



Specification For Approval

Customer : _____ STD _____
Description : _____ EC FAN _____
Customer Part No. : _____ N/A _____ Rev : _____
Delta Model No. : _____ GTW071PUT23E _____ Rev : 00 _____
Safety Model No. : _____ EMBP5E5FHL _____
Sample Issue No. : _____
Sample Issue Date : _____ 08/01/2022 _____

Please send one copy of this specification back after
you signed approval for production pre-arrangement

Approved by : _____

Date : _____

Beijing Hengrui Mechanical and Electrical Equipment Co,Ltd
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Electronically Commutated (EC) Fan

Centrifugal Fan

850 x 850 x 235 mm



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Technical features

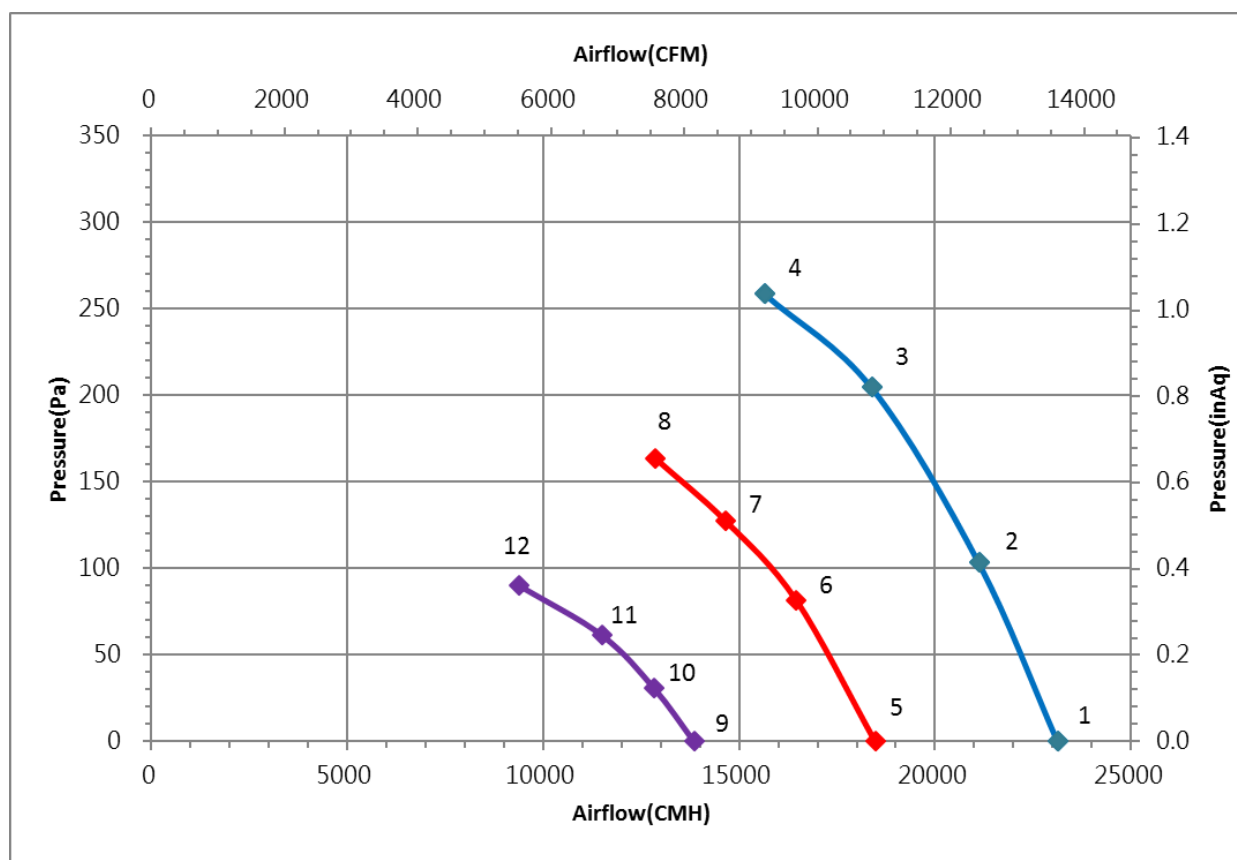
Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	2125 W
Power @ Max. load	2700 W
Output Side	
Speed (RPM)	1250
Qmax. (CMH / CFM)	23134 / 13608
Pmax. (Pa / inAq)	259/ 1.04
Noise (dB-A) @ Qmax.	82
Functions	
Passive power factor correction	
Control input 0-10V _{DC} / PWM	
Output +10V _{DC} (±10%), max. 10mA.	
RS485 control bus (MODBUS (V1.3) RTU / 8N1)	
Alarm relay, Locked rotor protection, Soft start.	
Voltage / Current monitoring.	

