC motors, servo motors, and linear actuators, providing comprehensive solutions to over 1000 customers worldwide. Primopal is not only one of the top motor manufacturers in China, but also integrates related motion control products, becoming a top supplier of comprehensive solutions in the automation industry.

For 18 years, we have been using internationally recognized scientific management tools and have been pursuing professional application technology since its establishment. Our service scope covers various industries, from factory automation components to smart home appliances, from intelligent management systems for large-scale industrial equipment to control actuators for automotive and telecommunications equipment, and Primopal can be found. Primopal is highly recognized for its high-performance and high-quality products, currently offering four major series of products: stepper motors, brushless DC motors, servo motors, and linear actuators, with an annual production of over 2 million motors.

At the same time, Primopal Electromechanical also has several joint ventures specializing in the production of PMDC motors, motion controllers, and precision gearboxes, with annual sales of over 3 million units worldwide.

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BLDC Motor Introduction

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 communication of phase currents

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

The commuatation of brushless motors

In the conventional DC motor commutation takes place mechanically trough 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 ars 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 iscalled vertor 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:

Mm=k·Im—kv·ω-Mf
Mm=Motor useful torque
K=Torque constant
Im=Motor current
kv=Viscous coefficient for iron losses
W=Angular velocity
Mf=Bearing friction
Ptr=Ph+Pec+Pe
Ptr: Iron losses
Ph: Hysteresis losses
Pec: Eddy current losses
Pe: 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.

●Sensor and Sensorless Commutation

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

Indications of Motor Data

●Rated 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.

●Rated Torque Unit: N.m

Nominal Torque is the torque generated for operation at nominal voltage and nominal current at a motor temperature of 25℃, It is at the limit of the motor's continue operation range. Higher torques heat up the winding too much.

●Rated Speed Unit: rpm

Nominal speed is the speed set for operation at nominal voltage and nominal torque at a motor temperature of 25℃

●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 □ □ □ - □ □ □ - □□

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① PBL

PrimoPal Brushless DC Motor

② 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	

③ Motor Type

H-Inner Rotor BLDC Motor	P-IP65 BLDC Motor
G-Planetary Gearbox BLDC Motor	D-BLDC Motor Drive Series
E-Outrunner BLDC Motor	T-Integrated Brushless DC motor
F-Frameless Brushless DC Motor	

④ Number Of Magnet Poles

F-4Poles	T-10Poles	B-12Poles	M-22Poles
S-6Poles	L-14Poles	D-24Poles	N-28Poles
E-8Poles	H-16Poles	C-20Poles	

⑤ Voltage

24-24VDC 36-36VDC 48-48VDC 310-220VAC

⑥ 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

⑦ Rated Speed

30-3000RPM 40-4000RPM

⑧ Serial Number

Inner Rotor Brushless Motor Series

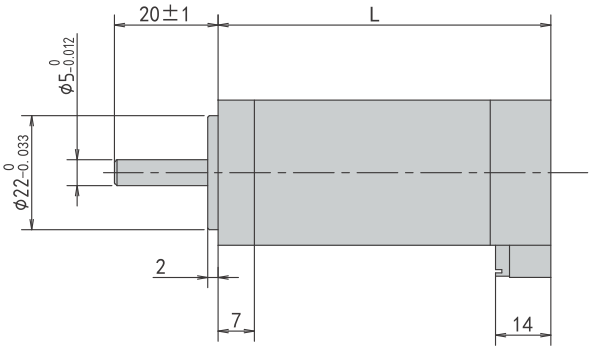
Brushless DC motor is composed of motor body and Hall sensor, which is a typical mechatronics product. The stator windings of the motor are mostly made of three-phase symmetric star connection, which is very similar to three-phase asynchronous motor. A magnetized permanent magnet is attached to the rotor of the motor. To detect the polarity of the rotor, a position sensor (typically the Hall 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 the on and off of each power tube of the inverter bridge and generate continuous torque; accept speed instructions and speed feedback signal, used to control and adjust the speed; and to provide protection, display, and so on.

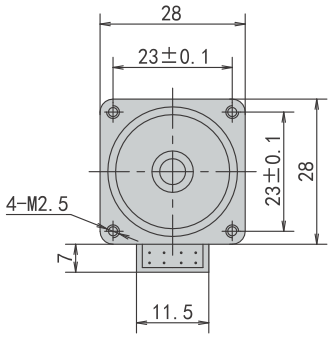
Square Frame Series

Frame Size Range	Rated Power Range	Rated Torque Range
28-130mm	12.5-2510W	0.03-12N.m

PBLS28HE Series □28mm

Inner Rotor BLDC Motor





Options

Connector Gearbox Encoder

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

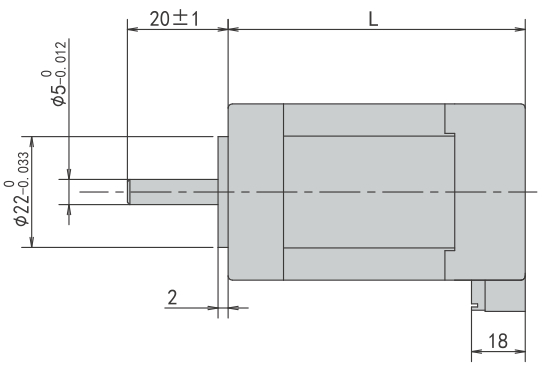
Electrical Specifications

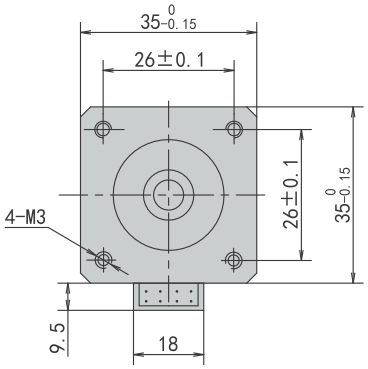
Motor Model	Unit	PBLS28HE-241240	PBLS28HE-241840	PBLS28HE-242540
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	4,000		
Rated Torque	N.m	0.03	0.045	0.06
Rated Power	W	12.5	18.8	25
Rated Current	A	0.7	0.9	1.3
Peak Current	A	2.1	2.7	3.9
Peak Torque	N.m	0.09	0.13	0.18
Rotor Inertia	kg.cm²	0.01	0.02	0.03
Torque Constant	N.m/A	0.04	0.04	0.04
Back-EMF Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Ω	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

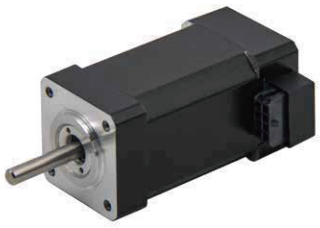
PBLS35HE Series

Inner Rotor BLDC Motor

□35mm







Options

Connector Gearbox Encoder

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

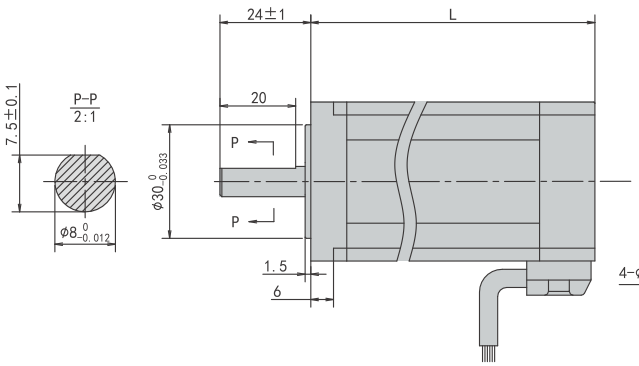
Electrical Specifications

Motor Model	Unit	PBLS35HE-241640	PBLS35HE-242540	PBLS35HE-243340
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	4,000		
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.cm²	0.02	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Back-EMF Constant	V/krpm	4.5	4.6	4.5
Line-Line Resistance	Ω	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

PBLS42HE Series

Inner Rotor BLDC Motor

□42mm



Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

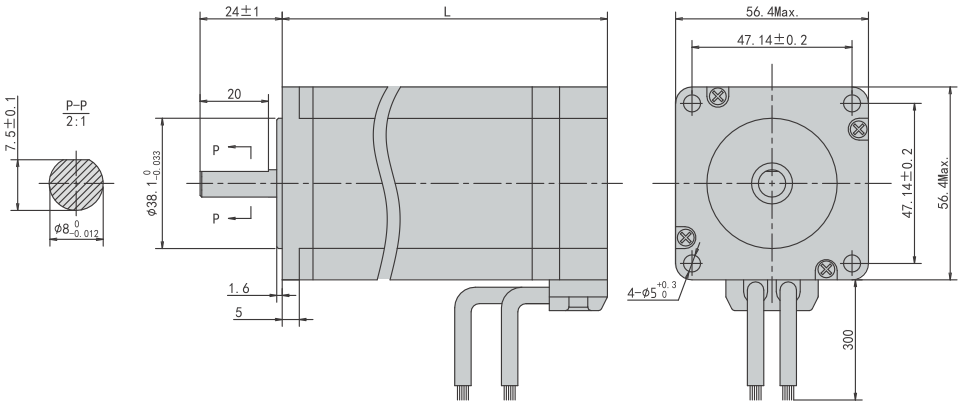
Electrical Specifications

Motor Model	Unit	PBLS42HE-483130	PBLS42HE-486330	PBLS42HE-489430
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
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.cm²	0.039	0.045	0.052
Torque Constant	N.m/A	0.115	0.115	0.115
Back-EMF Constant	V/krpm	12	12	12
Line-Line Resistance	Ω	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

PBLS56HE Series

□56mm

Inner 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	115N, 10mm from the flange
Max axial force	15N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

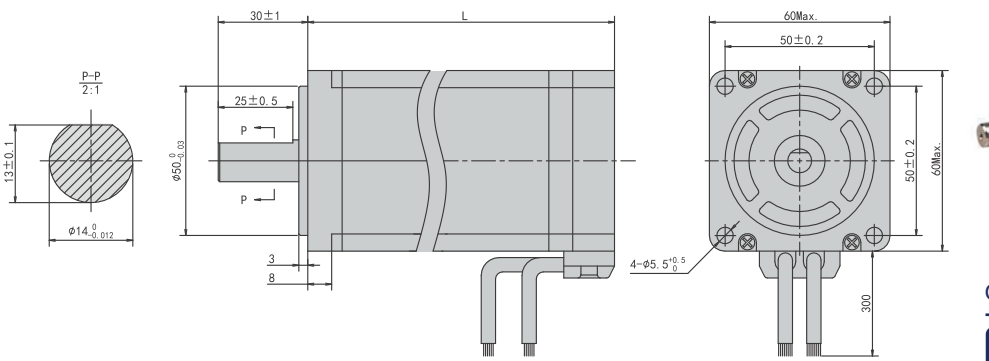
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS56HE-486330	PBLS56HE-481230	PBLS56HE-481830
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
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.cm²	0.25	0.35	0.45
Torque Constant	N.m/A	0.125	0.121	0.12
Back-EMF Constant	V/krpm	13.08	12.71	12.56
Line-Line Resistance	Ω	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

PBLS60HE Series □60mm

Inner 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	115N, 10mm from the flange
Max axial force	45N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

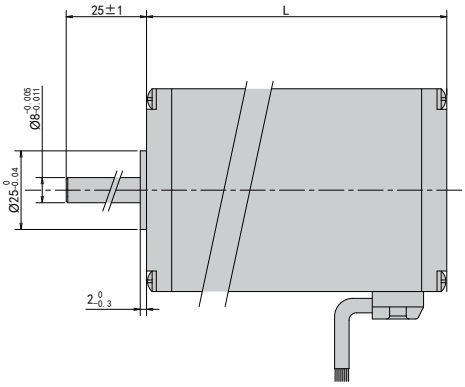
Electrical Specifications

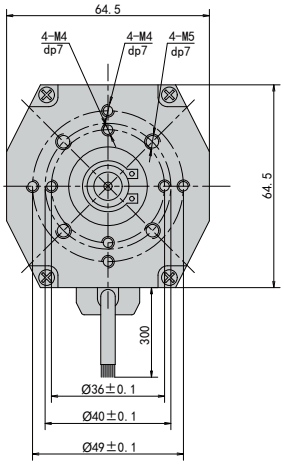
Motor Model	Unit	PBLS60HE-482030	PBLS60HE-484030
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.64	1.27
Rated Power	W	200	400
Rated Current	A	11	12
Peak Current	A	33	36
Peak Torque	N.m	1.92	3.81
Rotor Inertia	kg.cm²	0.48	0.43
Torque Constant	N.m/A	0.06	0.11
Back-EMF Constant	V/krpm	4.2	8.1
Line-Line Resistance	Ω	4.36	4.0
Line-Line Inductance	mH	12.7	12.7
Length	mm	99	141
Weight	kg	1.25	2.05

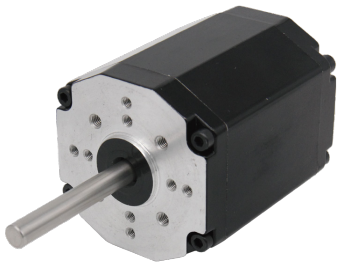
PBLS65HT Series

Inner Rotor BLDC Motor

⌀65mm







Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

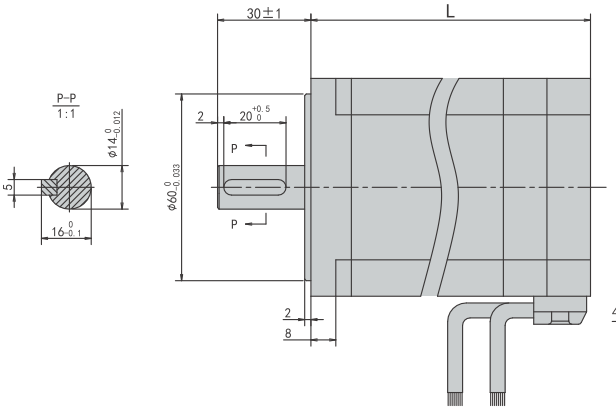
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS65HT-482030	PBLS65HT-484030
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.64	1.27
Rated Power	W	200	400
Rated Current	A	5.5	11
Peak Current	A	16.5	33
Peak Torque	N.m	1.92	3.81
Rotor Inertia	kg.cm²	0.25	0.45
Torque Constant	N.m/A	0.11	0.11
Back-EMF Constant	V/krpm	10.5	10.5
Line-Line Resistance	Ω	0.2	0.4
Line-Line Inductance	mH	0.4	0.6
Length	mm	77	91
Weight	kg	0.6	1.0

PBLS70HE Series □70mm

Inner 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	115N, 10mm from the flange
Max axial force	45N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

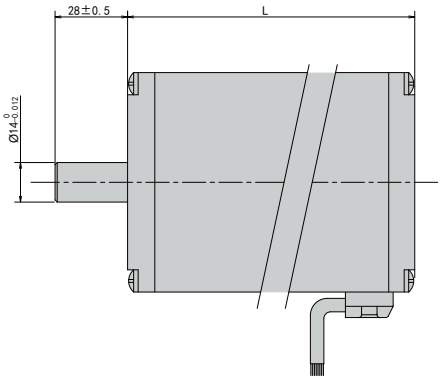
Electrical Specifications

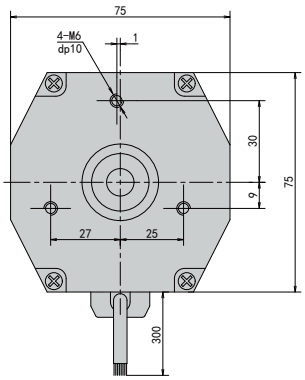
Motor Model	Unit	PBLS70HE-481530	PBLS70HE-483130	PBLS70HE-484730
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.5	1.0	1.5
Rated Power	W	157	314	471
Rated Current	A	4	8.3	12.5
Peak Current	A	13	26	38
Peak Torque	N.m	1.5	3	4.5
Rotor Inertia	kg.cm²	0.2	0.4	0.6
Torque Constant	N.m/A	0.12	0.12	0.12
Back-EMF Constant	V/krpm	9	9	9
Line-Line Resistance	Ω	0.6	0.3	0.22
Line-Line Inductance	mH	1.4	0.7	0.55
Length	mm	86	116	136
Weight	kg	1.3	2.1	2.9

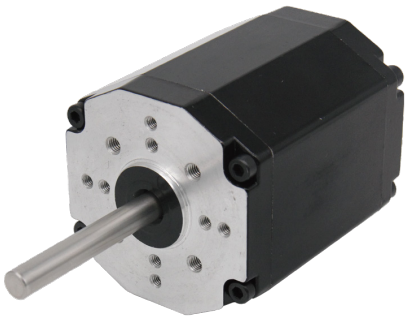
PBLS75HT Series

Inner Rotor BLDC Motor

⌀75mm







Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

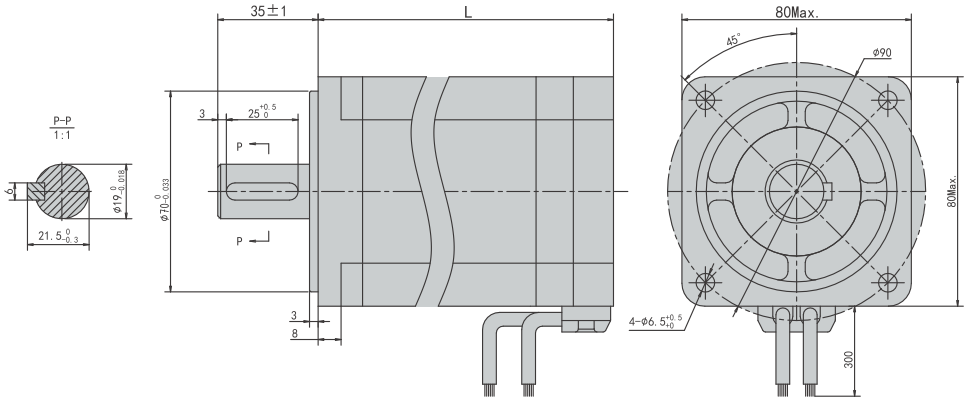
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS75HT-484030
Number of Phase		3
Number of Poles		10
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	1.27
Rated Power	W	400
Rated Current	A	11
Peak Current	A	33
Peak Torque	N.m	3.81
Rotor Inertia	kg.cm²	0.45
Torque Constant	N.m/A	0.11
Back-EMF Constant	V/krpm	10.5
Line-Line Resistance	Ω	0.26
Line-Line Inductance	mH	0.52
Length	mm	85
Weight	kg	1.0

PBLS80HE Series □80mm

Inner Rotor BLDC Motor



Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

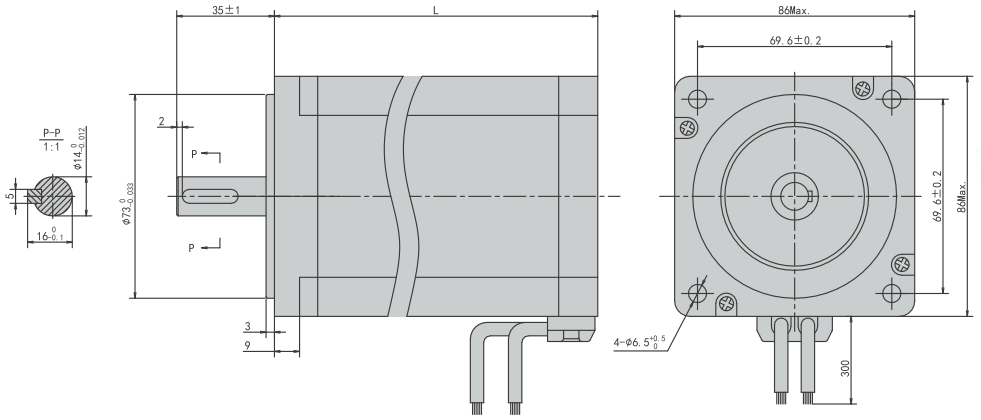
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS80HF-483730	PBLS80HF-484730	PBLS80HF-3108830
Number of Phase		3		
Number of Poles		4		
Rated Voltage	VDC	48		310
Rated Speed	RPM	3,000	3,000	3,000
Rated Torque	N.m	1.2	1.5	2.8
Rated Power	W	375	470	880
Rated Current	A	9.8	12	3.8
Peak Current	A	30	36	10.5
Peak Torque	N.m	3.6	4.5	8.4
Rotor Inertia	kg.cm²	0.037	0.057	0.083
Torque Constant	N.m/A	0.125	0.125	0.8
Back-EMF Constant	V/krpm	0.96	0.96	6.2
Line-Line Resistance	Ω	3.9	3.26	14
Line-Line Inductance	mH	1.14	0.98	0.66
Length	mm	105	125	145
Weight	kg	1.8	2.8	3.6

PBLS86HE Series □86mm

Inner Rotor BLDC Motor



Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

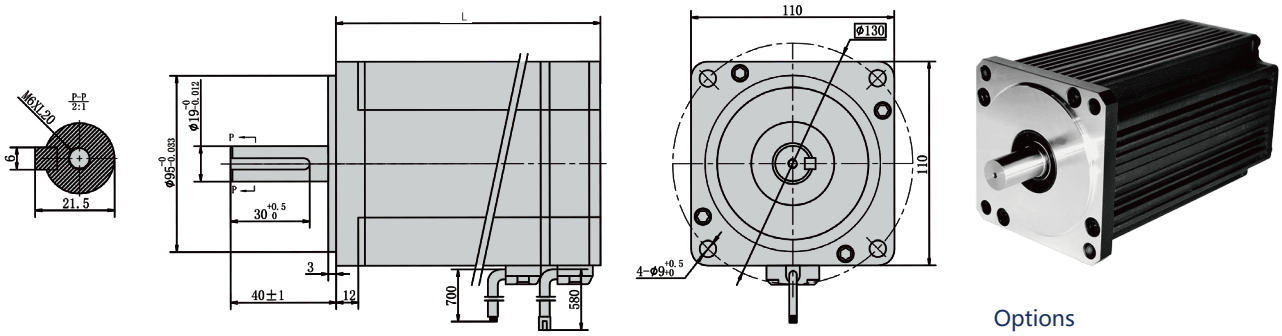
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS86HE-485030	PBLS86HE-487030
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	1.6	2.22
Rated Power	W	500	700
Rated Current	A	12	17
Peak Current	A	36	51
Peak Torque	N.m	4.8	6.66
Rotor Inertia	kg.cm²	0.16	0.24
Torque Constant	N.m/A	0.135	0.131
Back-EMF Constant	V/krpm	10	9.7
Line-Line Resistance	Ω	0.14	0.1
Line-Line Inductance	mH	0.36	0.24
Length	mm	105	125
Weight	kg	2.7	4.0

PBLS110HE Series □110mm

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

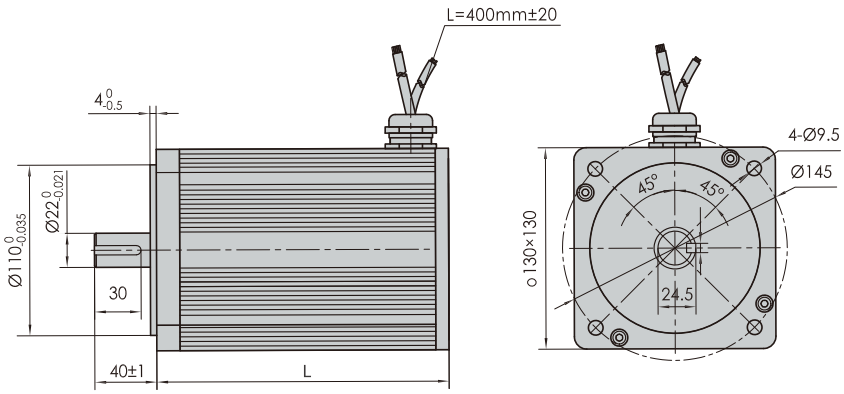
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

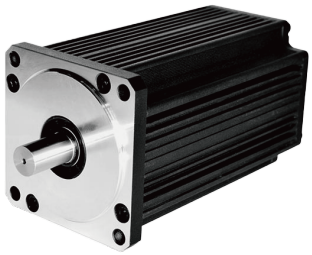
Electrical Specifications

Motor Model	Unit	PBLS110HE-481230	PBLS110HE-481830	PBLS110HE-482425
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		2,500
Rated Torque	N.m	4	6	9
Rated Power	W	1200	1800	2400
Rated Current	A	29.4	44.1	58.8
Peak Current	A	88	132	176
Peak Torque	N.m	12	18	27
Rotor Inertia	kg.cm²	5.4	7.6	10.8
Torque Constant	N.m/A	0.14	0.14	0.15
Back-EMF Constant	V/krpm	14	14.6	15.7
Line-Line Resistance	Ω	0.14	0.14	0.15
Line-Line Inductance	mH	0.49	0.41	0.39
Length	mm	169	199	227
Weight	kg	6.5	7.5	9.5

PBLS130HE Series □130mm

Inner Rotor BLDC Motor





Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
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	PBLS130HE-4812520	PBLS130HE-4816720	PBLS130HE-4820920	PBLS130HE-4825120
Number of Phase		3			
Number of Poles		8			
Rated Voltage	VDC	48			
Rated Speed	RPM	2,000			
Rated Torque	N.m	6	8	10	12
Rated Power	W	1255	1675	2092	2510
Rated Current	A	5	6.8	8.5	10
Peak Current	A	15	20.4	25.5	30
Peak Torque	N.m	18	24	30	36
Rotor Inertia	kg.cm²	8.5	9.1	12.6	15.3
Torque Constant	N.m/A	1.2	1.2	1.2	1.2
Back-EMF Constant	V/krpm	7.4	7.8	8	9.4
Line-Line Resistance	Ω	0.048	0.032	0.024	0.014
Line-Line Inductance	mH	0.5	0.4	0.32	0.24
Length	mm	146	162	178	194
Weight	kg	5.5	7	9.5	11

