



C161-35210-110 Brushless DC Motor for Centrifuge Product Datasheet

C161-35210-110 BLDC Overview

- Three Phase, Six Step, Full Wave, Y-Circuit
- Sintered Nd-Fe-B Permanent Magnet Rotor
- Hall Sensor
- Step (Low Cogging)
- Slot



Parameters	C161-35210-110 BLDC Absolute Maximum Ratings	Unit
Rotor/Bearing Broken Speed	18000	rpm
Winding and Rotor Temperature	130	°C
Front/Rear Lids Surface Temperature	0 to 70	°C
HIPOT (Winding to Shell)	2000VDC, 1s	

Notice: The Absolute Maximum Ratings are those values beyond which the safety of the device cannot be guaranteed

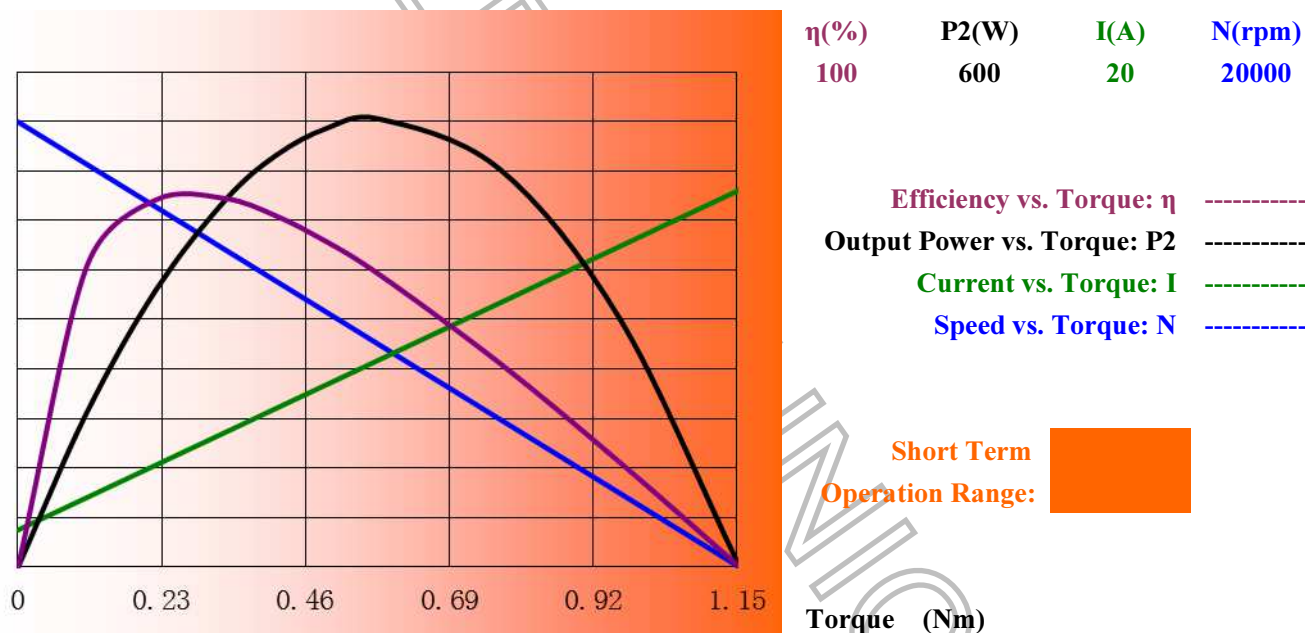
Parameters	C161-35210-110 BLDC Intrinsic Characteristics (20°C)	Unit
Resistance (Including Line)	0.6	Ohm
Inductance (Including Line)	2	mH
Speed-Torque Gradient	15600	rpm/Nm
Torque Constant	0.08	Nm/A
Speed Constant	164	rpm/V
Back-EMF Constant	6	mV/rpm
Rotor Magnetic Poles	4	Poles
Weight (Including Line)	Approximate 5100	g



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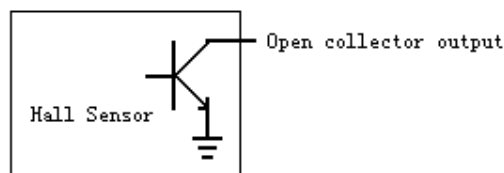
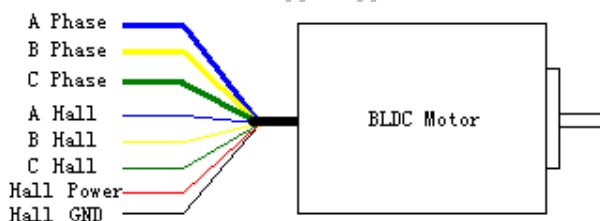


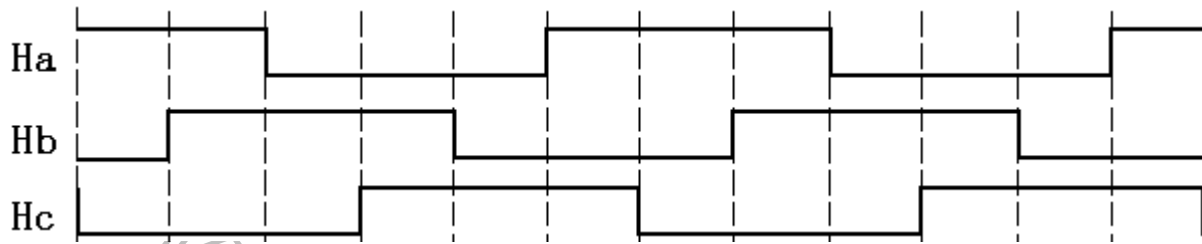
Parameters	C161-35210-110 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	110					V
Maximum Output Power (P2)	540					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque (T)	0	0.1	0.2	0.3	0.4	Nm
Output Speed (N)	18000	16440	14880	13320	11760	rpm
Input Current (I)	1.5	2.7	3.9	5.1	6.3	A
Output Power (P2)	0	172	312	418	493	W
Efficiency (η)	0	58	73	75	72	%
External Forced Ventilation Cooling	<u>Please keep the front and rear air holes unblocked. If PTC protection is often active ($R > 1\text{Kohm}$), fan or other cooling equipments must be installed.</u> <u>Otherwise the motor may be damaged by hotness.</u>					



C161-35210-110 BLDC Connection Diagram and Hall Output Waveforms

- Three Phases: AWG18, thick lines, Blue--A phase, Yellow--B phase, Green--C phase
- Halls: AWG24, thin lines, Blue--A hall, Yellow--B hall, Green--C hall, Red--Hall Positive, Black--Hall GND
- Hall Supply Voltage: 4.5 to 16VDC Regulated Supply
- Hall Power Supply Current: Less than 20mA
- Hall Output: Open collector. Require external pull-up resistors. Maximum output voltage is 16V
- Electrical Hall Sensor Phasing: 120°
- PTC: MZ6-105, $T_k=105C$, AWG24, Brown--Brown.
- Line Length: 0.5m





Hall Sensor Output Commutation Waveforms

Notice: The A, B, C three windings and Ha, Hb, Hc three hall sensors must be connected correctly, otherwise the controller and motor may be damaged.

Eletechnic BLDC Motor Product Code Regulation

X - **Y** - **Z**

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Flange Size (mm) Sub-series Nominal Voltage (V)



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