NOTE : The Fan IGBT-inverter temperature can be operated at 110°C with full loading, and the rotation speed will be decreased to 80% of full loading if IGBT-inverter temperature is higher than 110°C.

Physical	
Rotation Direction	CCW, Seen on rotor
Material (Impeller / Motor Frame)	Plastic / Die-cast aluminum
Material (Wallring / Fan Guard)	Steel / Steel
Bearing system	Ball bearings
Weight (kg)	35
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 °C
Storage temperature range	-40 ~ +70 °C
Safety	
Safety	UL, CE
IP Level	IP54
EMC	EN61000-6-2 , EN61000-6-3
Protection class	I
Insulation class	F
Leakage current	<= 3.5 mA
Motor protection	Over temperature protected
Life expectance	60,000 hrs at 40 °C / 15 ~ 65 %RH

NOTE: Delta reserves the right to change specifications and other product information without prior notice.

P & Q curves (without fanguard condition)



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	23134	1250	2125	3.60	82.0
2	103	21122	1250	2386	3.98	
3	205	18383	1250	2590	4.25	
4	259	15649	1241	2610	4.30	
5	0	18476	1000	1147	2.18	78.0
6	82	16455	1000	1309	2.36	
7	127	14651	1000	1362	2.40	
8	164	12851	1000	1406	2.47	
9	0	13851	750	534	1.35	71.0
10	31	12837	750	580	1.40	
11	61	11504	750	607	1.42	
12	90	9397	750	624	1.43	

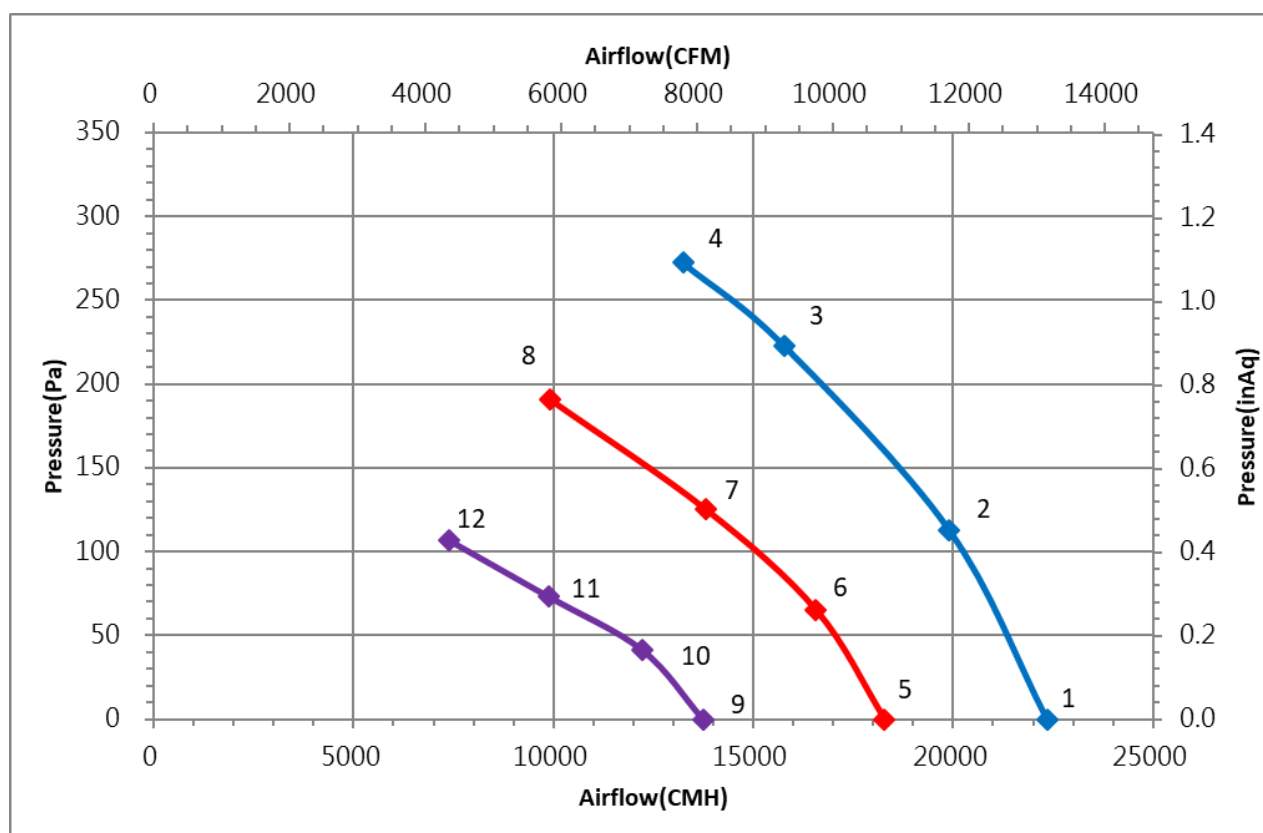
Test Condition :