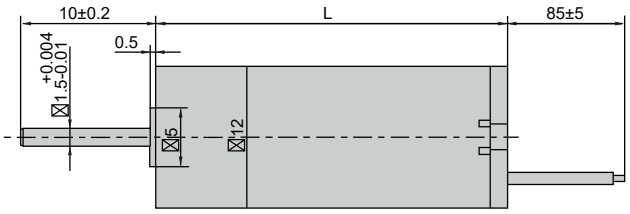
Round Frame Series

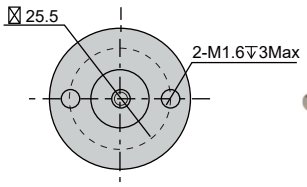
Frame Size Range	Rated Power Range	Rated Torque Range
12-82mm	1.6-250W	0.002-0.8N.m

PBLR12HF Series

⌀12mm

Inner Rotor BLDC Motor





Options

Gearbox Encoder

Gearbox Specifications

Winding Type	Star
Dielectric Strength	500VAC/1KHz/1mA/1s
Insulation Resistance	100 MOhm 20℃
Ambient Temperature	25℃
Insulation Class	Class B

Wiring Connection

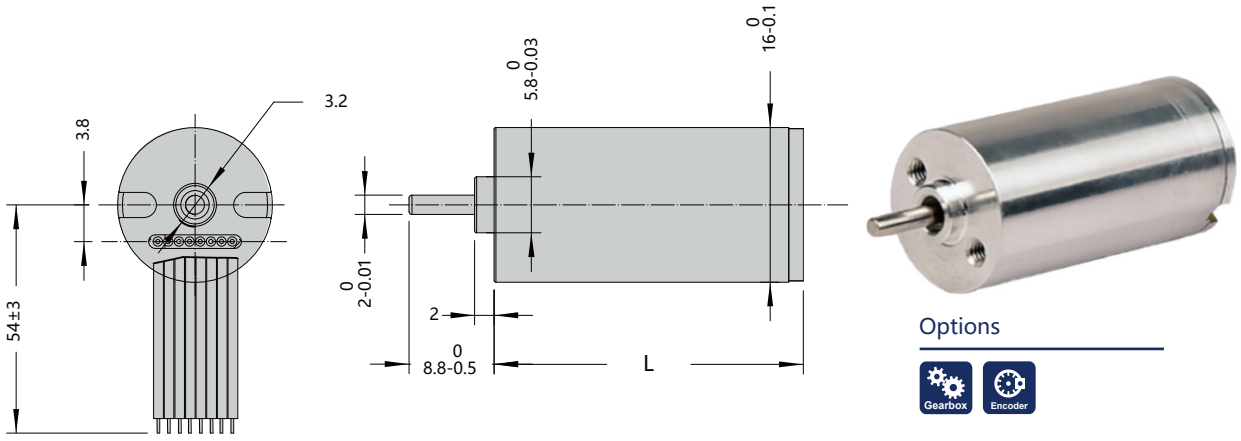
Type	Color	Function
UL3265 AWG26	Grey	Phase U
	White	Phase V
	Brown	Phase W

Electrical Specifications

Motor Model	Unit	PBLR12HF-240177
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	24
Rated Speed	RPM	7,700
Rated Torque	N.m	0.002
Rated Power	W	1.6
Rated Current	A	0.11
Peak Current	A	0.33
Peak Torque	N.m	0.003
Rotor Inertia	g.cm²	0.18
Torque Constant	N.m/A	0.018
Back-EMF Constant	V/krpm	1.895
Line-Line Resistance	Ω	52.5
Line-Line Inductance	mH	3.92
Length	mm	30
Weight	kg	0.018

PBLR16HF Series ⌀16mm

Inner Rotor BLDC Motor



Options

Gearbox Encoder

Gearbox Specifications

Winding Type	Star/Delta
Dielectric Strength	500VAC/1KHz/1mA/1s
Insulation Resistance	100 MOhm 20℃
Ambient Temperature	25℃
Insulation Class	Class B

Wiring Connection

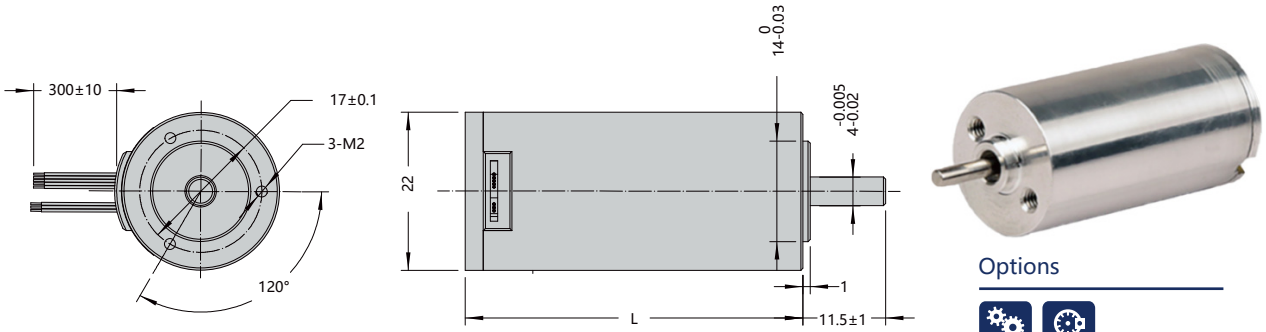
Type	Color	Function
UL3265 AWG26	Red	Hu
	Green	Hv
	Blue	Hw
	Red	Vcc
	Black	GND
UL3265 AWG26	Grey	Phase U
	White	Phase V
	Brown	Phase W

Electrical Specifications

Motor Model	Unit	PBLR16HF-2409126
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	24
Rated Speed	RPM	12,600
Rated Torque	N.m	0.007
Rated Power	W	9.2
Rated Current	A	0.65
Peak Current	A	1.95
Peak Torque	N.m	0.021
Rotor Inertia	g.cm²	0.45
Torque Constant	N.m/A	0.011
Back-EMF Constant	V/krpm	1.25
Line-Line Resistance	Ω	6.5
Line-Line Inductance	mH	0.78
Length	mm	32
Weight	kg	0.025

PBLR22HF Series ⌀22mm

Inner Rotor BLDC Motor



Options

Gearbox Encoder

Gearbox Specifications

Winding Type	Star/Delta
Dielectric Strength	500VAC/1KHz/1mA/1s
Insulation Resistance	100 MOhm 20℃
Ambient Temperature	25℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
UL3265 AWG26	Grey	Hu
	White	Hv
	Brown	Hw
	Red	Vcc
	Black	GND
UL3265 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

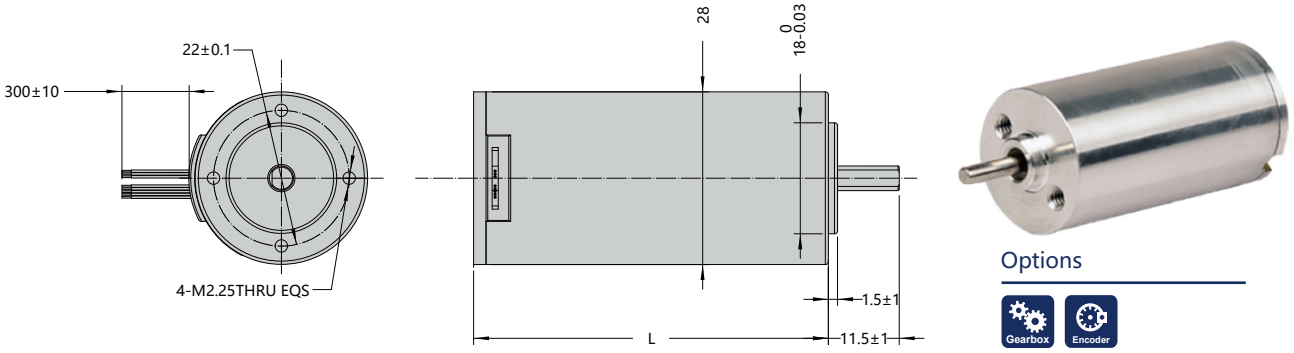
Electrical Specifications

Motor Model	Unit	PBLR22HF-2401100
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	24
Rated Speed	RPM	10,000
Rated Torque	N.m	0.019
Rated Power	W	19.9
Rated Current	A	1.2
Peak Current	A	3.6
Peak Torque	N.m	0.057
Rotor Inertia	g.cm²	1.1
Torque Constant	N.m/A	0.016
Back-EMF Constant	V/krpm	1.67
Line-Line Resistance	Ω	3.053
Line-Line Inductance	mH	0.54
Length	mm	47
Weight	kg	0.2

PBLR28HF Series

⌀28mm

Inner Rotor BLDC Motor



Gearbox Specifications

Winding Type	Star/Delta
Dielectric Strength	500VAC/1KHz/1mA/1s
Insulation Resistance	100 MOhm 20℃
Ambient Temperature	25℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
UL3265 AWG26	Yellow	Hu
	Green	Hv
	Blue	Hw
	Red	Vcc
	Black	GND
UL3265 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

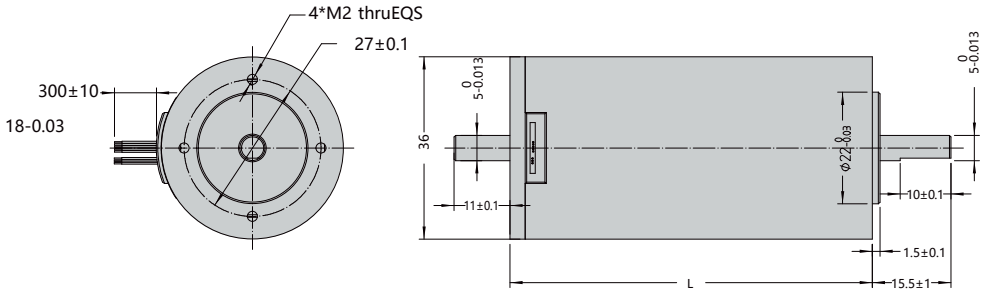
Electrical Specifications

Motor Model	Unit	PBLR28HF-2405100
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	24
Rated Speed	RPM	10,000
Rated Torque	N.m	0.05
Rated Power	W	52.4
Rated Current	A	3
Peak Current	A	9
Peak Torque	N.m	0.15
Rotor Inertia	g.cm²	0.011
Torque Constant	N.m/A	0.017
Back-EMF Constant	V/krpm	1.78
Line-Line Resistance	Ω	0.676
Line-Line Inductance	mH	0.2
Length	mm	57.5
Weight	kg	0.3

PBLR36HF Series

⌀36mm

Inner Rotor BLDC Motor



Options

Gearbox Encoder

Gearbox Specifications

Winding Type	Star/Delta
Dielectric Strength	500VAC/1KHz/1mA/1s
Insulation Resistance	100 MOhm 20℃
Ambient Temperature	25℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
UL3265 AWG26	Yellow	Hu
	Green	Hv
	Blue	Hw
	Red	Vcc
	Black	GND
UL3265 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

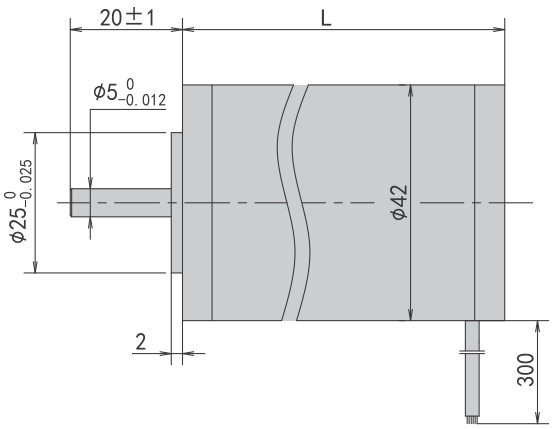
Electrical Specifications

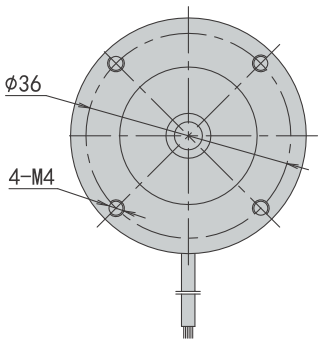
Motor Model	Unit	PBLR36HF-4813100
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	48
Rated Speed	RPM	10,000
Rated Torque	N.m	0.125
Rated Power	W	130.9
Rated Current	A	3.6
Peak Current	A	10.8
Peak Torque	N.m	0.375
Rotor Inertia	g.cm²	0.037
Torque Constant	N.m/A	0.035
Back-EMF Constant	V/krpm	3.67
Line-Line Resistance	Ω	0.67
Line-Line Inductance	mH	0.37
Length	mm	71.5
Weight	kg	0.6

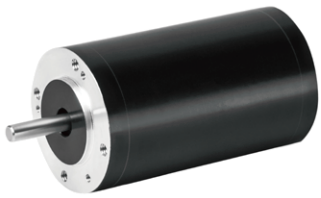
PBLR42HE Series

⌀42mm

Inner 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	15N, 10mm from the flange
Max axial force	10N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

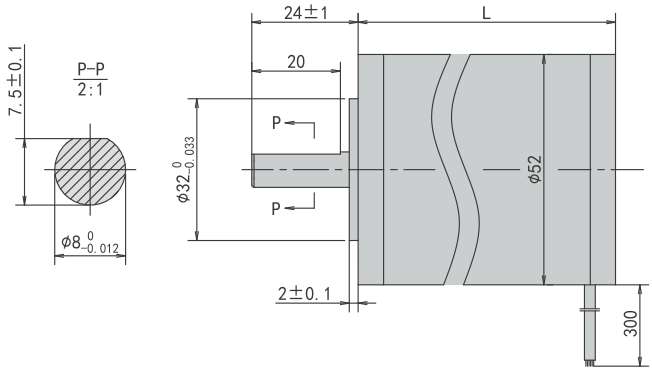
Electrical Specifications

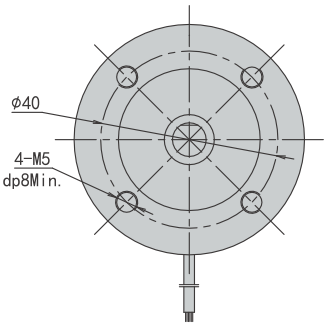
Motor Model	Unit	PBL42HE-242830	PBLR42HE-245630	PBLR42HE-248430
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.09	0.18	0.27
Rated Power	W	28	56	84
Rated Current	A	1.7	3.4	5.4
Peak Current	A	5.1	10.2	16
Peak Torque	N.m	0.27	0.54	0.81
Rotor Inertia	kg.cm²	0.25	0.35	0.45
Torque Constant	N.m/A	0.05	0.05	0.05
Back-EMF Constant	V/krpm	5.23	5.23	5.23
Line-Line Resistance	Ω	6	4	3
Line-Line Inductance	mH	4	3	2
Length	mm	52	72	92
Weight	kg	0.28	0.48	0.68

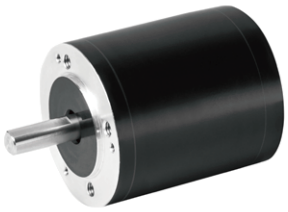
PBLR52HE Series

Inner Rotor BLDC Motor

Ø52mm







Options

Connector Gearbox Encoder Brake

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	15N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

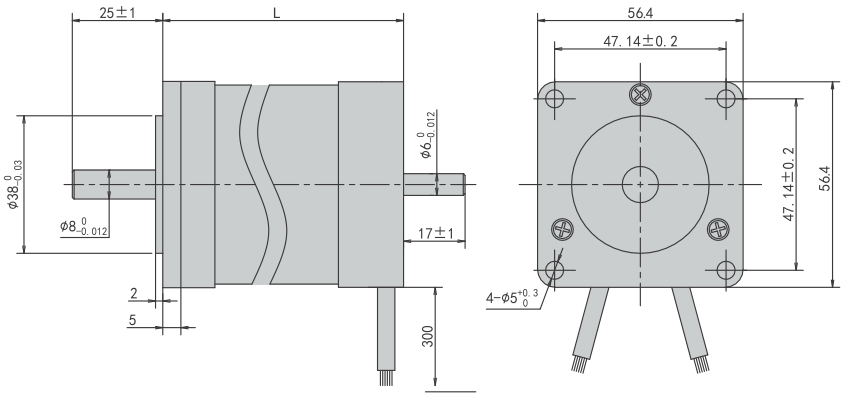
Electrical Specifications

Motor Model	Unit	PBLR52HE-243030	PBLR52HE-246030	PBLR52HE-249030
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	3,000		
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.cm²	0.55	0.75	0.95
Torque Constant	N.m/A	0.055	0.055	0.055
Back-EMF Constant	V/krpm	5.82	5.81	5.81
Line-Line Resistance	Ω	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	0.58	0.78

PBLR56HF Series

Inner Rotor BLDC Motor

⊙56mm



Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

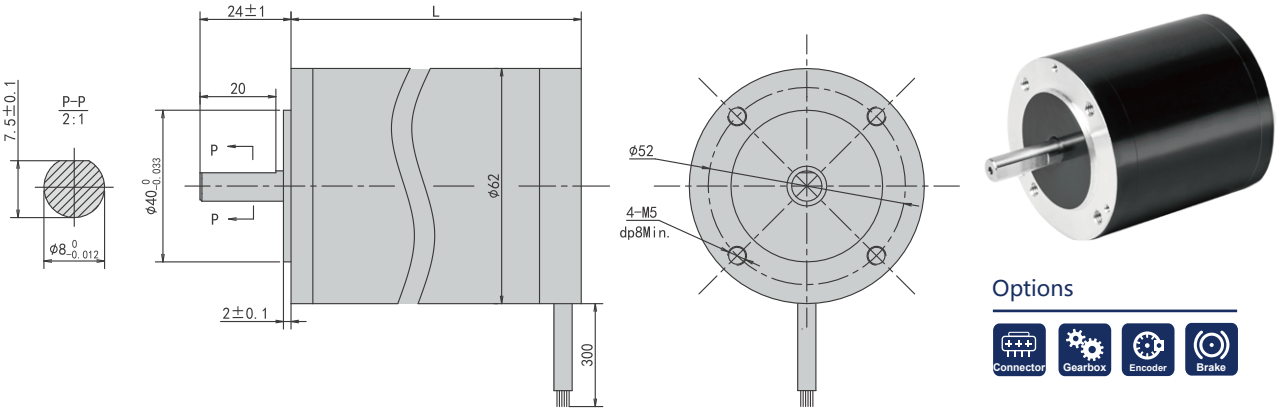
Electrical Specifications

Motor Model	Unit	PBLR56HF-489040	PBLR56HF-481840	PBLR56HF-482740
Number of Phase		3		
Number of Poles		4		
Rated Voltage	VDC	48		
Rated Speed	RPM	4,000		
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.cm²	1.19	1.73	1.73
Torque Constant	N.m/A	0.08	0.08	0.08
Back-EMF Constant	V/krpm	9.2	9.2	9.2
Line-Line Resistance	Ω	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

PBLR62HE Series

⌀62mm

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	45N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

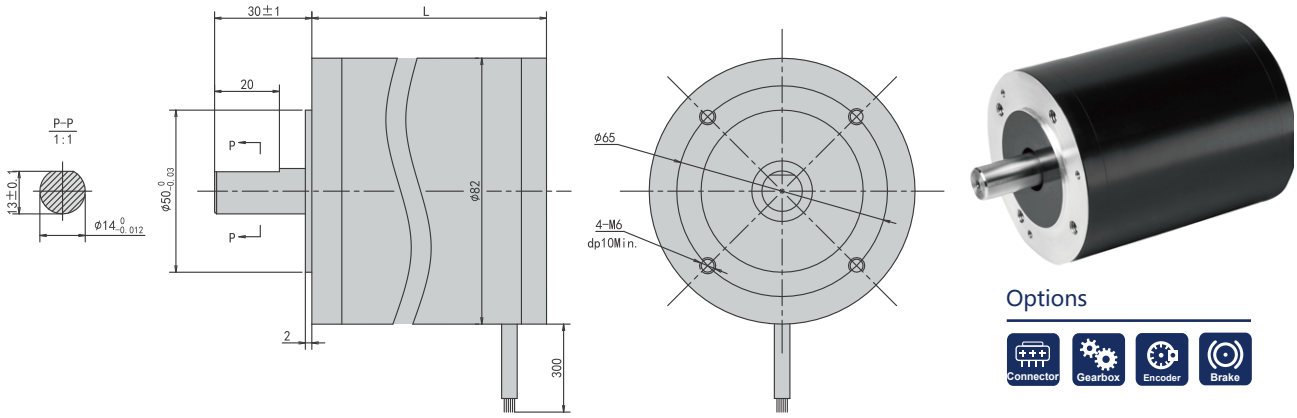
Electrical Specifications

Motor Model	Unit	PBLR62HE -487830	PBLR62HE -481530	PBLR62HE -482330
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.25	0.5	0.75
Rated Power	W	78	156	235
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.cm²	0.6	0.8	1.0
Torque Constant	N.m/A	0.11	0.11	0.11
Back-EMF Constant	V/krpm	10.5	10.5	10.5
Line-Line Resistance	Ω	1.8	1.2	0.6
Line-Line Inductance	mH	1.5	1.0	0.65
Length	mm	61	81	101
Weight	kg	0.72	1.04	1.37

PBLR82HE Series

⌀82mm

Inner Rotor BLDC Motor



Options

Connector Gearbox Encoder Brake

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
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	PBLR82HE-489030	PBLR82HE-482530
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
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.cm²	0.6	0.7
Torque Constant	N.m/A	0.12	0.11
Back-EMF Constant	V/krpm	11	10.5
Line-Line Resistance	Ω	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length	mm	80	90
Weight	kg	1.5	1.7

Planetary Gearbox Brushless Motor Series

Planetary gearbox brushless motor has the characteristics of high precision, high rigidity, high load capacity, high efficiency, low speed, long life, low inertia, low vibration, low noise, low temperature rise, lightweight structure, easy installation, and accurate positioning, and so on.

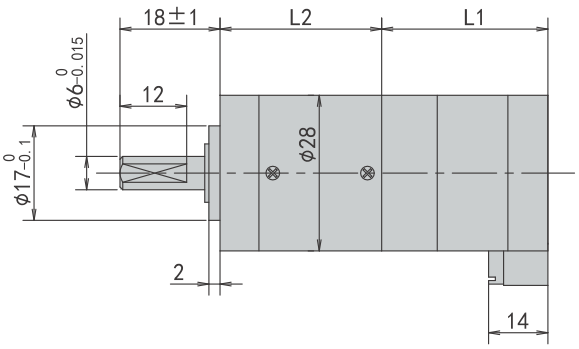
B

Square Frame Series

Frame Size Range	Rated Power Range	Rated Torque Range
28-86mm	25-700W	16-99N.m

PBLS28GE Series □28mm

Planetary Gearbox BLDC Motor



Electrical Specifications

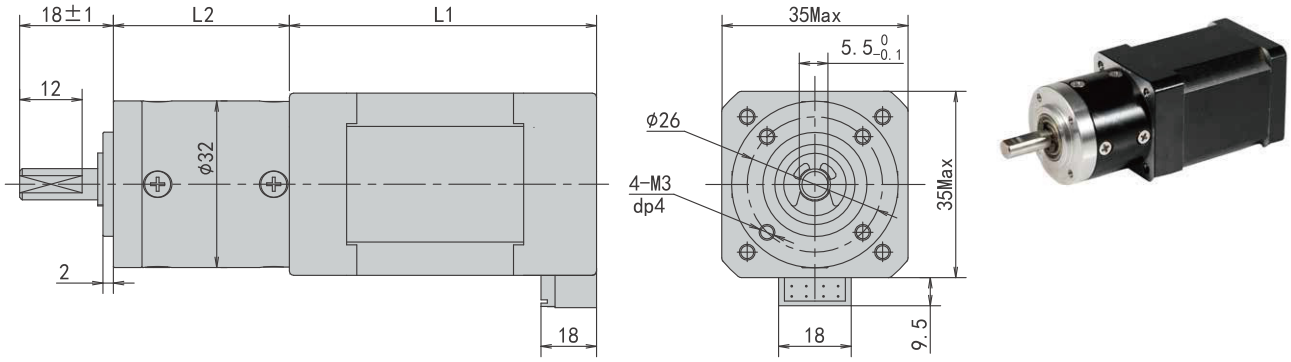
Motor Model	Unit	PBLS28GE-241240	PBLS28GE-241840	PBLS28GE-242540
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	4,000		
Rated Torque	N.m	0.03	0.045	0.06
Rated Power	W	12.5	18.8	25
Rated Current	A	0.7	0.9	1.3
Peak Current	A	2.1	2.7	3.9
Peak Torque	N.m	0.09	0.13	0.18
Rotor Inertia	kg.cm²	0.01	0.02	0.03
Torque Constant	N.m/A	0.04	0.04	0.04
Back-EMF Constant	V/krpm	4.48	5.23	4.18
Line-Line Resistance	Ω	1.9	2.5	3.4
Line-Line Inductance	mH	0.9	1.1	1.3
Length L1	mm	46	56	66
Weight	kg	0.22	0.38	0.55

Gearbox Specifications

Reduction Stage		1	2	3
Transmission Efficiency	%	90	81	75
Max Radial Load	N	35	35	35
Max Axial Load	N	20	20	20
Rated Admissible Torque	N.m	0.3	1.2	2.5
Reduction Ratio		3.7,5.2,6.75	14,19,25,27,35,45	51,71,100,139,181,236,307
Length L2	mm	25.6	34	42

PBLS35GE Series □35mm

Planetary Gearbox BLDC Motor



Electrical Specifications

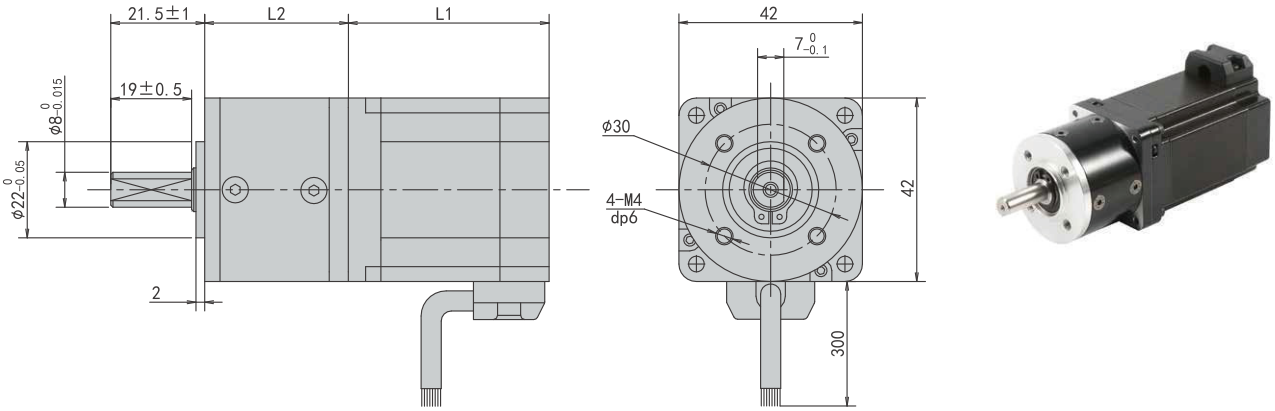
Motor Model	Unit	PBLS35GE-241640	PBLS35GE-242540	PBLS35GE-243340
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	4,000		
Rated Torque	N.m	0.04	0.06	0.08
Rated Power	W	16.7	25	33.5
Rated Current	A	0.8	1.25	1.7
Peak Current	A	2.4	3.75	5.2
Peak Torque	N.m	0.12	0.18	0.24
Rotor Inertia	kg.cm²	0.02	0.02	0.03
Torque Constant	N.m/A	0.05	0.05	0.05
Back-EMF Constant	V/krpm	4.5	4.6	4.5
Line-Line Resistance	Ω	2.5	3.1	3.4
Line-Line Inductance	mH	1.1	1.2	1.3
Length L1	mm	49	59	69
Weight	kg	0.34	0.5	0.66

Gearbox Specifications

Reduction Stage		1	2	3
Transmission Efficiency	%	90	81	73
Max Radial Load	N	35	35	35
Max Axial Load	N	20	20	20
Rated Admissible 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
Length L2	mm	25.6	34	33.4

PBLS42GE Series □42mm

Planetary Gearbox BLDC Motor



Electrical Specifications

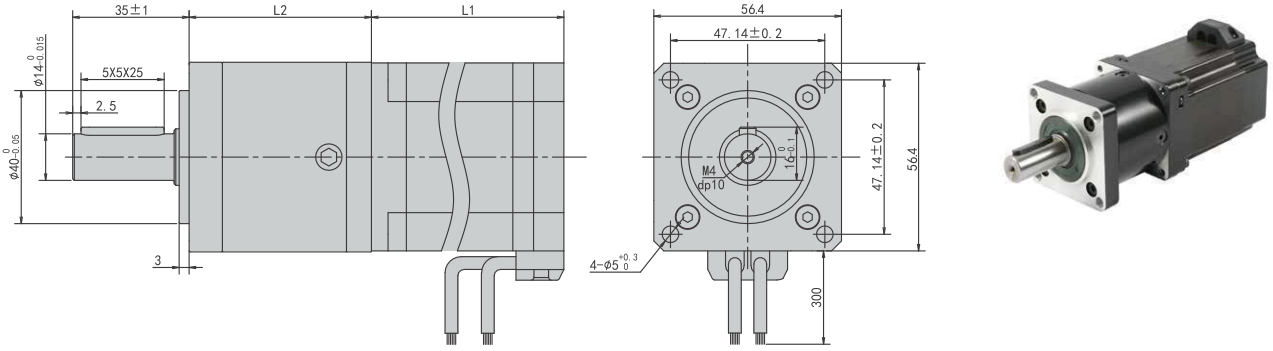
Motor Model	Unit	PBLS42GE-483030	PBLS42GE-486030	PBLS42GE-489030
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.1	0.2	0.3
Rated Power	W	31	63	94
Rated Current	A	0.87	1.74	2.61
Peak Current	A	2.6	5.2	7.8
Peak Torque	N.m	0.3	0.6	0.9
Rotor Inertia	kg.cm²	0.039	0.045	0.052
Torque Constant	N.m/A	0.115	0.115	0.115
Back-EMF Constant	V/krpm	12	12	12
Line-Line Resistance	Ω	1.9	1.4	0.8
Line-Line Inductance	mH	1.5	1.1	0.6
Length L1	mm	47	67	87
Weight	kg	0.4	0.9	1.0

Gearbox Specifications

Reduction Stage		1	2
Transmission Efficiency	%	90	81
Max Radial Load	N	200	200
Max Axial Load	N	100	100
Rated Admissible Torque	N.m	6	12
Reduction Ratio		5,10	20,25,35,40,45,50,100
Length L2	mm	33.5	43

PBLS56GE Series □56mm

Planetary Gearbox BLDC Motor



Electrical Specifications

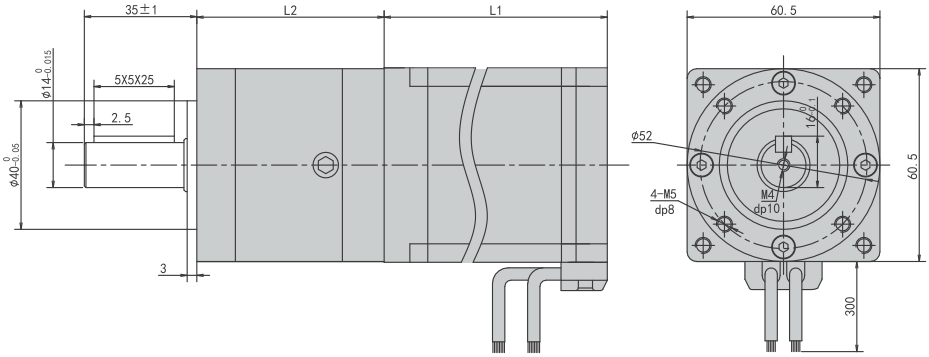
Motor Model	Unit	PBLS56GES-486030	PBLS56GES-481230	PBLS56GE-481830
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.2	0.4	0.6
Rated Power	W	63	125	188
Rated Current	A	1.6	3.3	5.0
Peak Current	A	4.8	9.9	15.0
Peak Torque	N.m	0.6	1.2	1.8
Rotor Inertia	kg.cm²	0.25	0.35	0.45
Torque Constant	N.m/A	0.125	0.121	0.12
Back-EMF Constant	V/krpm	13.08	12.71	12.56
Line-Line Resistance	Ω	1.11	0.93	0.52
Line-Line Inductance	mH	0.91	0.65	0.43
Length L1	mm	58	78	98
Weight	kg	1.0	1.4	1.8

Gearbox Specifications

Reduction Stage		1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	580	580
Max Axial Load	N	340	340
Rated Admissible Torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	55	71

PBLS60GE Series □60mm

Planetary Gearbox BLDC Motor



Electrical Specifications

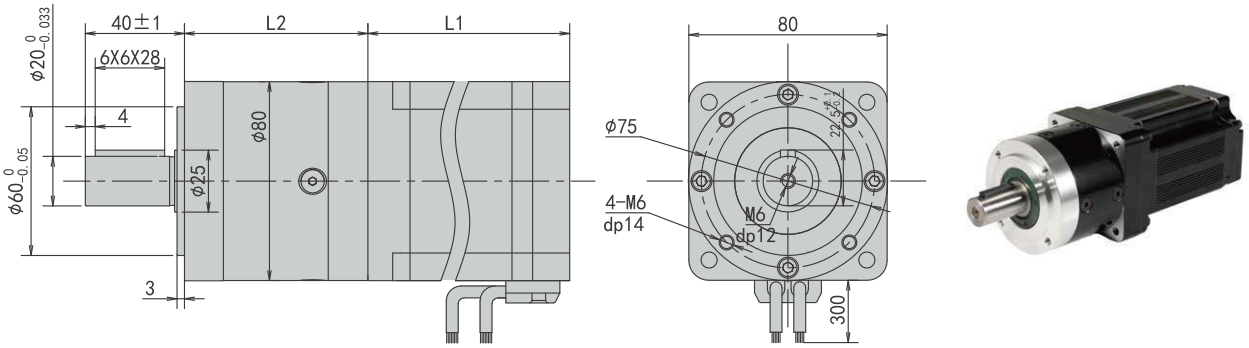
Motor Model	Unit	PBLS60GE-482030	PBLS60GE-484030
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.64	1.27
Rated Power	W	200	400
Rated Current	A	11	12
Peak Current	A	33	36
Peak Torque	N.m	1.92	3.81
Rotor Inertia	kg.cm²	0.48	0.43
Torque Constant	N.m/A	0.06	0.11
Back-EMF Constant	V/krpm	4.2	8.1
Line-Line Resistance	Ω	4.36	4.0
Line-Line Inductance	mH	12.7	12.7
Length L1	mm	66	141
Weight	kg	1.25	2.05

Gearbox Specifications

Reduction Stage		1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	580	580
Max Axial Load	N	340	340
Rated Admissible Torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	58	75

PBLS80GE Series □80mm

Planetary Gearbox BLDC Motor



Electrical Specifications

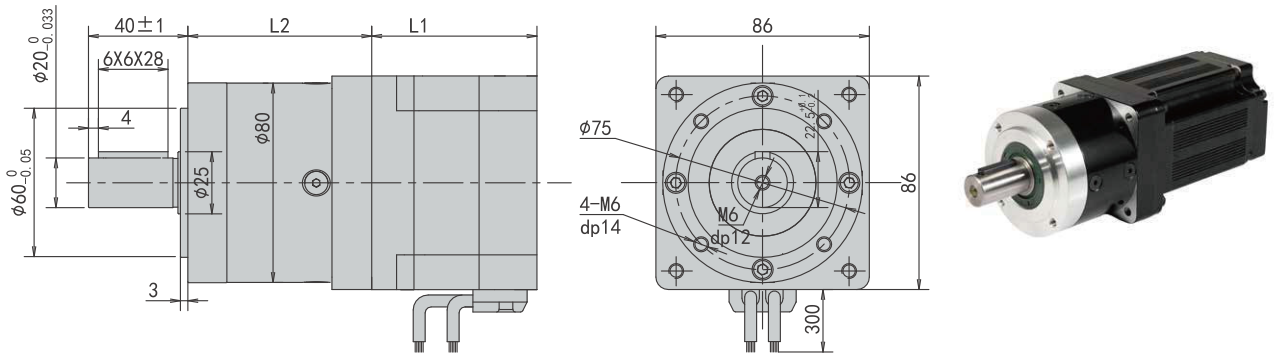
Motor Model	Unit	PBLS80GE-481830	PBLS80GE-482530
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.6	0.8
Rated Power	W	188	250
Rated Current	A	5.0	7.0
Peak Current	A	15.0	21.0
Peak Torque	N.m	1.8	2.4
Rotor Inertia	kg.cm²	0.6	0.7
Torque Constant	N.m/A	0.11	0.11
Back-EMF Constant	V/krpm	10.5	10.5
Line-Line Resistance	Ω	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length L1	mm	99	109
Weight	kg	1.5	1.7

Gearbox Specifications

Reduction Stage		1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	1,000	1,000
Max Axial Load	N	500	500
Rated Admissible Torque	N.m	50	80
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	74	93

PBLS86GE Series □86mm

Planetary Gearbox BLDC Motor



Electrical Specifications

Motor Model	Unit	PBLS86GE-482230	PBLS86GE-483130
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.7	1.0
Rated Power	W	220	310
Rated Current	A	5.8	8.6
Peak Current	A	17.4	25.8
Peak Torque	N.m	2.1	3.0
Rotor Inertia	kg.cm²	1.6	1.9
Torque Constant	N.m/A	0.12	0.11
Back-EMF Constant	V/krpm	11	10.5
Line-Line Resistance	Ω	0.6	0.5
Line-Line Inductance	mH	0.5	0.4
Length L1	mm	66.5	80.5
Weight	kg	1.8	2.2

Gearbox Specifications

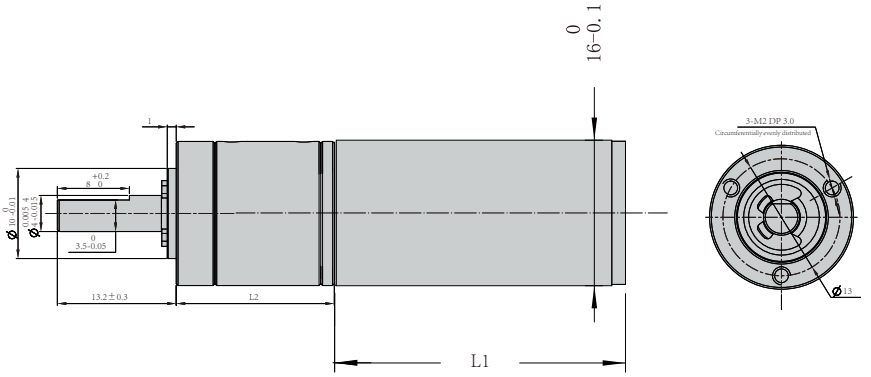
Reduction Stage		1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	1,000	1,000
Max Axial Load	N	500	500
Rated Admissible Torque	N.m	50	80
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	74	93

Round Frame Series

Frame Size Range	Rated Power Range	Rated Torque Range
16-82mm	9.2-250W	5-36N.m

PBLR16GF Series Ø16mm

Planetary Gearbox BLDC Motor



Electrical Specifications

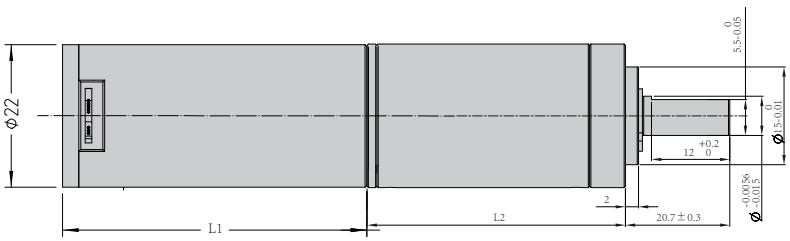
Motor Model	Unit	PBLR16GF-2409126
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	24
Rated Speed	RPM	12,600
Rated Torque	N.m	0.007
Rated Power	W	9.2
Rated Current	A	0.65
Peak Current	A	1.95
Peak Torque	N.m	0.021
Rotor Inertia	g.cm²	0.45
Torque Constant	N.m/A	0.011
Back-EMF Constant	V/krpm	1.25
Line-Line Resistance	Ω	6.5
Line-Line Inductance	mH	0.78
Length L1	mm	32
Weight	kg	0.025

Gearbox Specifications

Reduction Stage		1	2	3	4
Transmission Efficiency	%	90	80	75	90
Max. Radial Load	N	20	20	20	20
Rated Admissible Torque	N·m	0.2	0.25	0.35	0.2
Reduction Ratio	X: 1	3.947,5.307	16,21,28	62,83,111,150	243,326,439,590,794
Length L2	mm	18.7	25.5	30.2	18.7

PBLR22GF Series ⌀22mm

Planetary Gearbox BLDC Motor



Electrical Specifications

Motor Model	Unit	PBLR22GF-240110
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	24
Rated Speed	RPM	10,000
Rated Torque	N.m	0.019
Rated Power	W	19.9
Rated Current	A	1.2
Peak Current	A	3.6
Peak Torque	N.m	0.057
Rotor Inertia	g.cm²	1.1
Torque Constant	N.m/A	0.016
Back-EMF Constant	V/krpm	1.67
Line-Line Resistance	Ω	3.053
Line-Line Inductance	mH	0.54
Length L2	mm	47
Weight	kg	0.2

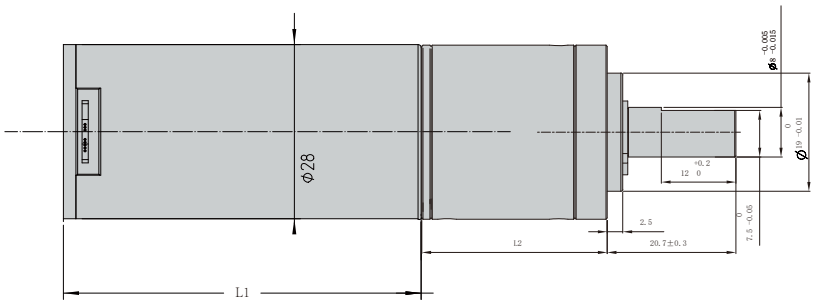
Gearbox Specifications

Reduction Stage		1	2	3	4
Transmission Efficiency	%	90	81	74	66
Max. Radial Load	N	40	40	40	40
Rated Admissible Torque	N·m	0.50	0.70	1.20	1.50
Reduction Ratio	X: 1	3.9,5.3,6.6	16,21,26 28,35,44	62,83,103,111, 138,150,172, 186,231	243,326,406,439, 546,590,679, 734,794,913,987, 1135,1227,1526
Length L2	mm	22.3	33	39.6	46.3

PBLR28GF Series

Planetary Gearbox BLDC Motor

⊙28mm



Electrical Specifications

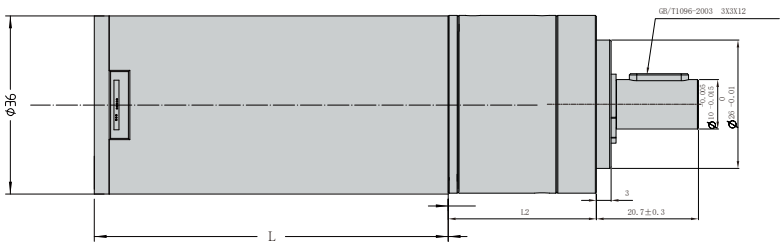
Motor Model	Unit	PBLR28GF-2405100
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	24
Rated Speed	RPM	10,000
Rated Torque	N.m	0.05
Rated Power	W	52.4
Rated Current	A	3
Peak Current	A	9
Peak Torque	N.m	0.15
Rotor Inertia	g.cm²	0.011
Torque Constant	N.m/A	0.017
Back-EMF Constant	V/krpm	1.78
Line-Line Resistance	Ω	0.676
Line-Line Inductance	mH	0.2
Length	mm	57.5
Weight	kg	300

Gearbox Specifications

Reduction Stage		1	2	3	4
Transmission Efficiency	%	90	81	74	65
Max. Radial Load	N	110	110	110	110
Rated Admissible Torque	N·m	1.25	2.90	5.0	5.0
Reduction Ratio	X: 1	3.9,5.3,6.6	16,21,26 28,35	62,83,103,111, 138,150,172,186,231	243,326,406,439, 546,590,679, 734,794,913,987, 1135,1227,1526
Length L2	mm	24.2	36.9	43.5	50.2

PBLR36GF Series ⌀36mm

Planetary Gearbox BLDC Motor



Electrical Specifications

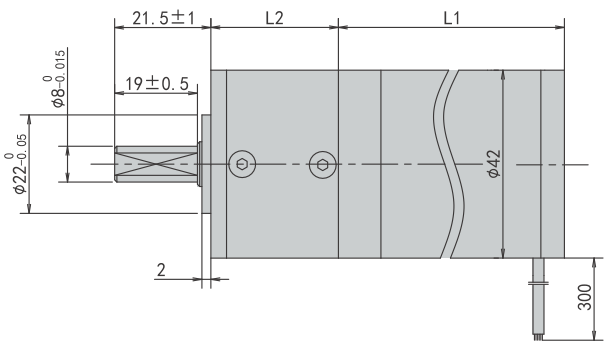
Motor Model	Unit	PBLR36GF-4813100
Number of Phase		3
Number of Poles		4
Rated Voltage	VDC	48
Rated Speed	RPM	10,000
Rated Torque	N.m	0.125
Rated Power	W	130.9
Rated Current	A	3.6
Peak Current	A	10.8
Peak Torque	N.m	0.375
Rotor Inertia	g.cm²	0.037
Torque Constant	N.m/A	0.035
Back-EMF Constant	V/krpm	3.67
Line-Line Resistance	Ω	0.67
Line-Line Inductance	mH	0.37
Length	mm	71.5
Weight	kg	0.6

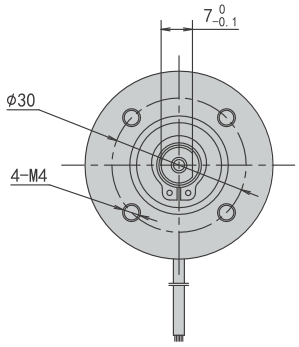
Gearbox Specifications

Reduction Stage		1	2	3	4
Transmission Efficiency	%	90	80	75	65
Max. Radial Load	N	240	240	240	240
Rated Admissible Torque	N·m	2.30	5.40	9.30	9.30
Reduction Ratio	X: 1	3.9,5.3	16,21,26 28,35	62,83,103,111,138, 150,172,186,231	243,326,406,439, 546,590,679, 734,794,913,987, 1135,1227,1526
Length L2	mm	30	44.7	51.3	58

PBLR42GE Series ⌀42mm

Planetary Gearbox BLDC Motor





Electrical Specifications

Motor Model	Unit	PBLR42GE-242830	PBLR42GE-245630	PBLR42GE-248430
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	3,000		
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.cm²	0.25	0.35	0.45
Torque Constant	N.m/A	0.05	0.05	0.05
Back-EMF Constant	V/krpm	5.23	5.23	5.23
Line-Line Resistance	Ω	6	4	3
Line-Line Inductance	mH	4	3	2
Length L1	mm	52	72	92
Weight	kg	0.28	0.48	0.68

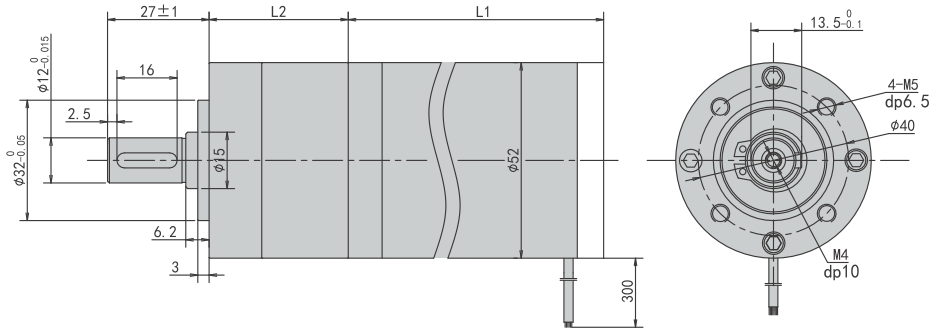
Gearbox Specifications

Reduction Stage		1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	200	200
Max Axial Load	N	100	100
Rated Admissible Torque	N.m	6	12
Reduction Ratio		5,10	20,25,40,45,50,100
Length L2	mm	28.5	38

PBLR52GE Series

⌀52mm

Planetary Gearbox BLDC Motor



Electrical Specifications

Motor Model	Unit	PBLR52GE-243030	PBLR52GE-246030	PBLR52GE-249030
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	24		
Rated Speed	RPM	3,000		
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.cm²	0.55	0.75	0.95
Torque Constant	N.m/A	0.055	0.055	0.055
Back-EMF Constant	V/krpm	5.82	5.81	5.81
Line-Line Resistance	Ω	3	1.5	0.6
Line-Line Inductance	mH	2.5	1.3	0.65
Length L1	mm	58.5	78.5	98.5
Weight	kg	0.38	0.88	1.37

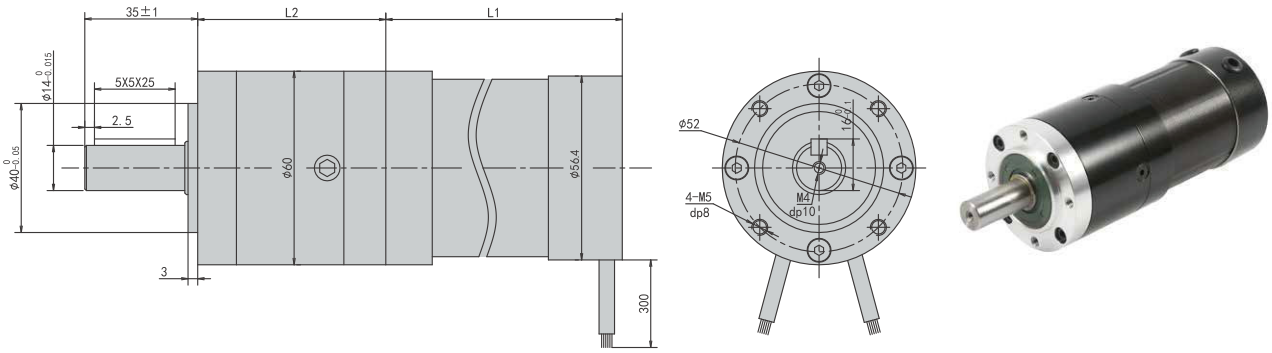
Gearbox Specifications

Reduction Stage	Unit	1	2
Transmission Efficiency	%	90	81
Max Radial Load	N	200	200
Max Axial Load	N	100	100
Rated Admissible Torque	N.m	6	12
Reduction Ratio		5,10	20,25,35,40,45,50,100
Length L2	mm	35.5	45

PBLR56GE Series

Planetary Gearbox BLDC Motor

Ø56mm



Electrical Specifications

Motor Model	Unit	PBLR56GE-489040	PBLR56GE-481840	PBLR56GE-482740
Number of Phase		3		
Number of Poles		4		
Rated Voltage	VDC	48		
Rated Speed	RPM	4,000		
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.cm²	1.19	1.73	1.73
Torque Constant	N.m/A	0.08	0.08	0.08
Back-EMF Constant	V/krpm	9.2	9.2	9.2
Line-Line Resistance	Ω	0.75	0.55	0.41
Line-Line Inductance	mH	2.2	2.1	1.1
Length L1	mm	55	75	95
Weight	kg	0.72	0.95	1.2