- Input Voltage : Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Noise (Lp) is measured at a distance of one meter from the inlet side.

ErP Directive:

	Actual	2015
Over all Eff (%)	45.6	37.1
Eff Grade N	49.3	40
Power (kW)	2.61	
Air flow (CMH)	15649	
Pressure (Pa)	259	
Speed (RPM)	1250	

P & Q curves (with fanguard condition)



Measure data:

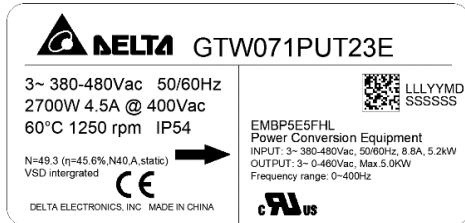
	P	Q	N	P1	I	Lp
	[Pa]	[CMH]	[R.P.M.]	[W]	[A]	[dB(A)]
1	0	22343	1250	2074.0	3.64	84
2	113	19898	1250	2236	4.02	
3	223	15768	1250	2550	4.21	
4	272	13248	1250	2630	4.42	
5	0	18273	1000	1186	2.14	80
6	65	16558	1000	1291	2.27	
7	125	13799	1000	1373	2.42	
8	191	9920	1000	1431	2.53	
9	0	13743	750	535	1.27	73
10	41	12230	750	588	1.35	
11	73	9877	750	612	1.41	
12	106	7396	750	626	1.38	

Test Condition :

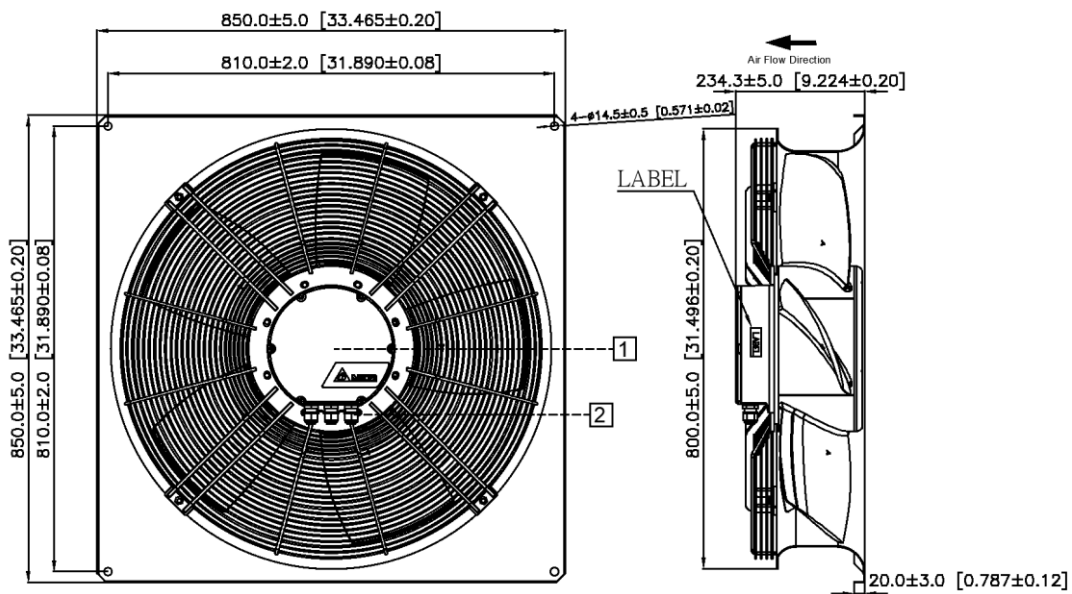
- Input Voltage : Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
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Dimension drawing