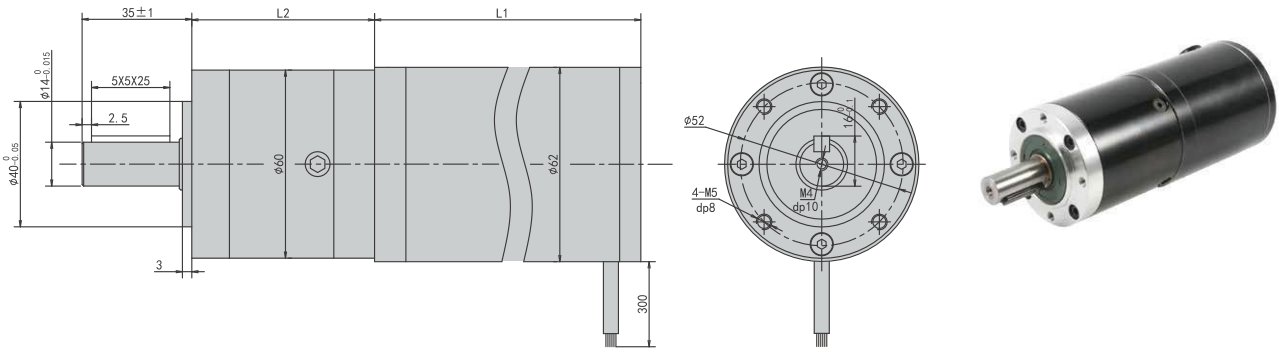
Gearbox Specifications

Reduction Stage	Unit	1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	580	580
Max Axial Load	N	340	340
Rated Admissible Torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	48	64

PBLR62GE Series

Planetary Gearbox BLDC Motor

⌀62mm



Electrical Specifications

Motor Model	Unit	PBLR62GE-487830	PBLR62GE-481530	PBLR62GE-482330
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	48		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.25	0.5	0.75
Rated Power	W	78	156	235
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.cm²	0.6	0.8	1.0
Torque Constant	N.m/A	0.11	0.11	0.11
Back-EMF Constant	V/krpm	10.5	10.5	10.5
Line-Line Resistance	Ω	1.8	1.2	0.6
Line-Line Inductance	mH	1.5	1.0	0.65
Length L1	mm	61	81	101
Weight	kg	0.72	1.04	1.37

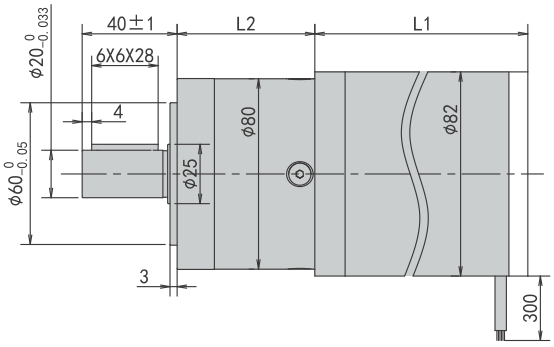
Gearbox Electrical Specifications

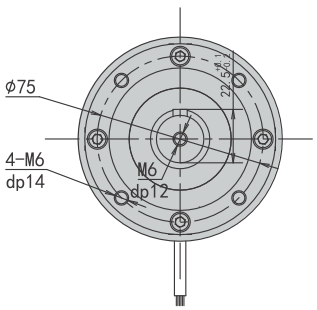
Reduction Stage	Unit	1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	460	460
Max Axial Load	N	230	230
Rated Admissible Torque	N.m	25	40
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	48	64

PBLR82GE Series

Planetary Gearbox BLDC Motor

⊙82mm





Electrical Specifications

Motor Model	Unit	PBLR82GE-481830	PBLR82GE-482530
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
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.cm²	0.6	0.7
Torque Constant	N.m/A	0.12	0.11
Back-EMF Constant	V/krpm	11	10.5
Line-Line Resistance	Ω	0.9	0.7
Line-Line Inductance	mH	0.7	0.5
Length L1	mm	80	90
Weight	kg	1.5	1.7

Gearbox Electrical Specifications

Reduction Stage	Unit	1	2
Transmission Efficiency	%	95	90
Max Radial Load	N	1,000	1,000
Max Axial Load	N	500	500
Rated Admissible Torque	N.m	50	80
Reduction Ratio		5,10	15,20,25,30,40,50
Length L2	mm	58	77

Outrunner BLDC Motor Series

Outer rotor brushless DC motor features a rotor on the outside with a much higher moment of inertia (as the main mass is concentrated in the rotor shell), so its speed is slower than an inner rotor motor. This allows it to directly drive the load, thus eliminating the need for transmission mechanisms. It is especially suitable for low speed, high torque applications, offering small volume and high output power.

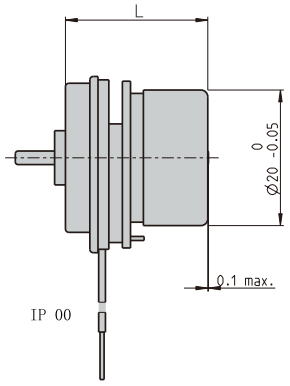
Universal Series

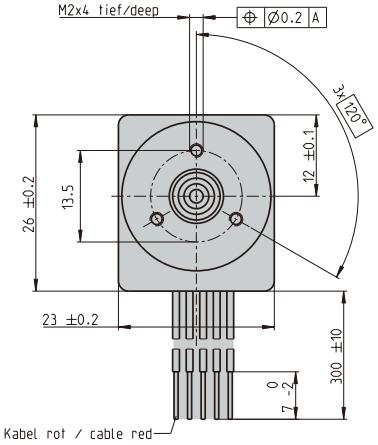
Frame Size Range	Rated Power Range	Rated Torque Range
20-90mm	5-300W	0.007-1.5N.m

PBLR20EN Series

⌀20mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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, 5mm from the flange
Max axial force	1.8
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

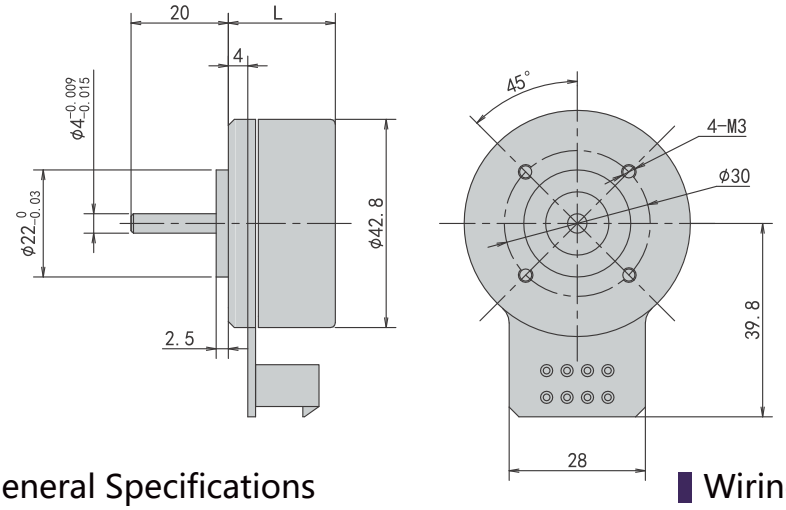
Electrical Specifications

Motor Model	Unit	PBLR20EN-240560
Number of Phase		3
Number of Poles		8
Rated Voltage	VDC	24
Rated Speed	RPM	6,000
Rated Torque	N.m	0.007
Rated Power	W	5
Rated Current	A	0.3
Peak Current	A	0.74
Peak Torque	mN.m	12.49
Rotor Inertia	kg.cm²	0.0051
Torque Constant	mN.m/A	18.1
EMF Constant	V/krpm	1.897
Line-Line Resistance	Ω	7.55
Line-Line Inductance	mH	2.88
Length	mm	21
Weight	kg	0.037

PBLR42EH Series

⌀42mm

Outrunner BLDC Motor



Options

Connector Gearbox Encoder

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

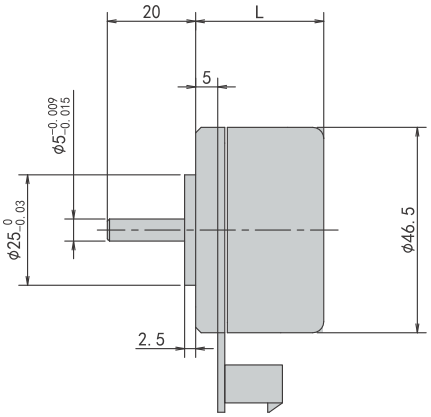
Electrical Specifications

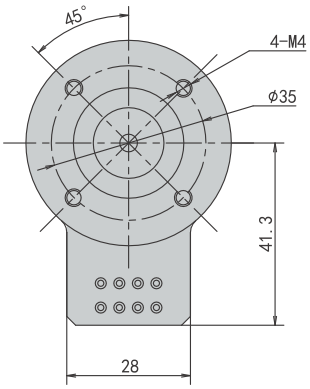
Motor Model	Unit	PBLR42EH-243550	PBLR42EH-245050	PBLR42EH-247050
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	RPM	5,000		
Rated Torque	N.m	0.06	0.1	0.13
Rated Power	W	35	50	70
Rated Current	A	2.2	3.2	4.4
Peak Current	A	6.6	9.6	13.2
Peak Torque	N.m	0.18	0.3	0.39
Rotor Inertia	kg.cm²	0.13	0.23	0.33
Torque Constant	N.m/A	0.03	0.03	0.03
EMF Constant	V/krpm	2.8	2.8	2.8
Line-Line Resistance	Ω	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

PBLR46EH Series

⌀46mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ,500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

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

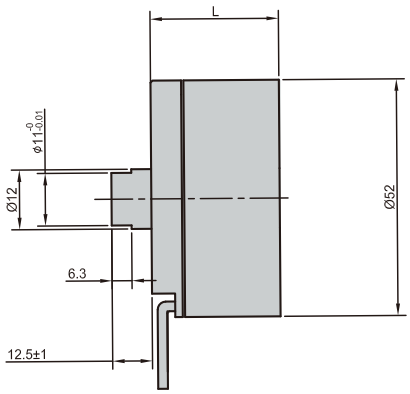
Electrical Specifications

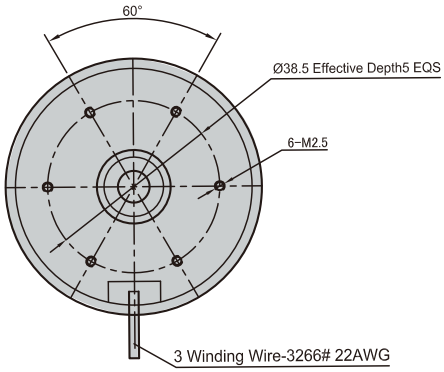
Motor Model	Unit	PBLR46EH-244050	PBLR46EH-246050	PBLR46EH-248050
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	RPM	5,000		
Rated Torque	N.m	0.08	0.12	0.16
Rated Power	W	40	60	80
Rated Current	A	2.5	3.8	5.1
Peak Current	A	7.5	11.4	15.2
Peak Torque	N.m	0.24	0.36	0.48
Rotor Inertia	kg.cm²	0.2	0.35	0.5
Torque Constant	N.m/A	0.03	0.03	0.03
EMF Constant	V/krpm	2.8	2.8	2.8
Line-Line Resistance	Ω	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

PBLR52EH Series

⊙52mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

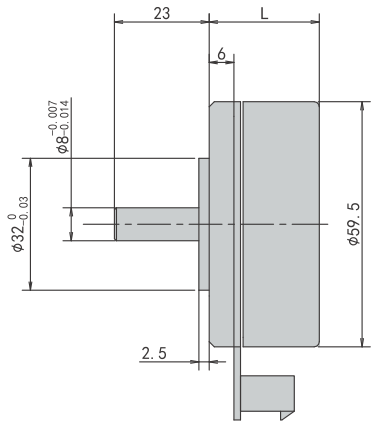
Electrical Specifications

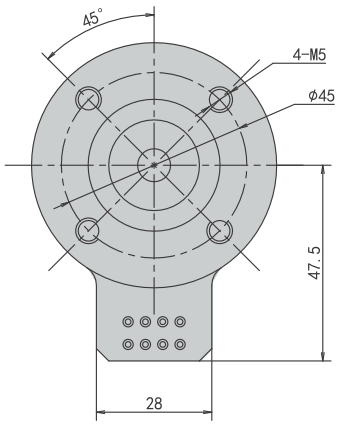
Motor Model	Unit	PBLR52EH-486920	PBLR52EH-481320	PBLR52EH-482020
Number of Phase		3		
Number of Poles		28		
Rated Voltage	VDC	48		
Rated Speed	RPM	2,000		
Rated Torque	N.m	0.33	0.66	0.99
Rated Power	W	69	138	207
Rated Current	A	2.0	4.0	6.0
Peak Current	A	4.0	8.0	12
Peak Torque	N.m	0.66	1.32	1.98
Rotor Inertia	kg.cm²	0.13	0.23	0.33
Torque Constant	N.m/A	0.16	0.16	0.16
EMF Constant	V/krpm	15	15	15
Line-Line Resistance	Ω	2.0	1.5	1.0
Line-Line Inductance	mH	1.5	1.0	0.5
Length	mm	25	35	45
Weight	kg	0.2	0.3	0.4

PBLR60EH Series

⊙60mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

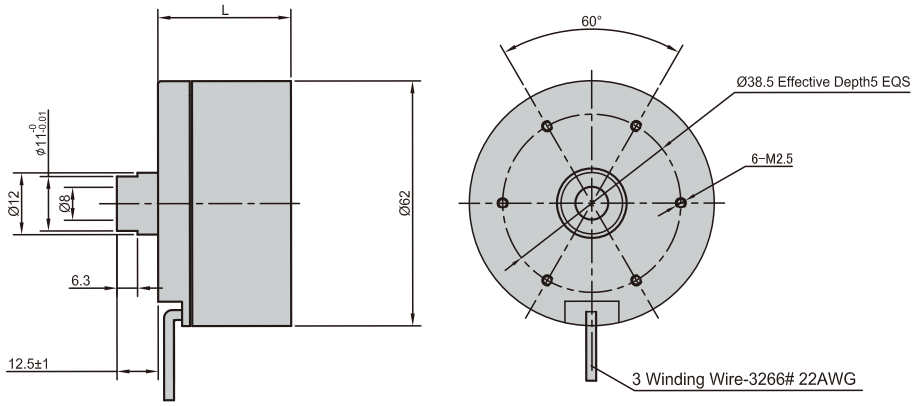
Electrical Specifications

Motor Model	Unit	PBLR60EH-244530	PBLR60EH-246030	PBLR60EH-249030
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	RPM	3,000		
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.cm²	0.7	1.0	1.3
Torque Constant	N.m/A	0.05	0.05	0.05
EMF Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Ω	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

PBLR62EN Series

Ø62mm

Outrunner BLDC Motor



Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

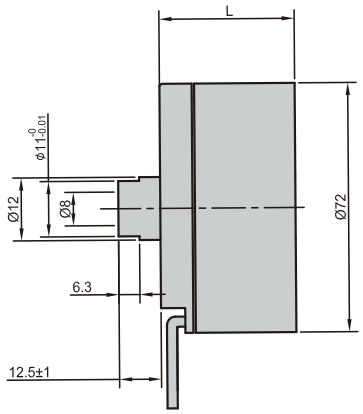
Electrical Specifications

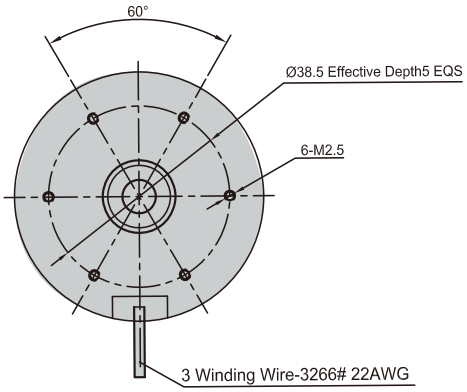
Motor Model	Unit	PBLR62EN-481020	PBLR62EN-482020	PBLR62EN-481510
Number of Phase		3		
Number of Poles		28		
Rated Voltage	VDC	48		
Rated Speed	RPM	2,000		1,000
Rated Torque	N.m	0.5	1.0	1.5
Rated Power	W	104	208	157
Rated Current	A	3.0	6.0	4.6
Peak Current	A	6.0	12	9.2
Peak Torque	N.m	1.0	2.0	3.0
Rotor Inertia	kg.cm²	0.23	0.43	0.53
Torque Constant	N.m/A	0.16	0.16	0.32
EMF Constant	V/krpm	14	14	28
Line-Line Resistance	Ω	2.0	1.5	1.0
Line-Line Inductance	mH	1.5	1.0	0.5
Length	mm	25	35	45
Weight	kg	0.3	0.4	0.5

PBLR72EN Series

Outrunner BLDC Motor

Ø72mm





Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

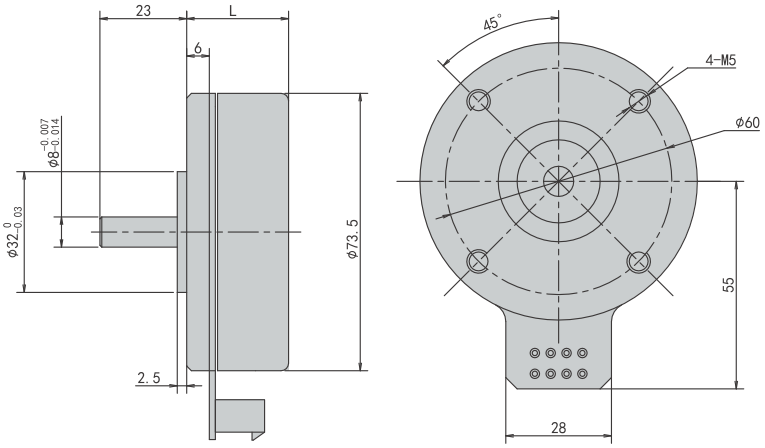
Electrical Specifications

Motor Model	Unit	PBLR72EN-481010	PBLR72EN-482010
Number of Phase		3	
Number of Poles		28	
Rated Voltage	VDC	48	
Rated Speed	RPM	1,000	
Rated Torque	N.m	1.0	2.0
Rated Power	W	104	209
Rated Current	A	3.0	6.0
Peak Current	A	6.0	12
Peak Torque	N.m	2.0	4.0
Rotor Inertia	kg.cm²	0.25	0.55
Torque Constant	N.m/A	0.33	0.33
EMF Constant	V/krpm	28	28
Line-Line Resistance	Ω	2.0	1.0
Line-Line Inductance	mH	1.5	0.5
Length	mm	30	40
Weight	kg	0.4	0.6

PBLR75EH Series

Outrunner BLDC Motor

⌀75mm



Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

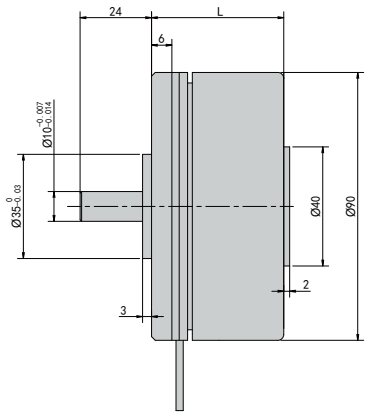
Electrical Specifications

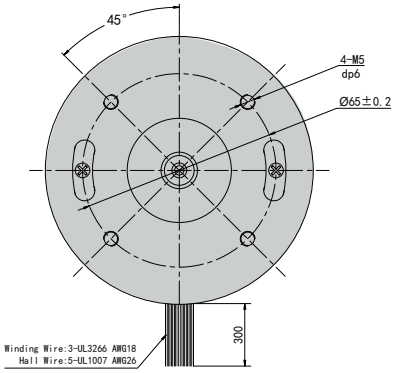
Motor Model	Unit	PBLR75EH-249030	PBLR75EH-241430	PBLR75EH-241830
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	RPM	3,000		
Rated Torque	N.m	0.3	0.45	0.6
Rated Power	W	90	140	180
Rated Current	A	5.8	8.9	11.6
Peak Current	A	17.4	26.7	34.8
Peak Torque	N.m	0.9	1.35	1.8
Rotor Inertia	kg.cm²	1.5	1.9	2.3
Torque Constant	N.m/A	0.05	0.05	0.05
EMF Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Ω	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

PBLR90EH Series

○90mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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	15N
Dielectric Strerngth	600VAC/1S
Insulation Resistance	100MΩ，500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
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

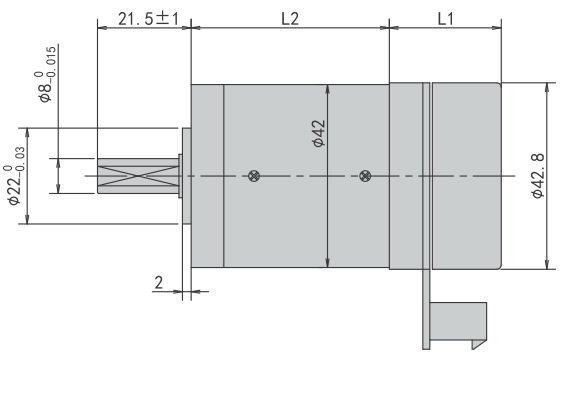
Motor Model	Unit	PBLR90EH-481520	PBLR90EH-48220	PBLR90EH-483020
Number of Phase		3		
Number of Poles		28		
Rated Voltage	VDC	48		
Rated Speed	RPM	2,000		
Rated Torque	N.m	0.75	1.125	1.5
Rated Power	W	150	225	300
Rated Current	A	4.2	6.3	8.4
Peak Current	A	12.6	18.9	25.2
Peak Torque	N.m	2.25	3.375	4.5
Rotor Inertia	kg.cm²	3.2	4.2	5.2
Torque Constant	N.m/A	0.17	0.17	0.17
EMF Constant	V/krpm	16.5	16.5	16.5
Line-Line Resistance	Ω	0.4	0.25	0.15
Line-Line Inductance	mH	0.3	0.25	0.2
Length	mm	31	36	41
Weight	kg	0.7	0.9	1.1

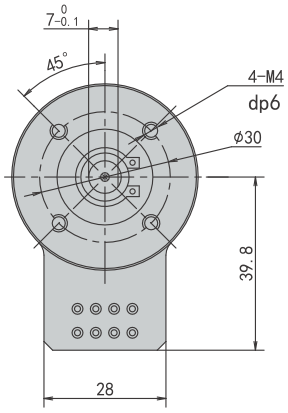
Geared Series

Frame Size Range	Rated Power Range	Rated Torque Range
42-60mm	35-90W	5.4-19N.m

PBLR42GH Series ⊙42mm

Outrunner Gearbox BLDC Motor





Electrical Specifications

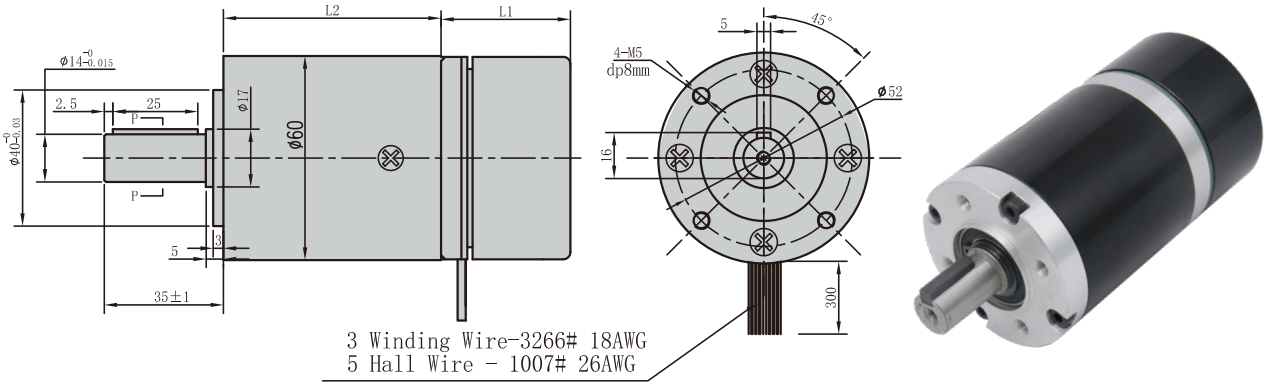
Motor Model	Unit	PBLR42GH-243550	PBLR42GH-245050	PBLR42GH-247050
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	Rpm	5,000		
Rated Torque	N.m	0.06	0.1	0.13
Rated Power	W	35	50	70
Rated Current	A	2.2	3.2	4.4
Peak Current	A	6.6	9.6	13.2
Peak Torque	N.m	0.18	0.3	0.39
Rotor Inertia	kg.cm²	0.13	0.23	0.33
Torque Constant	N.m/A	0.03	0.03	0.03
EMF Constant	V/krpm	2.8	2.8	2.8
Line-Line Resistance	Ω	2.0	1.5	1.0
Line-Line Inductance	mH	1.5	1.0	0.5
Length L1	mm	21.3	26.3	31.3
Weight	kg	0.12	0.18	0.24

Gearbox Electrical Specifications

Reduction stage		1	2
Transmission efficiency	%	95	90
Max radial load	N	200	200
Max axial load	N	100	100
Rated admissible torque	N.m	6	12
Reduction Ratio		5,10	20,25,35,40,45,50,100
Length L2	mm	36	45.5

PBLR60GE Series ⌀60mm

Outrunner Gearbox BLDC Motor



Electrical Specifications

Motor Model	Unit	PBLR60GE-244530	PBLR60GE-246030	PBLR60GE-249030
Number of Phase		3		
Number of Poles		16		
Rated Voltage	VDC	24		
Rated Speed	Rpm	3,000		
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.cm²	0.7	1.0	1.3
Torque Constant	N.m/A	0.05	0.05	0.05
EMF Constant	V/krpm	4.5	4.5	4.5
Line-Line Resistance	Ω	0.7	0.45	0.2
Line-Line Inductance	mH	0.25	0.15	0.1
Length L1	mm	29.3	34.3	39.3
Weight	kg	0.3	0.4	0.5

Gearbox Electrical Specifications

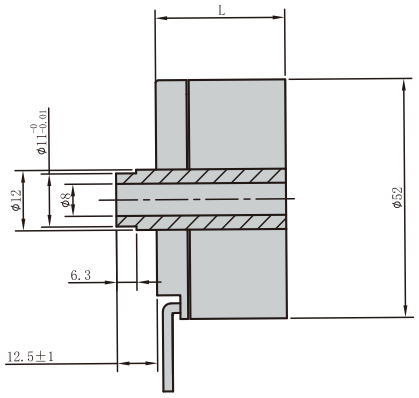
Reduction stage		1	2
Transmission efficiency	%	96	94
Max radial load	N	580	580
Max axial load	N	340	340
Rated admissible torque	N.m	28,20,10	30,30,32,30,30,25,25,20
Reduction Ratio		5,7,10	16,20,25,28,35,40,50,70
Length L2	mm	38.3	52

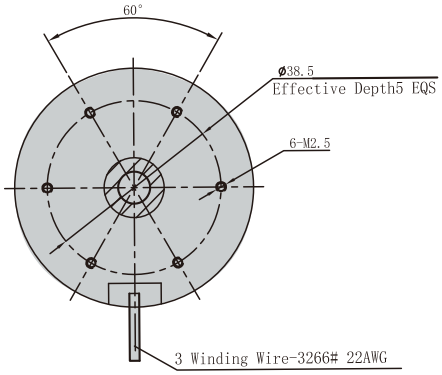
Hollow Shaft Series

Frame Size Range	Rated Power Range	Rated Torque Range
52-72mm	69-207W	0.33-2N.m

PBLR52EK Series ⌀52mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

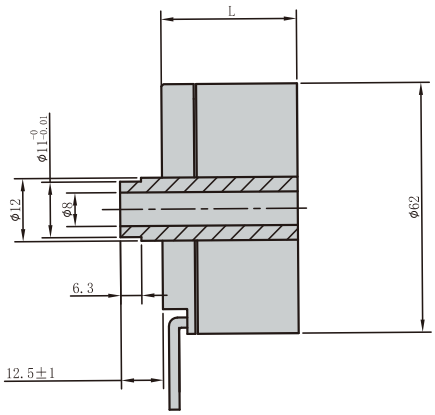
Electrical Specifications

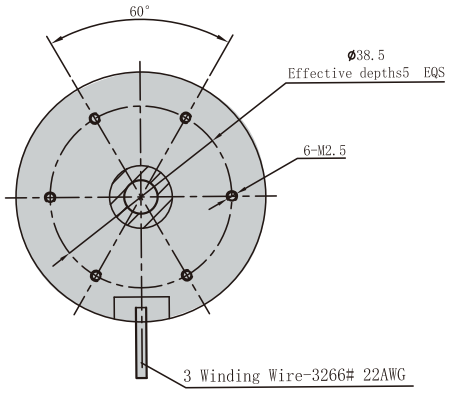
Motor Model	Unit	PBLR52EK-486920	PBLR52EK-481320	PBLR52EK-482020
Number of Phase		3		
Number of Poles		28		
Rated Voltage	VDC	48		
Rated Speed	RPM	2,000		
Rated Torque	N.m	0.33	0.66	0.99
Rated Power	W	69	138	207
Rated Current	A	2.0	4.0	6.0
Peak Current	A	4.0	8.0	12
Peak Torque	N.m	0.66	1.32	1.98
Rotor Inertia	kg.cm²	0.13	0.23	0.33
Torque Constant	N.m/A	0.16	0.16	0.16
EMF Constant	V/krpm	15	15	15
Line-Line Resistance	Ω	2.0	1.5	1.0
Line-Line Inductance	mH	1.5	1.0	0.5
Length	mm	25	35	45
Weight	kg	0.2	0.3	0.4

PBLR62EK Series

⊙62mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

Wiring Connection

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

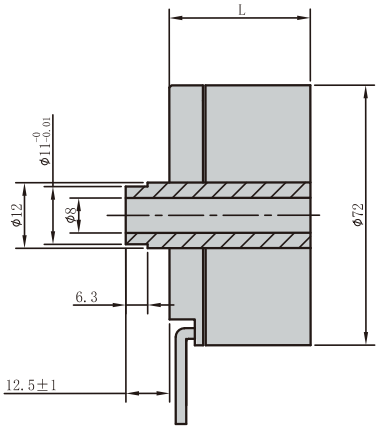
Electrical Specifications

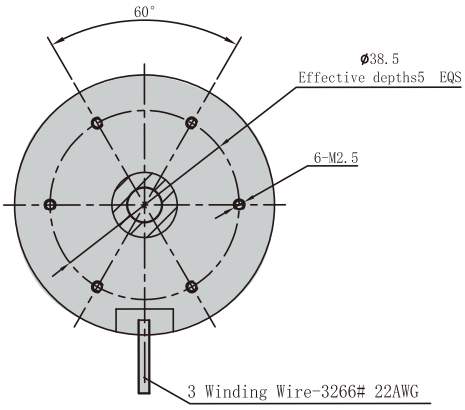
Motor Model	Unit	PBLR62EK-481020	PBLR62EK-482020	PBLR62EK-481510
Number of Phase		3		
Number of Poles		28		
Rated Voltage	VDC	48		
Rated Speed	RPM	2,000		1,000
Rated Torque	N.m	0.5	1.0	1.5
Rated Power	W	104	208	157
Rated Current	A	3.0	6.0	4.6
Peak Current	A	6.0	12	9.2
Peak Torque	N.m	1.0	2.0	3.0
Rotor Inertia	kg.cm²	0.23	0.43	0.53
Torque Constant	N.m/A	0.16	0.16	0.32
EMF Constant	V/krpm	14	14	28
Line-Line Resistance	Ω	2.0	1.5	1.0
Line-Line Inductance	mH	1.5	1.0	0.5
Length	mm	25	35	45
Weight	kg	0.3	0.4	0.5

PBLR72EK Series

⌀72mm

Outrunner BLDC Motor





Options

Connector Gearbox Encoder

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℃~+50℃
Insulation Class	Class B

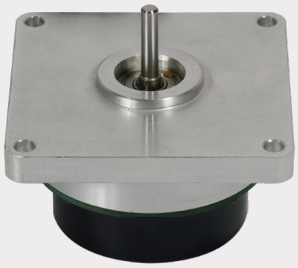
Wiring Connection

Type	Color	Function
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	PBLR72EK-481010	PBLR72EK-481510
Number of Phase		3	
Number of Poles		28	
Rated Voltage	VDC	48	
Rated Speed	RPM	1,000	
Rated Torque	N.m	1.0	2.0
Rated Power	W	104	209
Rated Current	A	3.0	6.0
Peak Current	A	6.0	12
Peak Torque	N.m	2.0	4.0
Rotor Inertia	kg.cm²	0.25	0.55
Torque Constant	N.m/A	0.33	0.33
EMF Constant	V/krpm	28	28
Line-Line Resistance	Ω	2.0	1.0
Line-Line Inductance	mH	1.5	0.5
Length	mm	30	40
Weight	kg	0.4	0.6

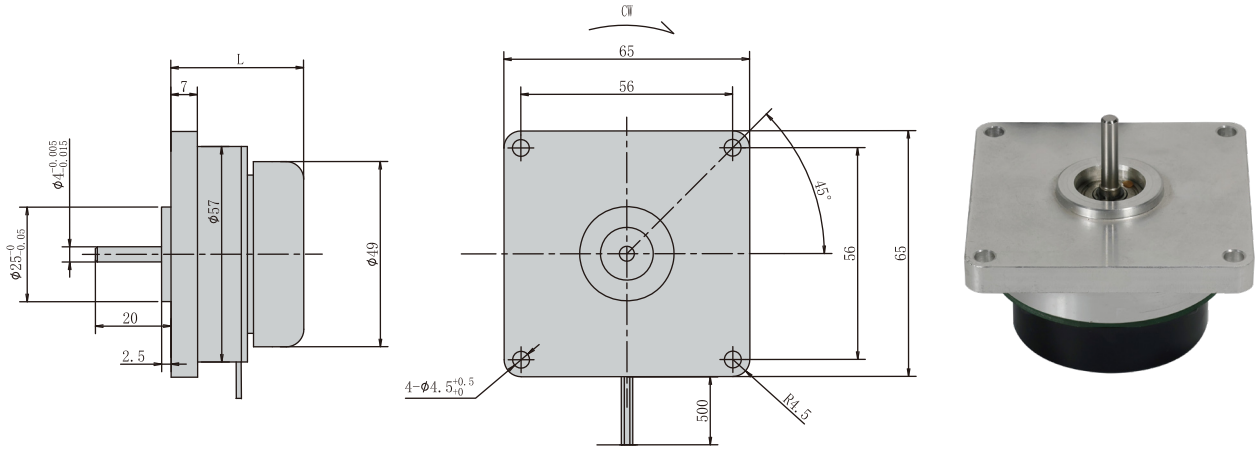
Integrated Series



Frame Size Range	Rated Power Range	Rated Torque Range
49-75mm	7.5-68W	0.18-0.55N.m

PBLR49TH Series ⌀49mm

Outrunner BLDC Motor



Terminal Definition

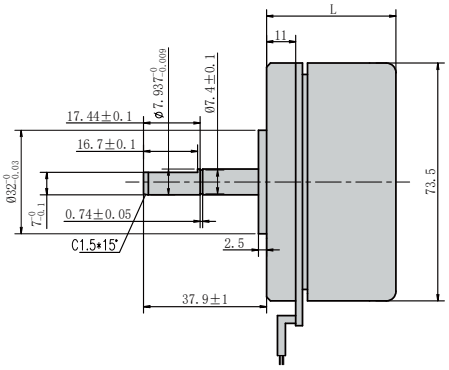
PIN NO.	Definition	Wire Color	Function
1	+24VDC	RED(AWG3266 22#)	DC Power Input
2	GND	BLK(AWG3266 22#)	
3	VSP	ORG(AWG1007 26#)	Analog Speed Control Input, 0-5VDC
4	RS	BRN(AWG1007 26#)	Operation Status Output, 24V:RUN, OV:STOP
5	COM	BLU(AWG1007 26#)	Output Common End
6	+5VDC	WHT(AWG1007 26#)	WHT(AWG1007 26#)

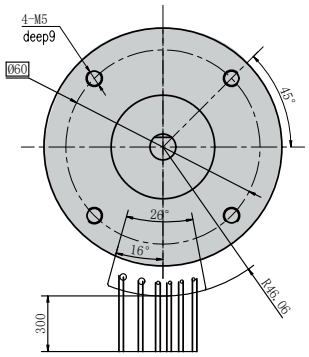
Electrical Specifications

Motor Model	Unit	PBLR49TH-240740
Number of Phase		3
Number of Poles		24
Rated Voltage	VDC	24
Rated Speed	RPM	4000
Rated Torque	N.m	0.018
Rated Power	W	7.5
Rated Current	A	0.55
Peak Current	A	1.65
Peak Torque	N.m	0.054
Rotor Inertia	kg.cm²	0.32
Torque Constant	N.m/A	0.032
EMF Constant	V/krpm	3
Line-Line Resistance	Ω	7
Line-Line Inductance	mH	2.8
Length	mm	35.1
Weight	kg	0.5

PBLR75RH Series ⌀75mm

Outrunner BLDC Motor





Terminal Definition

PIN NO.	Definition	Wire Color	Function
1	+24VDC	RED(AWG3266 22#)	Power Positive
2	GND	BLK(AWG3266 22#)	Power Negative
3	REV	YEL(AWG1007 26#)	Forward/Reverse Control Interface
4	PWM	BLU(AWG1007 26#)	Speed Control Interface
5	BRK	BRN(AWG1007 26#)	Electronic Brake Enable Interface
6	Reserved	-	Customizable by Customer

Electrical Specifications

Motor Model	Unit	PBLR75EH-486811-IC
Number of Phase		3
Number of Poles		24
Rated Voltage	VDC	48
Rated Speed	RPM	1190
Rated Torque	N.m	0.55
Rated Power	W	68
Rated Current	A	4.4
Peak Current	A	8.8
Peak Torque	N.m	1.1
Rotor Inertia	kg.cm²	1.9
Torque Constant	N.m/A	0.12
EMF Constant	V/krpm	10.5
Line-Line Resistance	Ω	0.43
Line-Line Inductance	mH	0.85
Length	mm	42
Weight	kg	0.7

Frameless Brushless DC Motor Series

The multi-pole torque servo motor features low speed, high torque, strong overload capacity, fast response, good linearity, low torque fluctuation, and the ability to directly drive the load without reduction gears, thereby improving system accuracy.

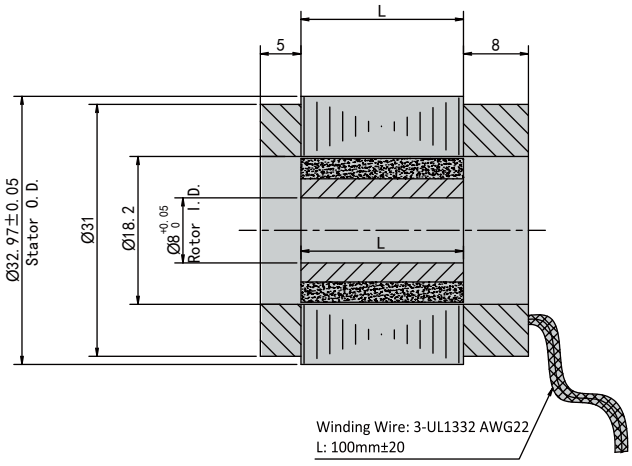
D

Frameless Brushless DC Motor

Frame Size Range	Rated Power Range	Rated Torque Range
33-160mm	20-2,400W	0.16-9.2N.m

PBLR33FE Series ⌀33mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL1332 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

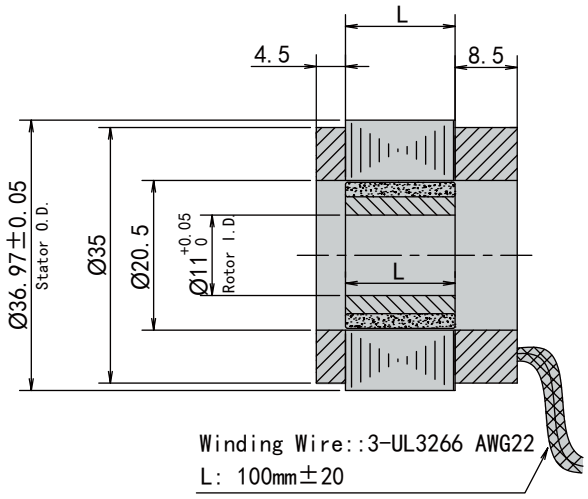
Electrical Specifications

Motor Model	Unit	PBLR33FE-485030
Number of Phase		3
Number of Poles		8
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	0.16
Rated Power	W	50
Rated Current	A	1.6
Peak Current	A	4.8
Peak Torque	N.m	0.48
Rotor Inertia	kg.cm²	0.02
Torque Constant	N.m/A	0.086
EMF Constant	V/krpm	5.19
Line-Line Resistance	Ω	2.6
Line-Line Inductance	mH	3.6
Length	mm	20
Weight	kg	0.2

PBLR37FT Series

⌀37mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL3266 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

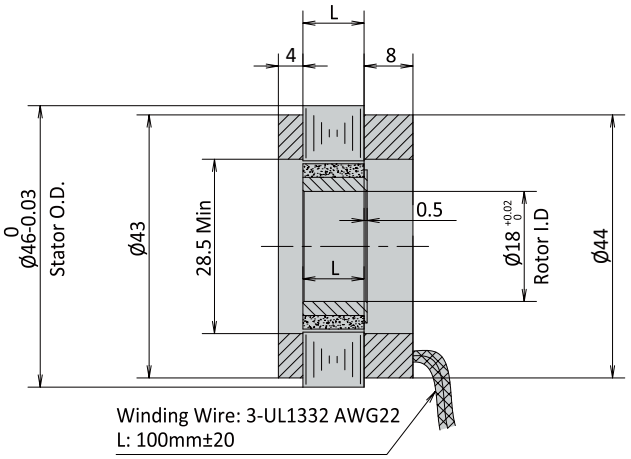
Electrical Specifications

Motor Model	Unit	PBLR37FT-485030
Number of Phase		3
Number of Poles		10
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	0.16
Rated Power	W	50
Rated Current	A	1.8
Peak Current	A	5.4
Peak Torque	N.m	0.48
Rotor Inertia	kg.cm²	0.02
Torque Constant	N.m/A	0.093
EMF Constant	V/krpm	5.6
Line-Line Resistance	Ω	3.5
Line-Line Inductance	mH	3
Length	mm	15
Weight	kg	0.25

PBLR46FT Series

○46mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL1332 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

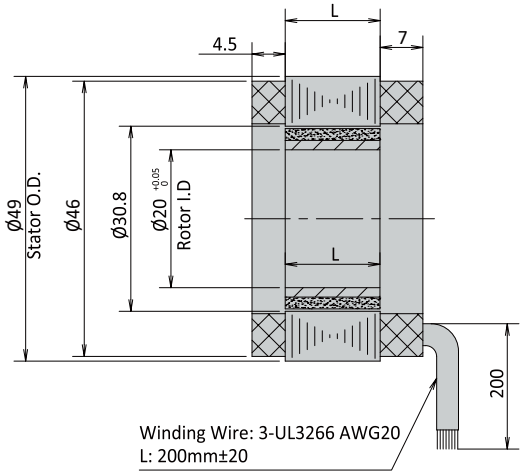
Electrical Specifications

Motor Model	Unit	PBLR46FT-480530
Number of Phase		3
Number of Poles		10
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	0.15
Rated Power	W	50
Rated Current	A	1.6
Peak Current	A	4.8
Peak Torque	N.m	0.45
Rotor Inertia	kg.cm²	0.03
Torque Constant	N.m/A	0.09
EMF Constant	V/krpm	7.5
Line-Line Resistance	Ω	5.6
Line-Line Inductance	mH	6.7
Length	mm	10
Weight	kg	0.3

PBLR49FT Series

○49mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

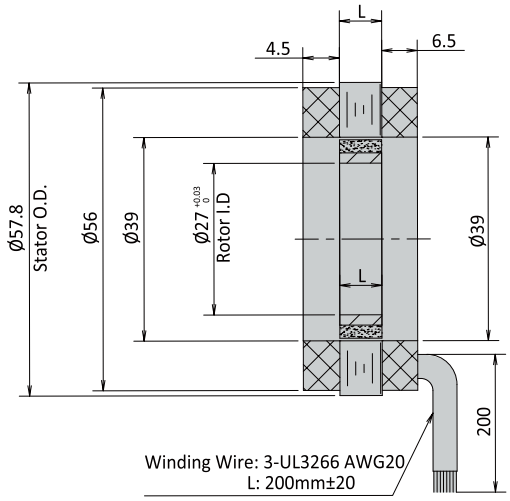
Type	Color	Function
UL3266 AWG22	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR49FT-481030
Number of Phase		3
Number of Poles		10
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	0.32
Rated Power	W	100
Rated Current	A	2.9
Peak Current	A	5.8
Peak Torque	N.m	0.64
Rotor Inertia	kg.cm²	0.05
Torque Constant	N.m/A	0.1
EMF Constant	V/krpm	8.5
Line-Line Resistance	Ω	2.5
Line-Line Inductance	mH	3.7
Length	mm	10
Weight	kg	0.4

PBLR58FH Series ⌀58mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL3266 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

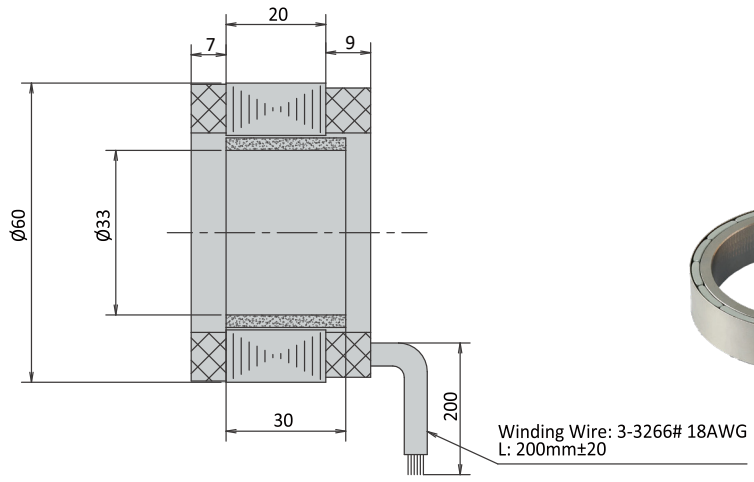
Electrical Specifications

Motor Model	Unit	PBLR58FH-481030	PBLR58FT-482030
Number of Phase		3	
Number of Poles		16	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.32	0.64
Rated Power	W	100	200
Rated Current	A	2.9	5.6
Peak Current	A	5.8	11.2
Peak Torque	N.m	0.64	1.28
Rotor Inertia	kg.cm²	0.1	0.15
Torque Constant	N.m/A	0.1	0.1
EMF Constant	V/krpm	8.5	8.5
Line-Line Resistance	Ω	2.2	0.9
Line-Line Inductance	mH	2.2	1.0
Length	mm	7	15
Weight	kg	0.4	0.5

PBLR60FH Series

⊙60mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL3266 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

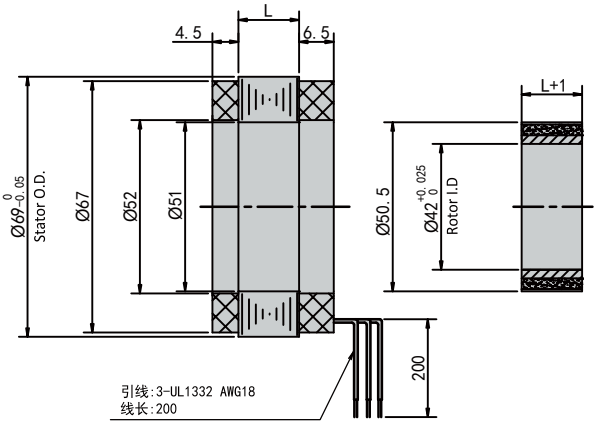
Electrical Specifications

Motor Model	Unit	PBLR60FH-481530
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	0.3
Rated Power	W	94
Rated Current	A	2.4
Peak Current	A	7.2
Peak Torque	N.m	0.9
Rotor Inertia	kg.cm²	0.17
Torque Constant	N.m/A	0.125
EMF Constant	V/krpm	8.2
Line-Line Resistance	Ω	1.77
Line-Line Inductance	mH	2.2
Length	mm	9
Weight	kg	0.3

PBLR69FT Series

⊙69mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL1332 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

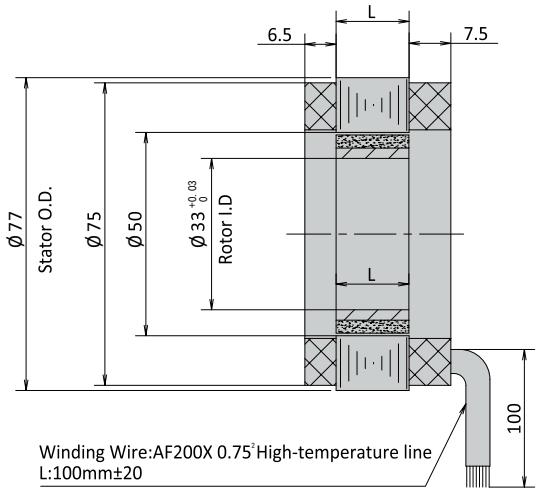
Electrical Specifications

Motor Model	Unit	PBLR69FT-672417
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	67
Rated Speed	RPM	1,700
Rated Torque	N.m	1.38
Rated Power	W	245
Rated Current	A	3.2
Peak Current	A	8
Peak Torque	N.m	3.45
Rotor Inertia	kg.cm²	0.2
Torque Constant	N.m/A	0.43
EMF Constant	V/krpm	24
Line-Line Resistance	Ω	2.5
Line-Line Inductance	mH	3.1
Length	mm	18
Weight	kg	0.3

PBLR77FH Series

⊙77mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL1332 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

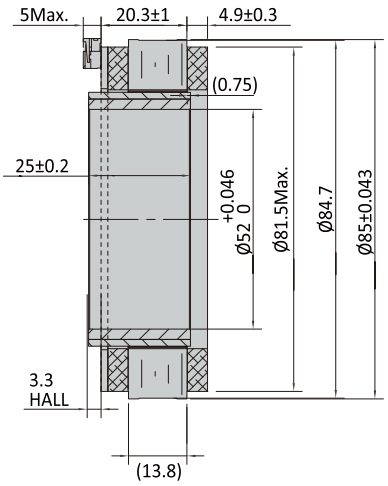
Electrical Specifications

Motor Model	Unit	PBLR77FH-483030
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
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.cm²	0.38
Torque Constant	N.m/A	0.1
EMF Constant	V/krpm	9.5
Line-Line Resistance	Ω	0.4
Line-Line Inductance	mH	0.9
Length	mm	13
Weight	kg	0.9

PBLR85FT Series

⊙85mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

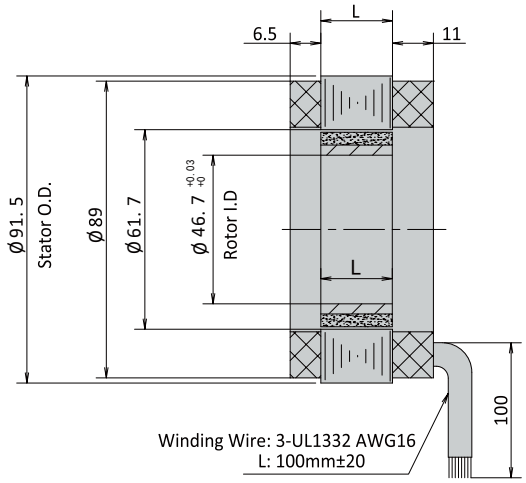
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR85FT-484036
Number of Phase		3
Number of Poles		10
Rated Voltage	VDC	48
Rated Speed	RPM	3,650
Rated Torque	N.m	1.3
Rated Power	W	408
Rated Current	A	8.6
Peak Current	A	25.7
Peak Torque	N.m	3.9
Rotor Inertia	kg.cm²	1.1
Torque Constant	N.m/A	0.16
EMF Constant	V/krpm	9.7
Line-Line Resistance	Ω	0.165
Line-Line Inductance	mH	0.33
Length	mm	25
Weight	kg	0.6