Label :



Fan :



UNIT : mm[INCH]

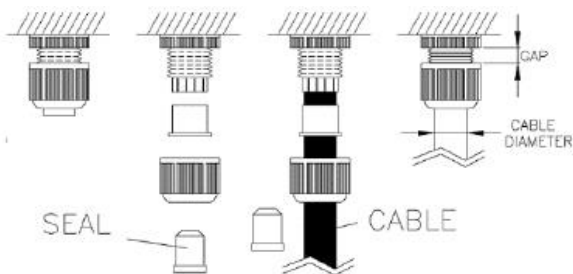


Fig.1

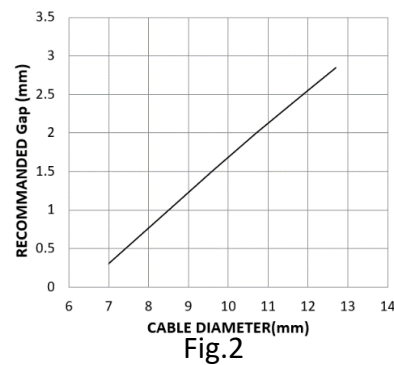
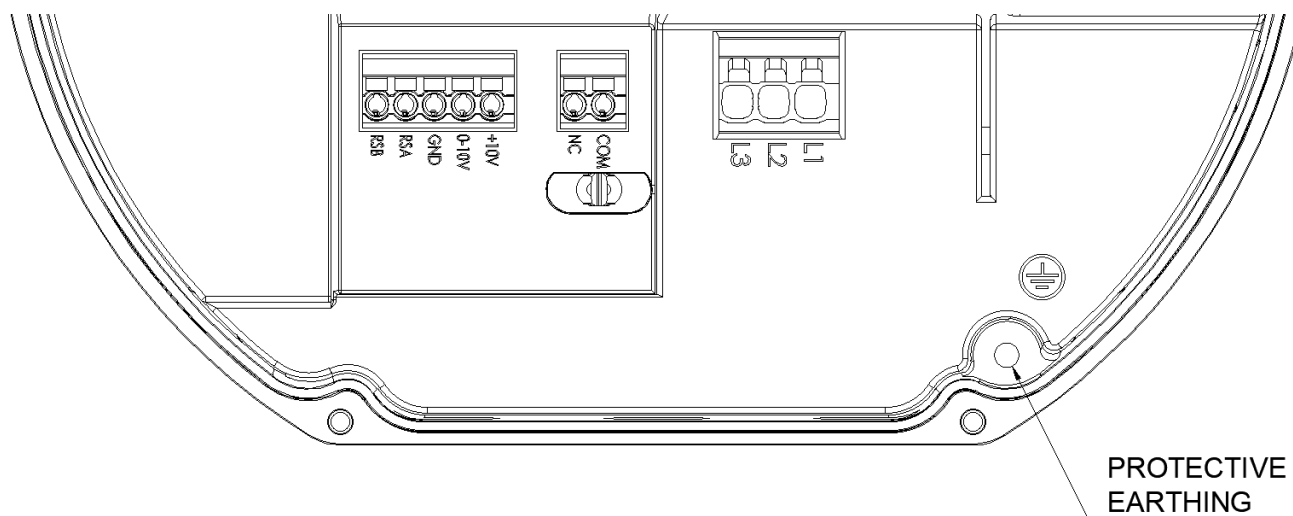


Fig.2

Note :

- 1 Cable diameter : $\varnothing 7.8 \sim \varnothing 12.7$ mm. Cable gland nut's gap refer to Fig.1 & 2.
- 2 Open the cover and refer to definition of terminal block, screw tightening torque $17 \pm 10\%$ kgf-cm.