PBLR91FH Series ⌀91mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL1332 AWG16	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

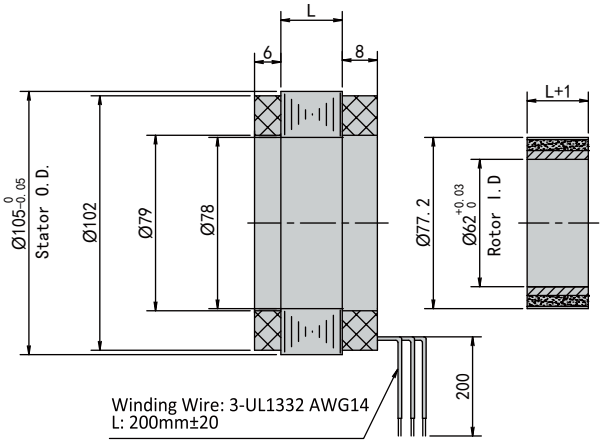
Electrical Specifications

Motor Model	Unit	PBLR91FH-481230	PBLR91FH-486330
Number of Phase		3	
Number of Poles		16	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	4.0	2.0
Rated Power	W	1,200	630
Rated Current	A	34	17
Peak Current	A	68	34
Peak Torque	N.m	8	4
Rotor Inertia	kg.cm²	0.8	0.5
Torque Constant	N.m/A	0.1	0.1
EMF Constant	V/krpm	8.5	8.5
Line-Line Resistance	Ω	0.04	0.14
Line-Line Inductance	mH	0.2	0.45
Length	mm	30	15
Weight	kg	1.1	0.8

PBLR105FH Series

⊙105mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

Type	Color	Function
UL1332 AWG14	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

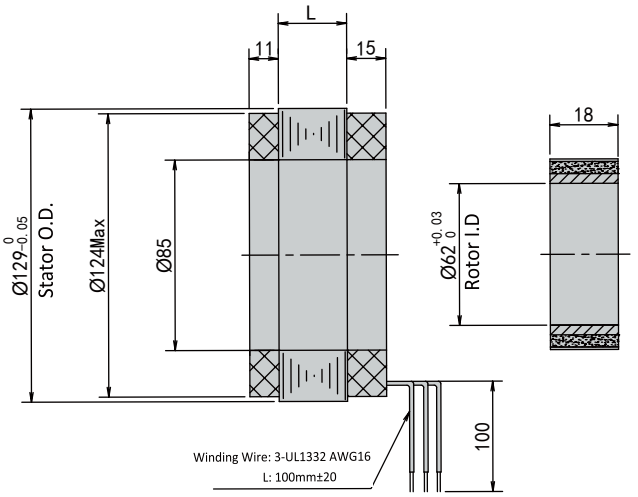
Electrical Specifications

Motor Model	Unit	PBLR105FH-678625	PBLR105FH-671118
Number of Phase		3	
Number of Poles		16	
Rated Voltage	VDC	67	
Rated Speed	RPM	2,500	1,850
Rated Torque	N.m	3.3	6.0
Rated Power	W	863	1,162
Rated Current	A	18	24
Peak Current	A	54	72
Peak Torque	N.m	9.9	18
Rotor Inertia	kg.cm²	0.6	0.8
Torque Constant	N.m/A	0.18	0.25
EMF Constant	V/krpm	14	14
Line-Line Resistance	Ω	0.25	0.35
Line-Line Inductance	mH	0.19	0.15
Length	mm	16	22
Weight	kg	0.6	0.8

PBLR129FH Series

⊙129mm

Frameless Brushless DC Motor



General Specifications

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

Wiring Connection

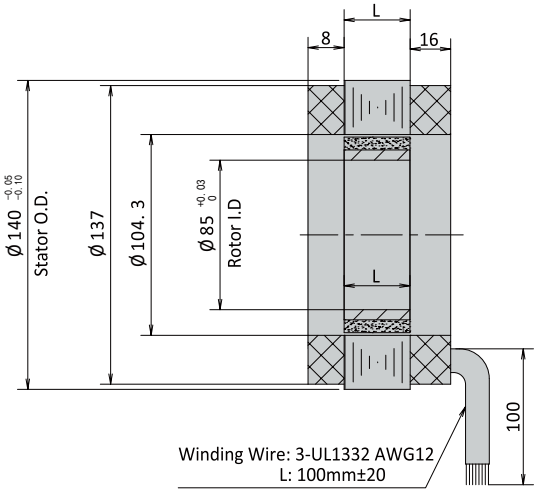
Type	Color	Function
UL1332 AWG16	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

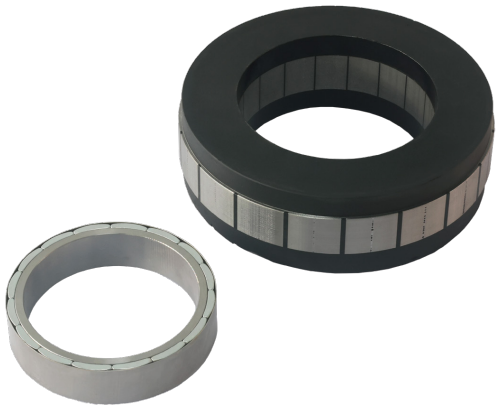
Electrical Specifications

Motor Model	Unit	PBLR129FHS- 486920
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	RPM	2,000
Rated Torque	N.m	3.3
Rated Power	W	690
Rated Current	A	20
Peak Current	A	55.5
Peak Torque	N.m	9.15
Rotor Inertia	kg.cm²	1.2
Torque Constant	N.m/A	0.16
EMF Constant	V/krpm	10.5
Line-Line Resistance	Ω	0.09
Line-Line Inductance	mH	0.4
Length	mm	16
Weight	kg	1.0

PBLR140FH Series ⌀140mm

Frameless Brushless DC Motor





General Specifications

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

Wiring Connection

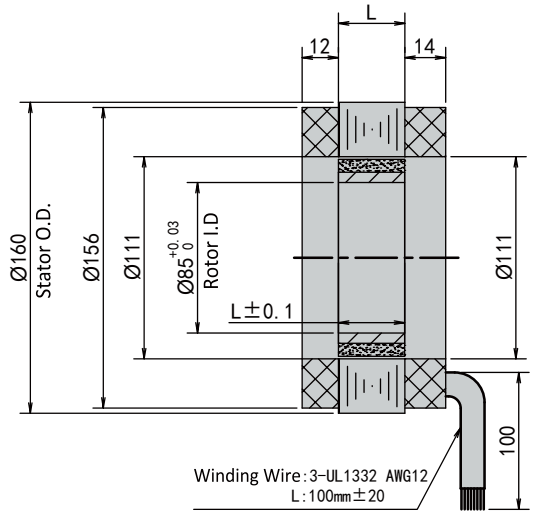
Type	Color	Function
UL1332 AWG12	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

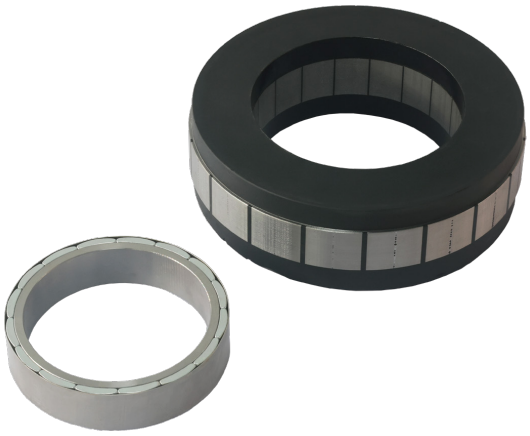
Electrical Specifications

Motor Model	Unit	PBLR140FH-482430
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	48
Rated Speed	RPM	3,000
Rated Torque	N.m	7.6
Rated Power	W	2,400
Rated Current	A	66
Peak Current	A	132
Peak Torque	N.m	15.2
Rotor Inertia	kg.cm²	19
Torque Constant	N.m/A	0.1
EMF Constant	V/krpm	8.5
Line-Line Resistance	Ω	0.007
Line-Line Inductance	mH	0.025
Length	mm	50
Weight	kg	2.9

PBLR160FH Series ⊙160mm

Frameless Brushless DC Motor





General Specifications

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

Wiring Connection

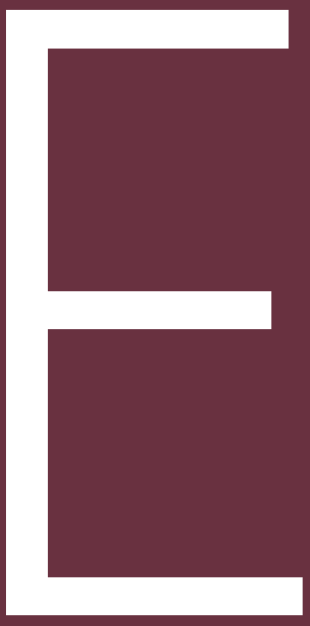
Type	Color	Function
UL1332 AWG12	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLR160FH-962425
Number of Phase		3
Number of Poles		16
Rated Voltage	VDC	96
Rated Speed	RPM	2,500
Rated Torque	N.m	9.2
Rated Power	W	2,400
Rated Current	A	42.3
Peak Current	A	128
Peak Torque	N.m	28.2
Rotor Inertia	kg.cm²	0.6
Torque Constant	N.m/A	0.22
EMF Constant	V/krpm	13.8
Line-Line Resistance	Ω	0.019
Line-Line Inductance	mH	0.17
Length	mm	34
Weight	kg	1.6

IP65 Brushless Motor Series

This IP65-rated industrial brushless motor series is designed for harsh environments, featuring 60mm/80mm base flanges for flexible installation. Its IP65 protection ensures reliability against dust and water jets in humid/dusty conditions. Industrial brushless technology delivers smooth, quiet operation with extended service life, significantly reducing maintenance needs.

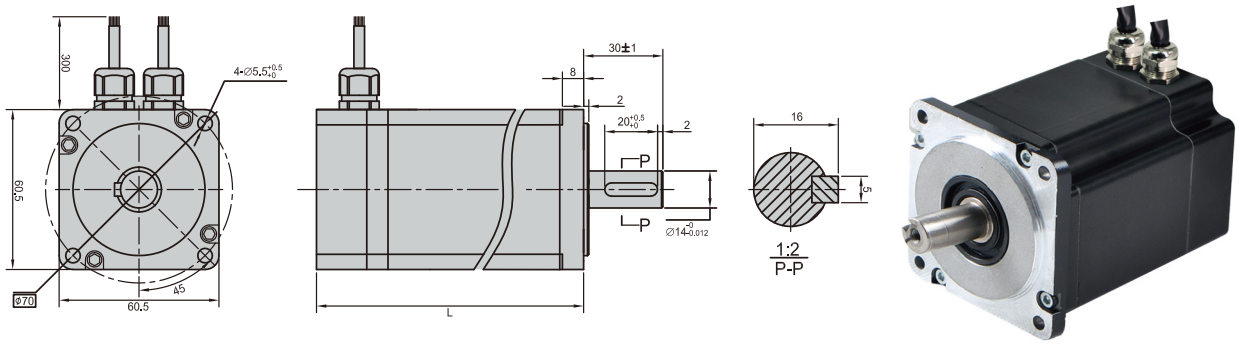


IP65 Brushless Motor

Frame Size Range	Rated Power Range	Rated Torque Range
60-110mm	200-1600W	0.64-8N.m

PBLS60PE Series □60mm

IP65 Brushless 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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

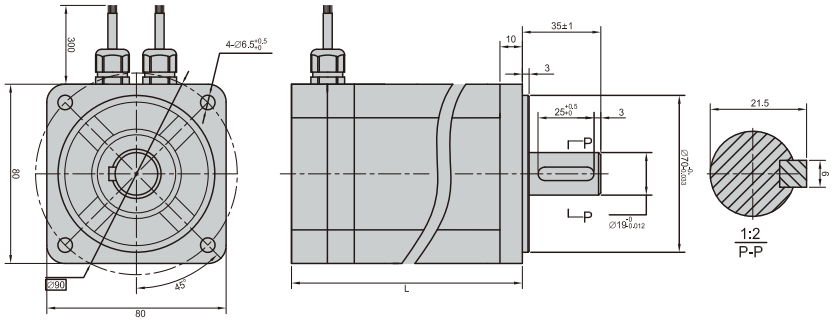
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG20	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

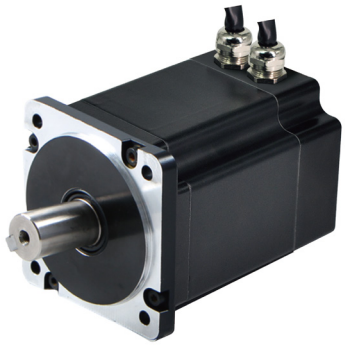
Electrical Specifications

Motor Model	Unit	PBLS60PE-487830	PBLS60PE-482330
Number of Phase		3	
Number of Poles		10	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	0.64	1.27
Rated Power	W	200	400
Rated Current	A	11	12
Peak Current	A	33	36
Peak Torque	N.m	1.92	3.81
Rotor Inertia	kg.cm²	0.48	0.43
Torque Constant	N.m/A	0.06	0.11
EMF Constant	V/krpm	4.2	8.1
Line-Line Resistance	Ω	4.36	4.0
Line-Line Inductance	mH	12.7	12.7
Length	mm	99	141
Weight	kg	1.25	2.05
Protection Class	IP	IP65	

PBLS80PE Series □80mm

IP65 Brushless 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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

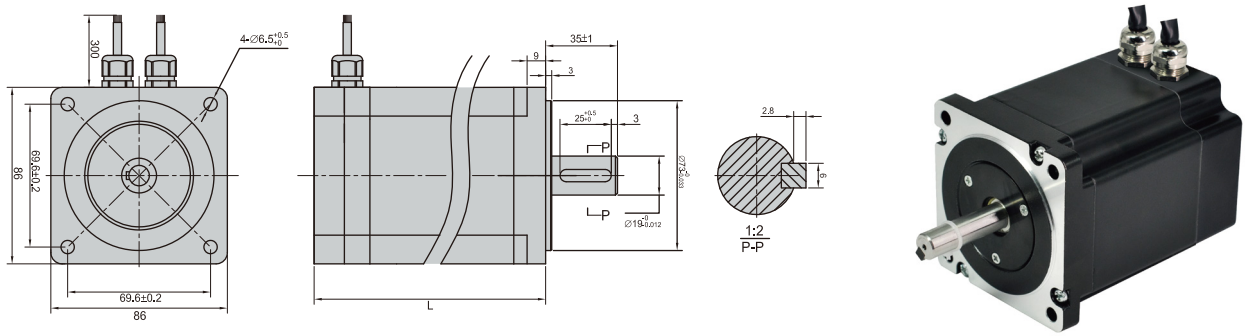
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS80PE-483730	PBLS80PE-484730	PBLS80PE-3108830
Number of Phase		3		
Number of Poles		10		
Rated Voltage	VDC	48		310
Rated Speed	RPM	3,000	3,000	3,000
Rated Torque	N.m	1.2	1.5	2.8
Rated Power	W	375	470	880
Rated Current	A	9.8	12	3.5
Peak Current	A	30	36	10.5
Peak Torque	N.m	3.6	4.5	8.4
Rotor Inertia	kg.cm²	0.037	0.057	0.031
Torque Constant	N.m/A	0.125	0.125	0.8
EMF Constant	V/krpm	0.96	0.96	6.2
Line-Line Resistance	Ω	3.9	3.26	14
Line-Line Inductance	mH	1.14	0.98	0.66
Length	mm	105	125	145
Weight	kg	1.8	2.8	3.6
Protection Class	IP	IP65		

PBLS86PE Series □86mm

IP65 Brushless 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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ, 500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

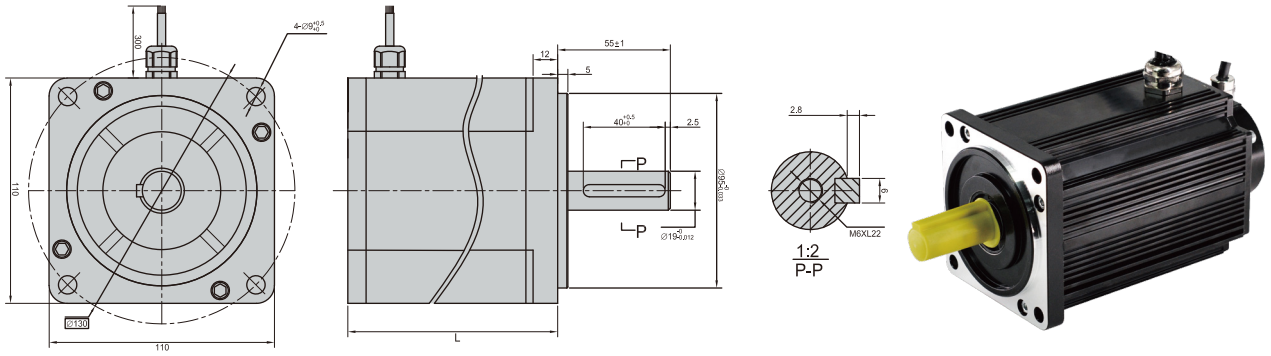
Type	Color	Function
UL1007 AWG26	Red	Vcc
	Yellow	Hu
	Green	Hv
	Blue	Hw
	Black	GND
UL1007 AWG18	Yellow	Phase U
	Green	Phase V
	Blue	Phase W

Electrical Specifications

Motor Model	Unit	PBLS86PE-485030	PBLS86PE-487030
Number of Phase		3	
Number of Poles		8	
Rated Voltage	VDC	48	
Rated Speed	RPM	3,000	
Rated Torque	N.m	1.6	2.22
Rated Power	W	500	700
Rated Current	A	12	17
Peak Current	A	36	51
Peak Torque	N.m	4.8	6.66
Rotor Inertia	kg.cm²	1600	2400
Torque Constant	N.m/A	0.135	0.131
EMF Constant	V/krpm	10	9.7
Line-Line Resistance	Ω	0.14	0.1
Line-Line Inductance	mH	0.36	0.24
Length	mm	105	125
Weight	kg	2.7	4
Protection Class	IP	IP65	

PBLS110PE Series □110mm

IP65 Brushless 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 Strerngth	600VAC/1S
Insulation Resistance	100MΩ500VDC
Ambient Temperature	-20℃~+50℃
Insulation Class	Class B

Wiring Connection

Type	Color	Function
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	PBLS110PE-318320	PBLS110PE-3112520	PBLS110PE-3116720
Number of Phase		3		
Number of Poles		8		
Rated Voltage	VDC	310		
Rated Speed	RPM	2,000		
Rated Torque	N.m	4	6	8
Rated Power	W	836	1,255	1,673
Rated Current	A	3.5	5.0	7
Peak Current	A	10.5	15	21
Peak Torque	N.m	12	18	24
Rotor Inertia	kg.cm²	7.3	7.3	7.4
Torque Constant	N.m/A	1.15	1.15	1.15
EMF Constant	V/krpm	76	56	48
Line-Line Resistance	Ω	2.49	1.48	1.32
Line-Line Inductance	mH	12.26	6.9	5.4
Length	mm	155	180	198
Weight	kg	4.5	5.5	6.5
Protection Class	IP	IP65		

BLDC Motor Drive Series

The PBLD series BLDC drive utilizes advanced digital current and speed control technology to deliver robust torque output, stable rotational speed, and low-noise operation. Our products combine superior performance, high quality, and exceptional cost-effectiveness to ensure the successful implementation of your motion control projects. To meet diverse application needs, we offer brushless drives in various configurations — including high/low voltage options and varying power/speed ratings — tailored to specific customer requirements.

BLDC Motor Drive

- Standard Low-Voltage Series
- Standard High-Voltage Series
- Compact Size High Performance Series
- High Performance Series

Part Number Naming Rule

PBLD – □ □□ □□ □

① ② ③ ④ ⑤

① PrimoPal BLDC Motor Drive

② Type

L:Standard Low-Voltage Series

H:Standard High-Voltage Series

C:Compact Size High Performance Series

S:High Performance Series

③ Maximum Voltage

36V:36 60V:60 110V:110 220V:220

④ Continuous Output Current

5A:50 10A:100

⑤ D:DC Input

A:AC Input

Drive selection

Model List

Series	Model No.	Input Voltage	Continuous Current	Maximum Power	Adapt Motor	Dimension	Weight
Standard Low-Voltage Series	PBLD-L2450D	12-24VDC	5A	80W	42,57mm	86*55*20mm	0.1Kg
	PBLD-L3650D	24-36VDC	5A	100W	42,57,60mm	163*83*30mm	0.35Kg
	PBLD-L36150D	24-36VDC	15A	400W	57,60,80mm	150*97*48mm	0.5Kg
	PBLD-L48100D	24-48VDC	10A	200W	42,57,60,80mm	118*76*33mm	0.3Kg
	PBLD-L48150D	24-48VDC	15A	400W	57,60,80mm	150*97*48mm	0.5Kg
	PBLD-L48300D	24-48VDC	30A	750W	57,60,80mm	165*67*102mm	0.85Kg
	PBLD-L48500D	24-48VDC	50A	1500W	60,80,110mm	170*135*60mm	1.95Kg
	PBLD-L481000D	24-48VDC	100A	2200W	60,80,110mm	170*135*60mm	1.95Kg
Standard High-Voltage Series	PBLD-H22020A	110-220VAC	2A	300W	57,60,80mm	142*102*41mm	0.35Kg
	PBLD-H22025A	110-220VAC	2.5A	400W	57,60,80mm	165*51*102mm	0.75Kg
	PBLD-H22035A	110-220VAC	3.5A	750W	80,110mm	165*67*102mm	0.95Kg
	PBLD-H220100A	110-220VAC	10A	1500W	80,110mm	190*80*130mm	1.3Kg
Compact Size High Performance Series	PBLD-C22020A	110-220VAC	2A	400W	60,80mm	145*46*125mm	0.65Kg
	PBLD-C22035A	110-220VAC	3.5A	750W	80,110mm	145*61*125mm	0.75Kg
High Performance Series	PBLD-S22020A	110-220VAC	2A	400W	60,80mm	180*60*150mm	1Kg
	PBLD-S22035A	110-220VAC	3.5A	1000W	60,80mm	180*85*150mm	1.4Kg
	PBLD-S22075A	110-220VAC	7.5A	1500W	60,80mm	185*85*190mm	1.85Kg
	PBLD-S220150A	110-220VAC	15A	3000W	80,110,130mm	185*85*190mm	2.6Kg
	PBLD-S380100A	380VAC	10A	3000W	80,110,130mm	185*85*190mm	2.6Kg

How to choose a suitable drive

Drive 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 indicator 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.

Model Selection Steps

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.

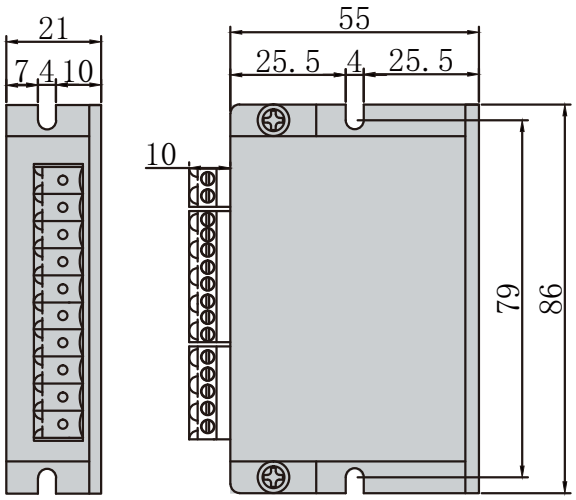
PBLD-L2450D

Standard Low-Voltage Series

Characteristics

- Input voltage: 12VDC~24VDC
- Continuous output current: 5A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

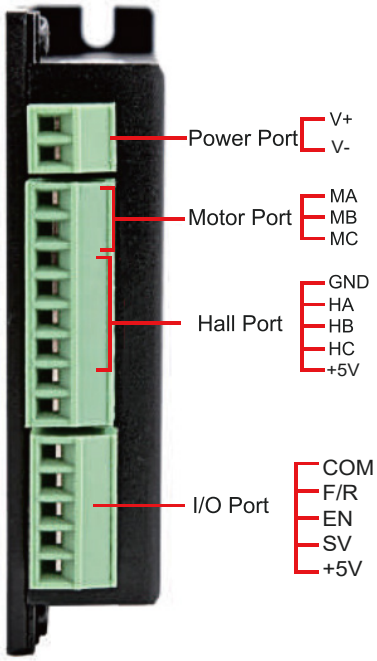
Dimension



Specification

- Closed loop control, constant torque output
- Input and output signal photoelectric olation
- Support RS485 multi-axis photoelectric control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Motor brake function, making the motor respond quickly
- Stall protection, fast response, high control accuracy
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	V+	DC power supply input
2	GND	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	COM	Common End
2	F/R	Forward and reverse rotation
3	EN	Start/Stop
4	SV	Analog input
5	+5V	Speed regulation voltage output

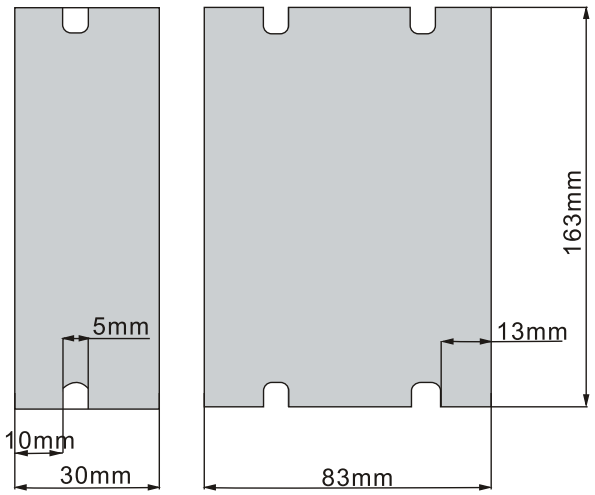
PBLD-L3650D

Standard Low-Voltage Series

Characteristics

- Input voltage: 24VDC~36VDC
- Continuous output current: 5A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

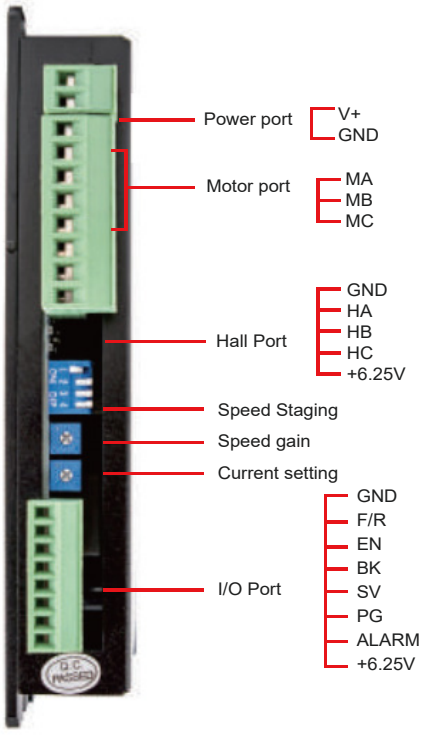
Dimension



Specification

- PID speed, current dual loop regulator
- 20KHZ chopper frequency
- Speed staging function, dip switch can set different speed range
- Start/stop control, forward/reverse control
- Motor brake function, making the motor respond quickly
- Stall protection, fast response, high precision control
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	V+	DC power supply input
2	GND	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+6.25V	Positive power supply for Hall signal

I/O control terminal

1	GND	Ground wire
2	F/R	Forward and reverse
3	EN	Start/Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+6.25V	Speed regulation voltage output

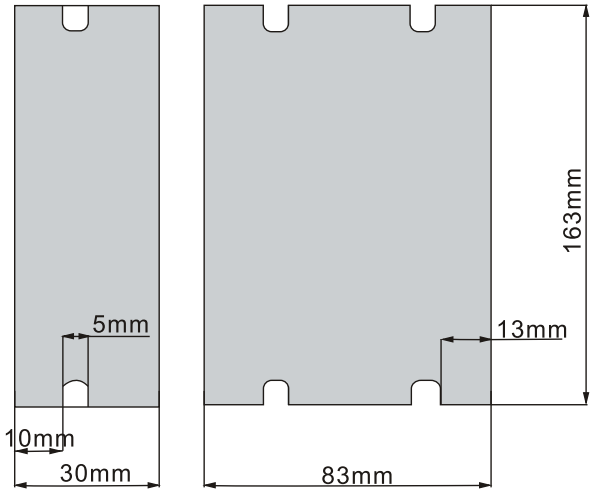
PBLD-L36150D

Standard Low-Voltage Series

Characteristics

- Input voltage:24VDC~36VDC
- Continuous output current: 15A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45C
- Storage temperature: -20~+85C
- Ambient humidity: <85%

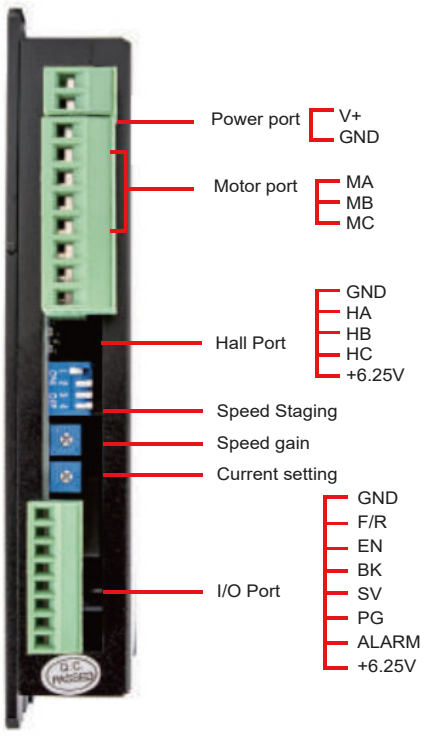
Dimension



Specification

- PID speed, current dual loop regulator
- 20KHZ chopper frequency
- Support RS485 multi-axis communication and CANopen bus control
- Speed staging function, dip switch can set different speed range
- Start/stop control, forward/reverse control
- Motor brake function, making the motor respond quickly
- Stall protection, fast response, high precision control
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	V+	DC power supply input
2	GND	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+6.25V	Positive power supply for Hall signal

I/O control terminal

1	GND	Ground wire
2	F/R	Forward and reverse
3	EN	Start /Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+6.25V	Speed regulation voltage output

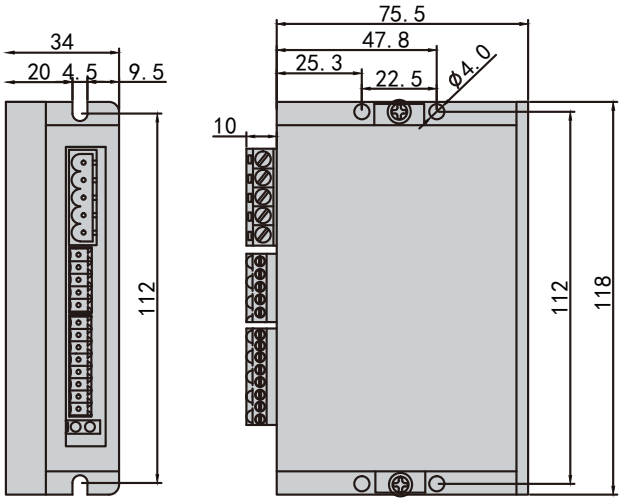
PBLD-L48100D

Standard Low-Voltage Series

Characteristics

- Input voltage: 24VDC~48VDC
- Continuous output current: 10A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

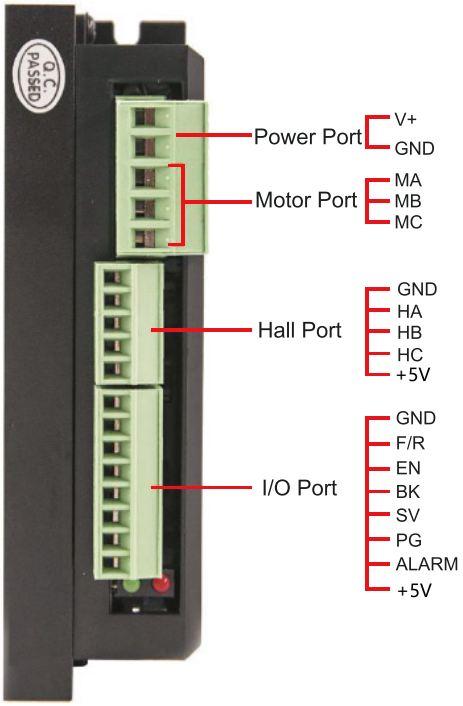
Dimension



Specification

- PID speed, current dual loop regulator
- 20KHZ chopper frequency
- Support RS485 multi-axis communication control
- Speed staging function, dip switch can set different speed range
- Start/stop control, forward/reverse control
- Motor brake function, making the motor respond quickly
- Stall protection, fast response, high precision control
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	V+	DC power supply input
2	GND	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	GND	Ground wire
2	F/R	Forward and reverse
3	EN	Start/Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+5V	Speed regulation voltage output

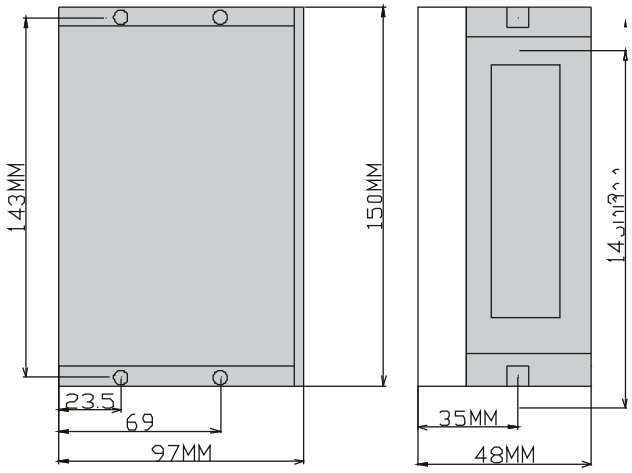
PBLD-L48150D

Standard Low-Voltage Series

Characteristics

- Input voltage: 24VDC~48VDC
- Continuous output current: 15A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

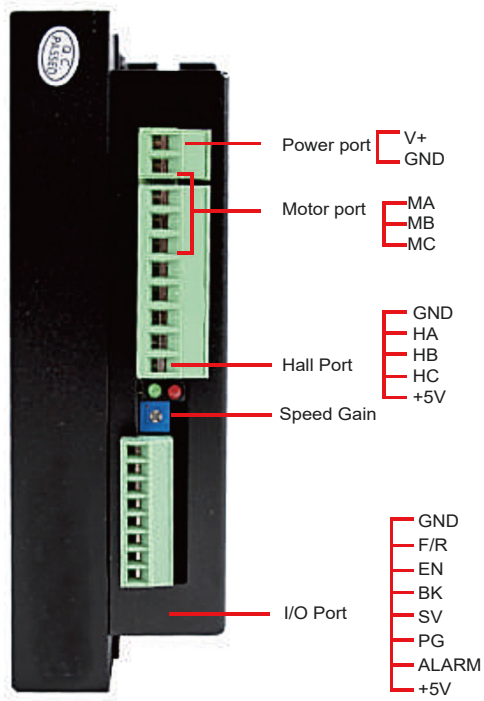
Dimension



Specification

- PID speed, current dual loop regulator
- 20KHZ chopper frequency
- Speed staging function, dip switch can set different speed range
- Start/stop control, forward/reverse control
- Motor brake function, making the motor respond quickly
- Stall protection, fast response, high precision control
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	V+	DC power supply input
2	GND	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	GND	Ground wire
2	F/R	Forward and reverse
3	EN	Start/Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+5V	Speed regulation voltage output

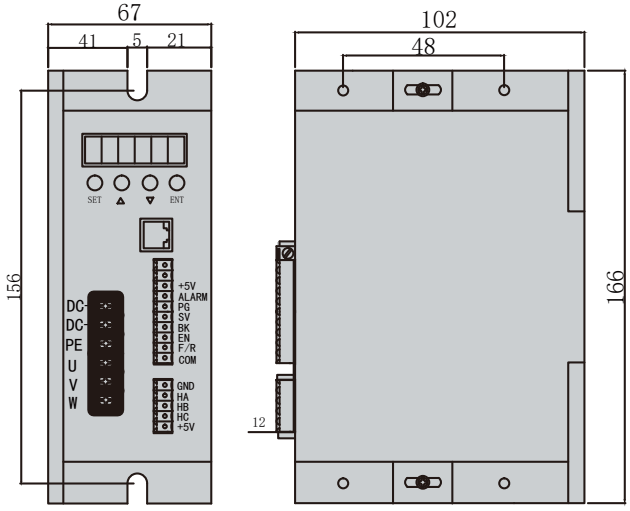
PBLD-L48300D

Standard Low-Voltage Series

Characteristics

- Input voltage: 24VDC~48VDC
- Continuous output current: 30A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

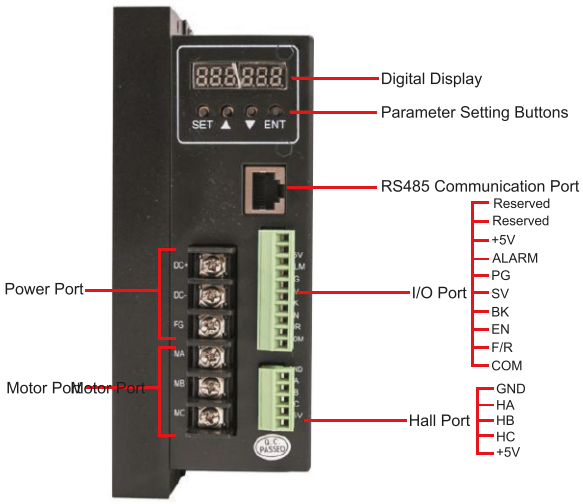
Dimension



Specification

- Can be set with Hall or without Hall sensor drive, both are compatible
- The whole series adopt high quality devices,the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	DC+	DC power supply input
2	DC-	DC power supply input
2	FG	Ground wire

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	Reserved	Customer Definition
2	Reserved	Customer Definition
3	+5V	Speed regulation voltage output
4	ALARM	Alarm output
5	PG	Speed pulse signal output
6	SV	Analog input
7	BK	Brake Control
8	EN	Start/Stop
9	F/R	Forward and reverse
10	COM	Public terminal

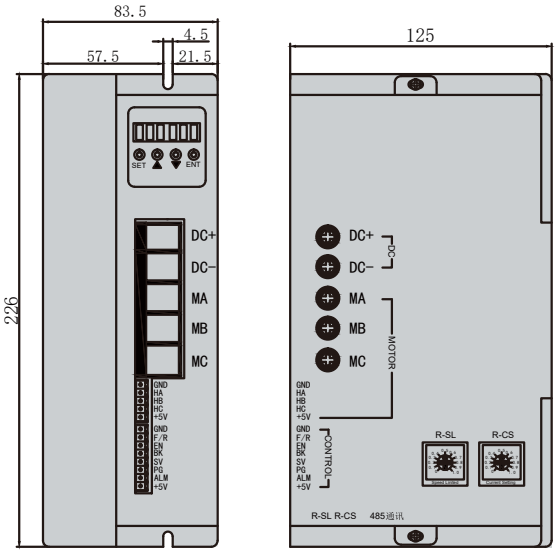
PBLD-L48500D

Standard Low-Voltage Series

Characteristics

- Inputv oltage: 24VDC~48VDC
- Continuous output current: 50A
- Analog voltage for speed control: 0~5V
- Workingtemperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

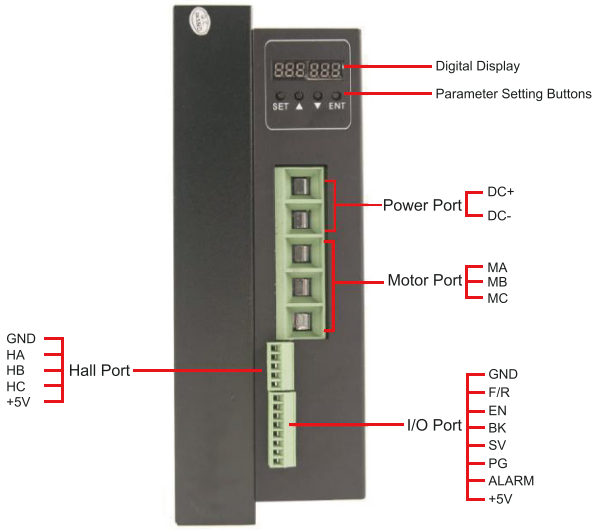
Dimension



Specification

- Can be set with Hall or without Hall drive, both are compatible
- The whole series adopt high quality devices,the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	DC+	DC power supply input
2	DC-	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	GND	Ground wire
2	F/R	Forward and reverse
3	EN	Start/Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+5V	Speed regulation voltage output

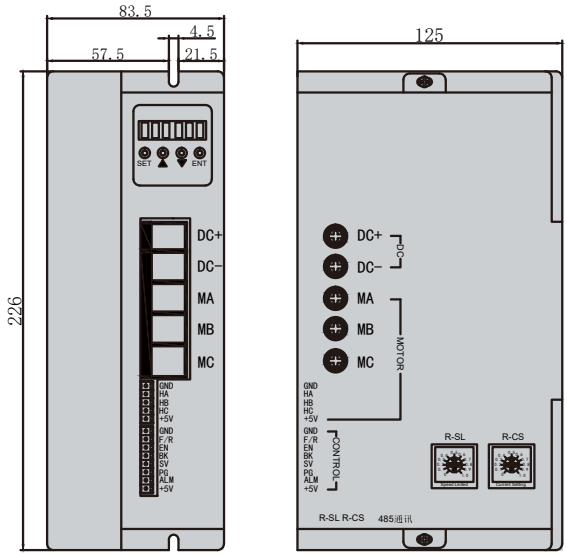
PBLD-L48750D

Standard Low-Voltage Series

Characteristics

- Input voltage: 24VDC~48VDC
- Continuous output current: 75A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

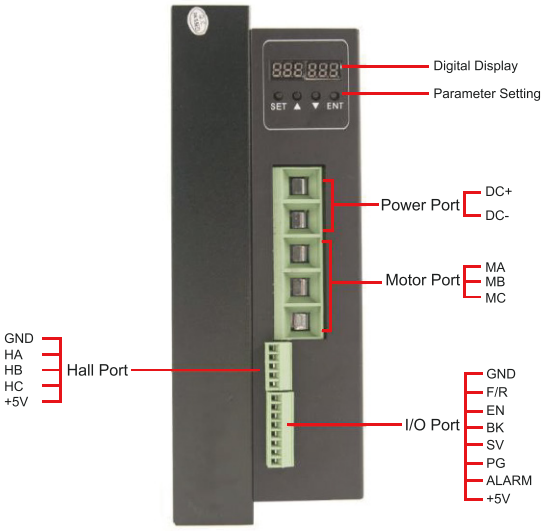
Dimension



Specification

- Can be set with Hall or without Hall sensor drive, both are compatible
- The whole series adopt high quality devices,the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	DC+	DC power supply input
2	DC-	DC power supply input

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	GND	Ground wire
2	F/R	Forward and reverse
3	EN	Start/Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+5V	Speed regulation voltage output

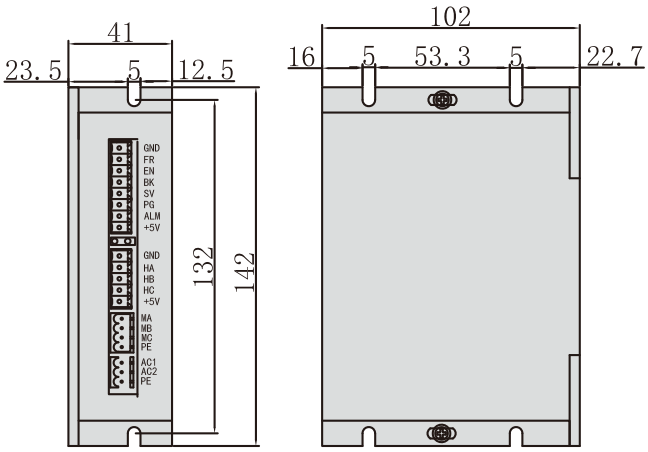
PBLD-H22020A

Standard High-Voltage Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 2A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

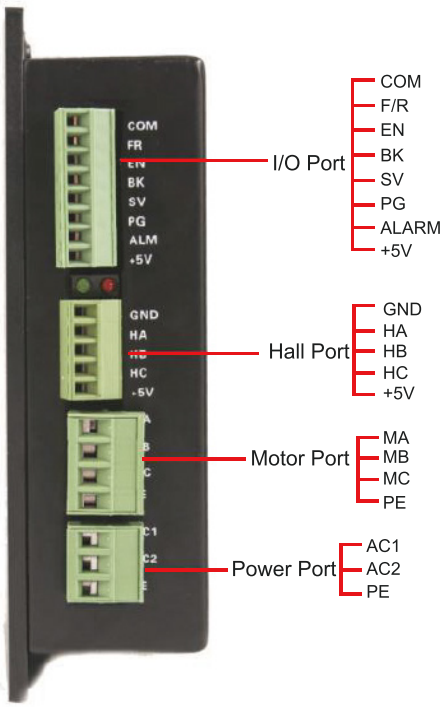
Dimension



Specification

- Can be set with Hall or without Hall sensor drive, both are compatible
- The whole series adopt high quality devices, the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	AC1	AC input
2	AC2	AC input
2	PE	Ground wire

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	COM	Public terminal
2	F/R	Forward and reverse
3	EN	Start/Stop
4	BK	Brake Control
5	SV	Analog input
6	PG	Speed pulse signal output
7	ALARM	Alarm output
8	+5V	Speed regulation voltage output

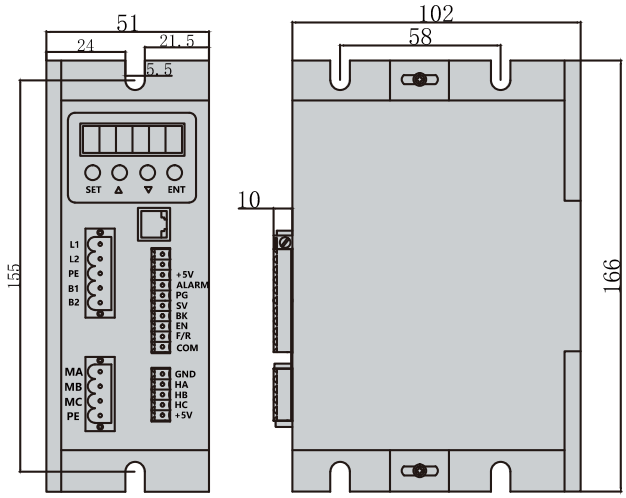
PBLD-H22025A

Standard High-Voltage Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 2.5A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

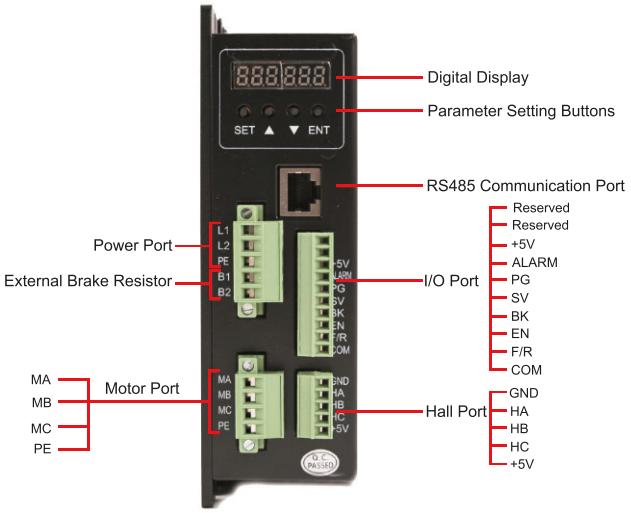
Dimension



Specification

- Can be set with Hall or without Hall sensor drive, both are compatible
- The whole series adopt high quality devices,the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	PE	Ground wire

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	FG	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	Reserved	Customer Definition
2	Reserved	Customer Definition
3	+5V	Speed regulation voltage output
4	ALARM	Alarm output
5	PG	Speed pulse signal output
6	SV	Analog input
7	BK	Brake Control
8	EN	Start/Stop
9	F/R	Forward and reverse
10	COM	Public terminal

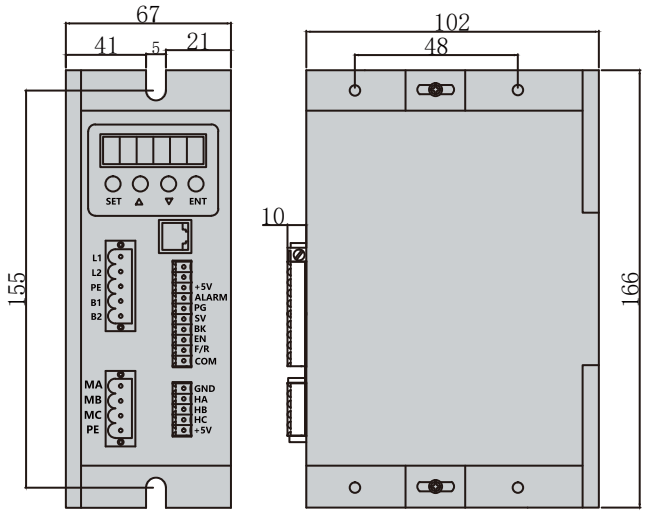
PBLD-H22035A

Standard High-Voltage Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 3.5A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~+45℃
- Storage temperature: -20~+85C
- Ambient humidity: <85%

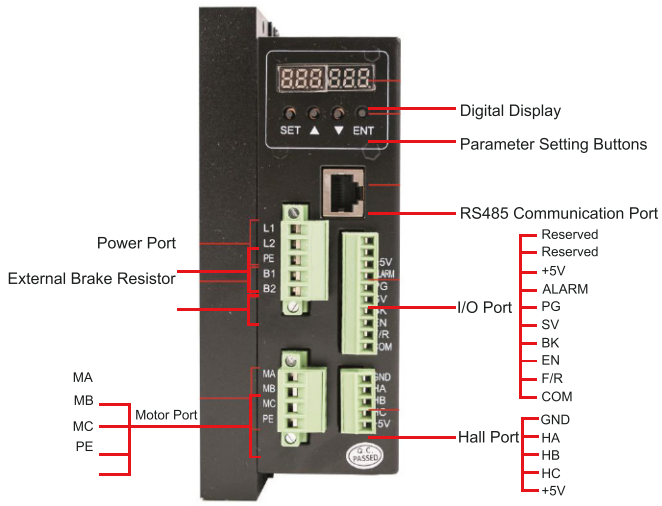
Dimension



Specification

- Can be set with Hall or without Hall sensor drive, both are compatible
- The whole series adopt high quality devices, the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	PE	Ground wire

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	FG	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	Reserved	Customer Definition
2	Reserved	Customer Definition
3	+5V	Speed regulation voltage output
4	ALARM	Alarm output
5	PG	Speed pulse signal output
6	SV	Analog input
7	BK	Brake Control
8	EN	Start/stop
9	F/R	Forward and reverse
10	COM	public terminal

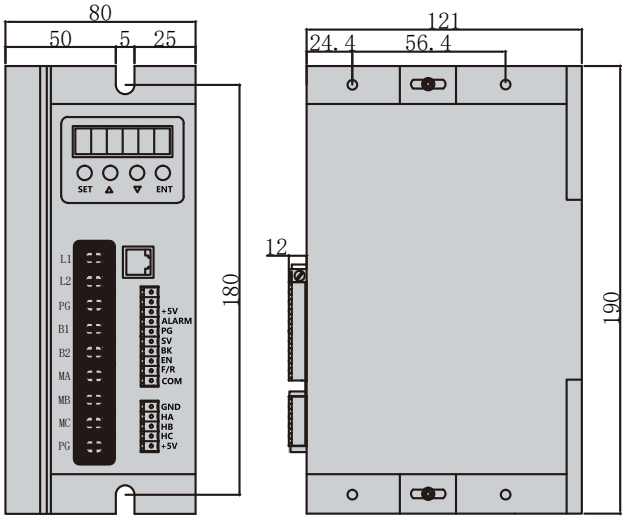
PBLD-H220100A

Standard High-Voltage Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 10A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