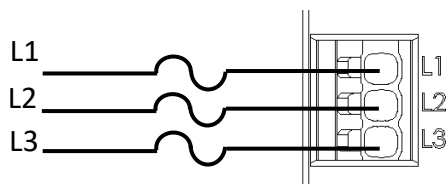
Definition of terminal block



	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	COM	Alarm relay, common (2A/250VAC)
	NC	Alarm relay, open by failure
Signal	+10V	10VDC output, MAX 10mA (For external potentiometer)
	0-10V	Speed control, input 0-10VDC
	GND	Ground
	RSA	RS485-A
	RSB	RS485-B

Wiring diagram

Input: 3-phase power



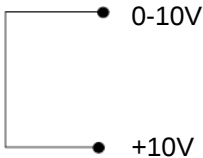
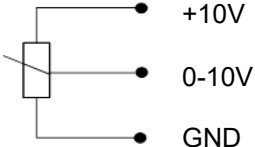
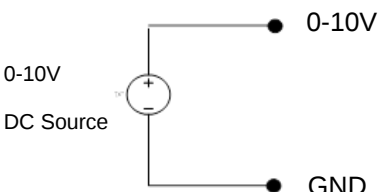
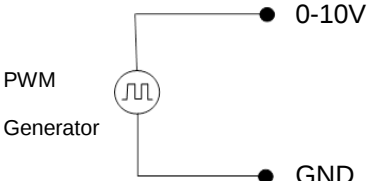
Branch Circuit Protector: 20A class CC fuse
Fuse must be UL listed and CSA certified,
or UL listed and cUL certified.

Overvoltage category - OVC II.

For use in Pollution Degree 2 Environment.