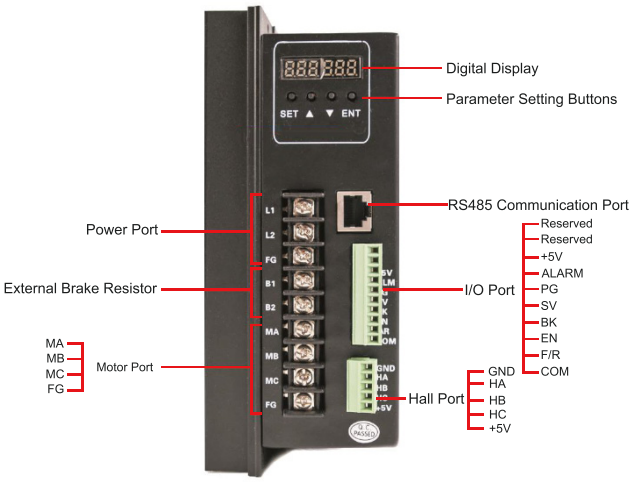
Dimension



Specification

- Can be set with Hall or without Hall Sensor drive, both are compatible
- The whole series adopt high quality devices, the circuit design is simple and clear, and the cost is low
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response time, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times , torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	PE	Ground wire

Motor input terminal

1	MA	Motor Phase A
2	MB	Motor Phase B
3	MC	Motor Phase C
4	FG	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	Reserved	Customer Definition
2	Reserved	Customer Definition
3	+5V	Speed regulation voltage output
4	ALARM	Alarm output
5	PG	Speed pulse signal output
6	SV	Analog input
7	BK	Brake Control
8	EN	Start/stop
9	F/R	Forward and reverse
10	COM	public terminal

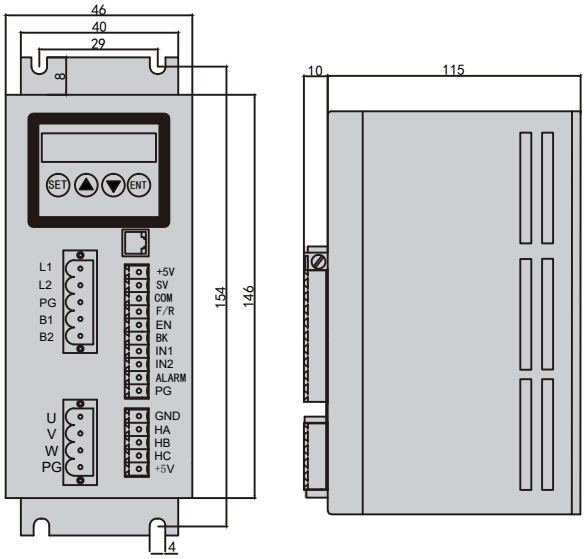
PBLD-C22020A

Compact Size High Performance Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 2A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

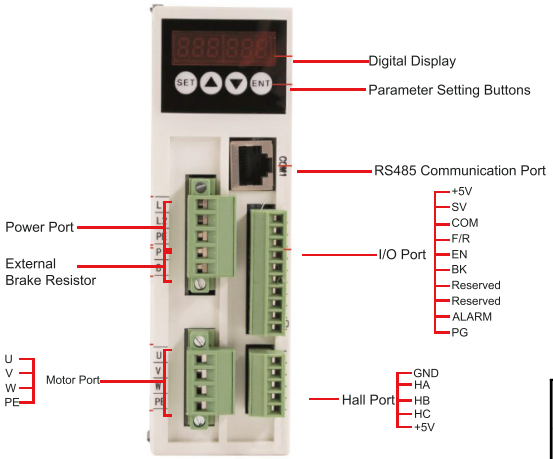
Dimension



Specification

- Compact size, power up to 400W, exquisite design
- DSP chip + IGBT intelligent module isolated drive + patented PID + PWM control
- Support RS485 multi-axis communication control
- Segmented speed control, 2 input ports, 4 different speed states can be set
- PC-based tuning software can be used to set and modify drive software parameters
- Perfect protection functions such as over-voltage, under-voltage, over-current, over-speed, wrong phase, short-circuit, etc.

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	PE	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	Reserved	Customer Definition
8	Reserved	Customer Definition
9	ALARM	Alarm output
10	PG	Speed pulse signal output

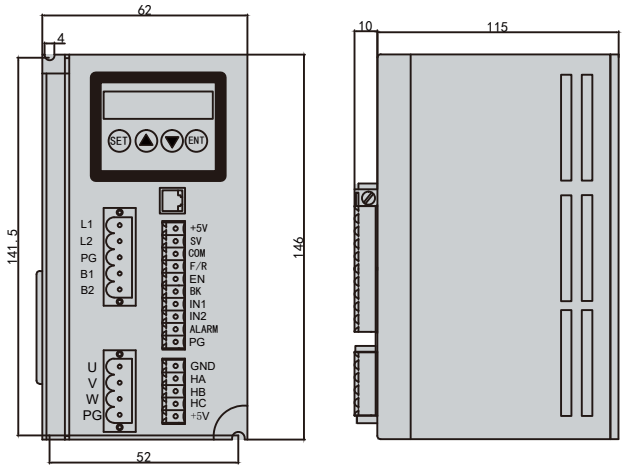
PBLD-C22035A

Compact Size High Performance Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 3.5A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

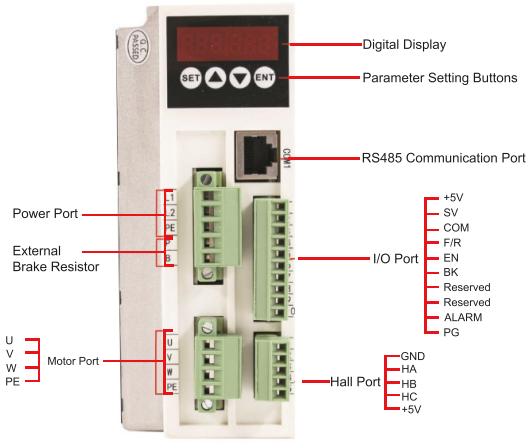
Dimension



Specification

- Compact size,power up to 750W,exquisite design
- DSP chip + IGBT intelligent module isolated drive + patented PID + PWM control
- Support RS485 multi-axis communication control
- Segmented speed control, 2 input ports, 4 different speed states can be set
- PC-based tuning software can be used to set and modify drive software parameters
- Perfect protection functions such as over-voltage, under-voltage, over-current, over-speed, wrong phase, short-circuit, etc.

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	PE	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	+5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	Reserved	Customer Definition
8	Reserved	Customer Definition
9	ALARM	Alarm output
10	PG	Speed pulse signal output

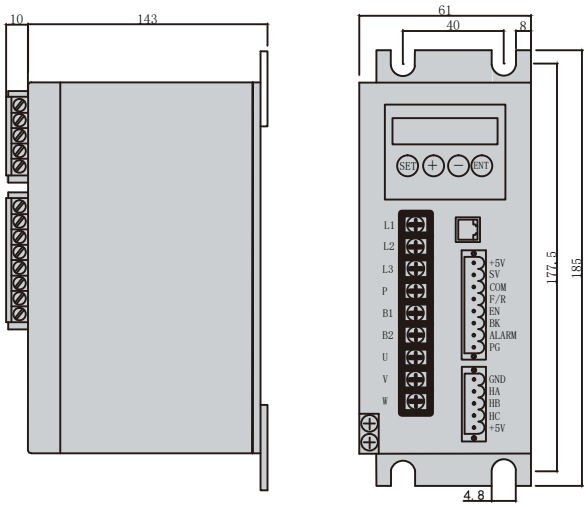
PBLD-S22020A

High Performance Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 2A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

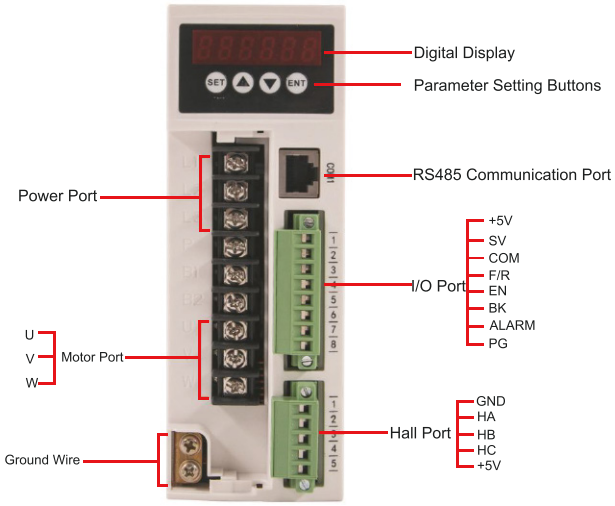
Dimension



Specification

- Closed loop control, constant torque output
- Input and output signal photoelectric isolation
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	L3	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	+5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	ALARM	Alarm output
8	PG	Speed regulation voltage output

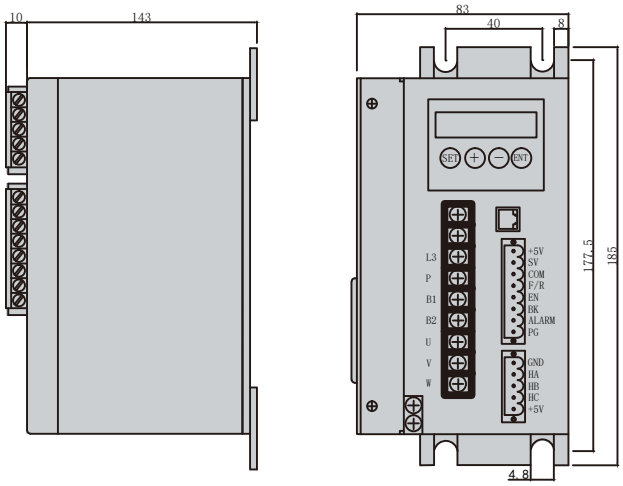
PBLD-S22035A

High Performance Series

Characteristics

- Input voltage: 110VAC~220 VAC
- Continuous output current: 3.5A
- Analog voltage for speed control: 0~5V
- Working temperature：0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity：<85%

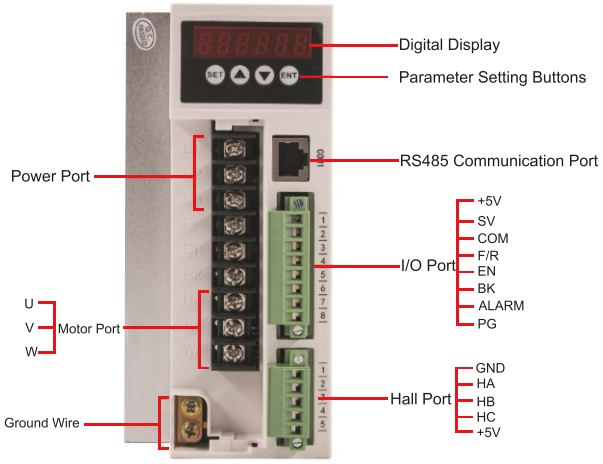
Dimension



Specification

- Closed loop control, constant torque output
- Input and output signal photoelectric isolation
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	L3	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	+5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	ALARM	Alarm output
8	PG	Speed regulation voltage output

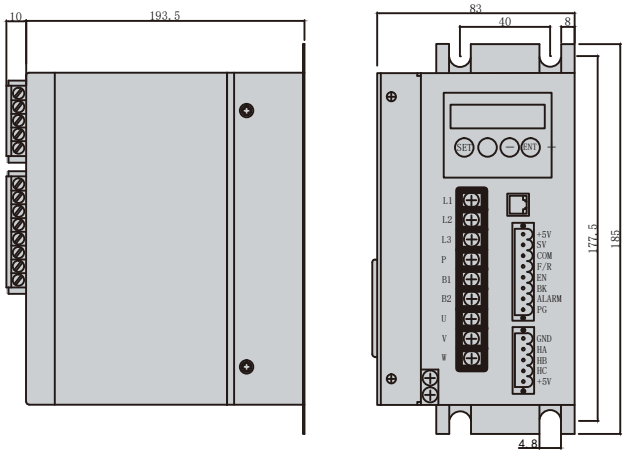
PBLD-S22075A

High Performance Series

Characteristics

- Input voltage: 110VAC~220VAC
- Continuous output current: 7.5A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

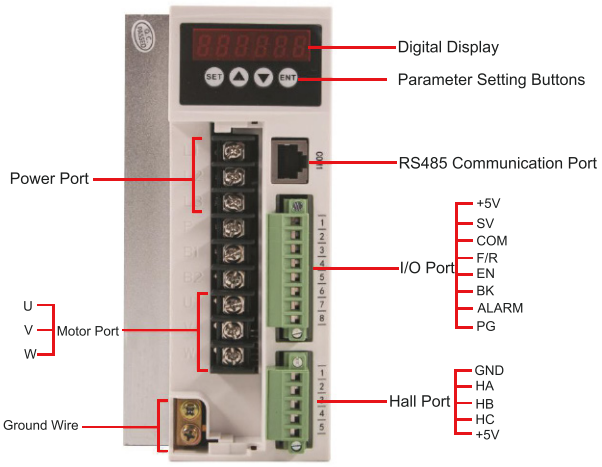
Dimension



Specification

- Closed loop control, constant torque output
- Input and output signal photoelectric isolation
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	L3	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	+5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	ALARM	Alarm output
8	PG	Speed regulation voltage output

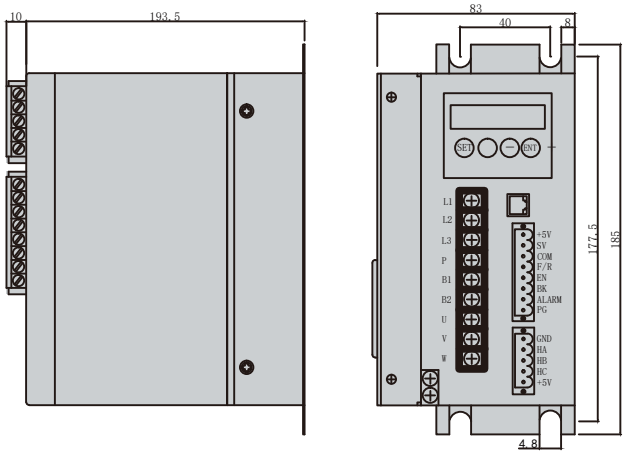
PBLD-S220150A

High Performance Series

Characteristics

- Input voltage: 110VAC~220 VAC
- Continuous output current: 15A
- Analog voltage for speed control: 0~5V
- Working temperature: 0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity: <85%

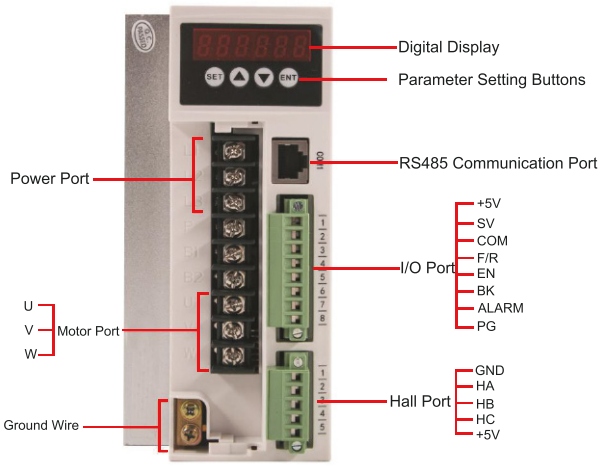
Dimension



Specification

- Closed loop control, constant torque output
- Input and output signal photoelectric isolation
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- Stall protection, fast response, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	L3	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	+5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	ALARM	Alarm output
8	PG	Speed regulation voltage output

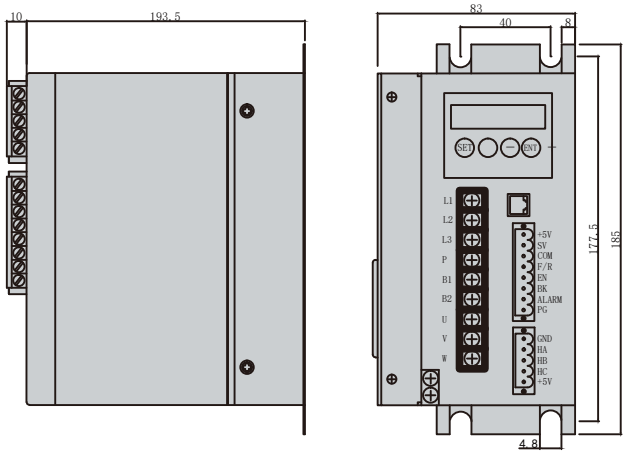
PBLD-S380100A

High Performance Series

Characteristics

- Input voltage: 380VAC
- Continuous output current: 10A
- Analog voltage for speed control: 0~5V
- Working temperature：0~45℃
- Storage temperature: -20~+85℃
- Ambient humidity：<85%

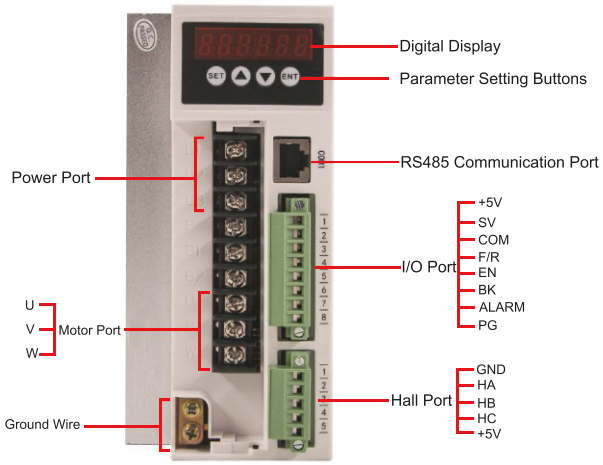
Dimension



Specification

- Closed loop control, constant torque output
- Input and output signal photoelectric isolation
- Support RS485 multi-axis communication control
- External analog, external pulse width input
- Start/stop control, forward/reverse control
- Electrical brake function, making the motor respond quickly
- stall protection, fast response, high control accuracy
- Load without deceleration, power compensation, high starting torque
- Overload greater than 2 times, torque always reaches maximum at low speed
- Over-voltage, under-voltage, over-current, over-temperature, Hall signal error and other fault alarm functions

Connection Diagram



Power input terminal

1	L1	AC input
2	L2	AC input
3	L3	Ground wire

Motor input terminal

1	U	Motor Phase A
2	V	Motor Phase B
3	W	Motor Phase C
4	PE	Ground wire

Hall input terminal

1	GND	Negative power supply for Hall signal
2	HA	Hall signal A
3	HB	Hall signal B
4	HC	Hall signal C
5	+5V	Positive power supply for Hall signal

I/O control terminal

1	+5V	+5V power supply positive terminal
2	SV	Analog input
3	COM	Common terminal negative
4	F/R	Forward and reverse
5	EN	Start/Stop
6	BK	Brake Control
7	ALARM	Alarm output
8	PG	Speed regulation voltage output

Integrated Brushless DC Motor

Working voltage: DC input voltage 24VDC~50VDC, recommended working voltage 36V.

The maximum continuous output current is 10A, and the maximum peak current is 22A (3 times the overload capacity).

Accepts differential and single-ended pulse/direction commands, with position/speed/torque three control modes.

Adopts 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 dialing code (electronic gear ratio).

Can match 90W, 130W and 180W three brushless DC servo motors.

Includes protection functions such as overvoltage, undervoltage, overcurrent.

Single/double pulse mode, pulse valid edge optional.

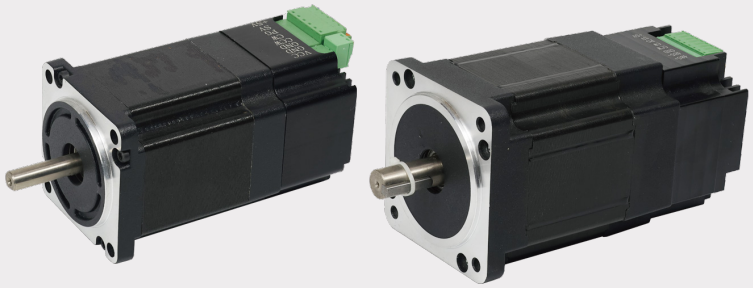
The maximum pulse frequency of the control command is 500KHz (the factory default is 200KHz).

Pulse, direction and enable signal input interface level compatibility: 5-24V.

Features serial port RS232 debugging function, but requires the company's dedicated serial port debugging cable.

Performance: Delivers stable speed, small overshoot, small tracking error, low heat generation in motor and driver.

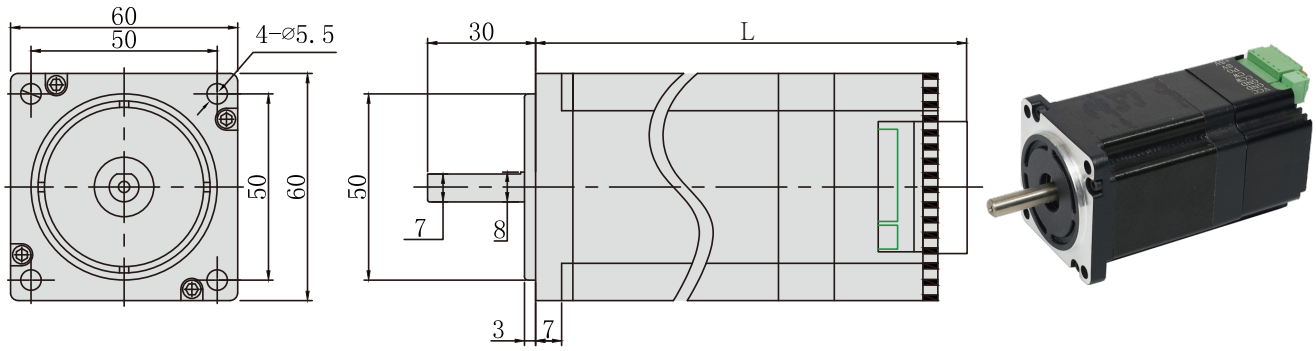
Integrated Brushless DC Motor



Frame Size Range	Rated Power Range	Rated Torque Range
60-86mm	60-400W	0.3-1.27N.m

PBLT60 Series □60mm

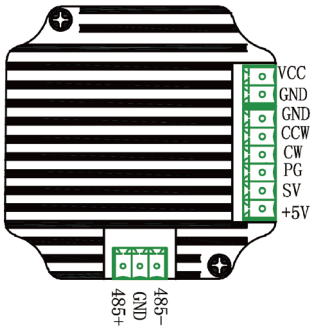
Integrated Brushless DC Motor



Electrial Specifications

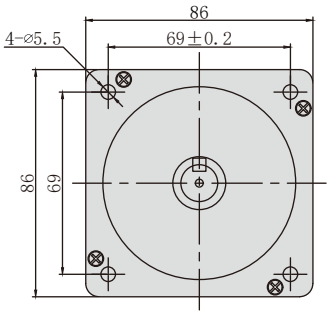
Part Number	Unit	PBLT60-06	PBLT60-12
Rated Voltage	VDC	24	24
Rated Power	W	60	120
Rated Torque	N.M	0.3	0.6
Peak Torque	N.M	0.9	1.2
Rated Speed	RPM	2000	2000
Peak Speed	RPM	4000	4000
Length	Mm	98	118
Weight	Kg	1.3	1.5

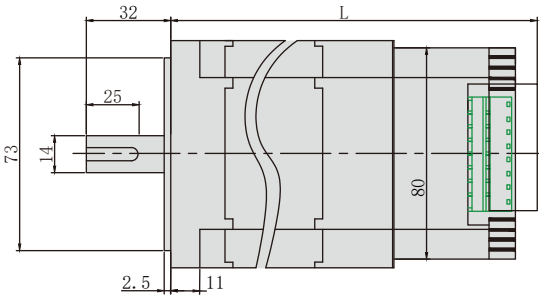
Terminal Definition

Pin Number	Signal	Function	Description	Interface Definition Diagram
1	VCC	24V Power Positive	Motor control Interface	
2	GND	24V Power Negative		
3	GND	Common Terminal		
4	CCW	Counterclockwise Operation		
5	CW	Clockwise Operation		
6	PG	Speed signal output/alarm output optional		
7	SV	Analog speed control input 0~5vdc		
8	+5V	+5VDC Output		
1	RS485-	RS485 Communication RS485 Communication	Communication Interface	
2	GND	Ground Line		
3	RS485+	RS485 Communication		

PBLT86 Series □86mm

Integrated Brushless DC Motor

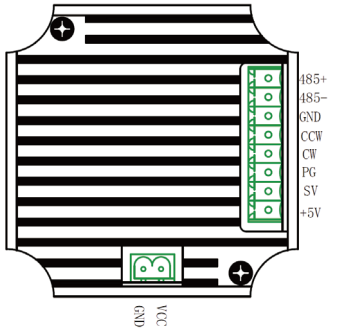




Electrial Specifications

Part Number	Unit	PBLT86-20	PBLT86-40
Rated Voltage	VDC	24	24
Rated Power	W	200	400
Rated Torque	N.M	1.27	1.27
Peak Torque	N.M	3.81	3.81
Rated Speed	RPM	1500	3000
Peak Speed	RPM	2000	4000
Length	Mm	152	152
Weight	Kg	2.3	2.4

Terminal Definition

Pin Number	Signal	Function	Description	Interface Definition Diagram
1	VCC	24V~48V input	Motor Power Supply Interface	
2	GND	Power Negative		
1	RS485+	RS485 Communication	Motor Control Interface	
2	RS485-	RS485 Communication		
3	GND	Common Terminal		
4	CCW	Counterclockwise Operation		
5	CW	Clockwise Operation		
6	PG	Speed signal output/alarm output optional		
7	SV	Analog speed control input 0~5vdc		
8	+5V	+5VDC Output		

Your Primary Motor and Motion Solution Partner!

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