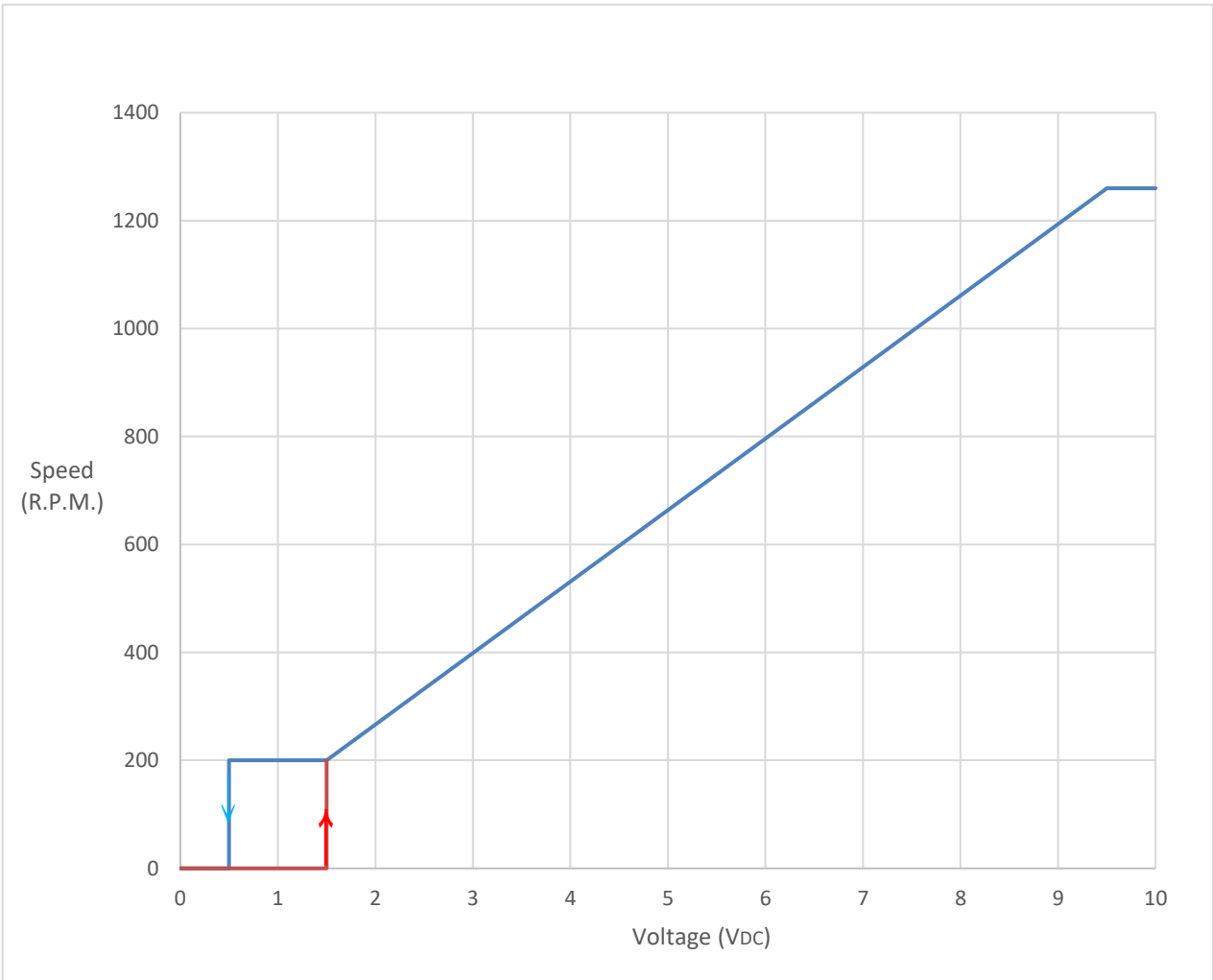
The drive is suitable for use in a circuit capable of delivering not more than 5000 rms symmetrical amperes, 480 volts maximum.

The power input wire shall be copper conductors rated 60/75°C.

Speed setting	
Full Speed 	Short 0-10V & +10V Fan will run at full speed.
Voltage Control A 	Connector 1-10kΩ variable resistor Between +10V with GND and 0-10V Vary the variable resistance · to change the '(0-10V)' voltage (0...10V), then change FAN speed °
Voltage Control B 	Use voltage source supply 0~10V_{DC} voltage DC+ : connect to (0-10V) (+) DC - : connect to GND (-)
PWM Control 	PWM duty control PWM amplitude is 10VDC (+-5%) Frequency Range is 100Hz...100kHz - PWM duty higher than 15%, fan start up ° - PWM duty lower than 5%, fan stop °

Signal function																	
RS485 control function	RS485 control function -Select the control mode of speed, fixed speed or fixed PWM duty -Speed and power consumption feedback. -Allow multiple FANs control and status patrol. Note: A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.																
	Voltage / PWM The reference of speed control level as below table <table><tr><th>Voltage (V) ± 5%</th><th>PWM(%) ± 5%</th><th>Speed (RPM)</th></tr><tr><td>0 ~ 0.5</td><td>0 ~ 5</td><td>0</td></tr><tr><td>1.5</td><td>15</td><td>200 ± 50 RPM</td></tr><tr><td>6.0</td><td>60</td><td>790 ± 8%</td></tr><tr><td>9.5</td><td>95</td><td>1250 ± 5%</td></tr></table>			Voltage (V) ± 5%	PWM(%) ± 5%	Speed (RPM)	0 ~ 0.5	0 ~ 5	0	1.5	15	200 ± 50 RPM	6.0	60	790 ± 8%	9.5	95
Voltage (V) ± 5%	PWM(%) ± 5%	Speed (RPM)															
0 ~ 0.5	0 ~ 5	0															
1.5	15	200 ± 50 RPM															
6.0	60	790 ± 8%															
9.5	95	1250 ± 5%															
Alarm state	Normal State: NC and COM will CLOSE. Alarm State (power off): NC and COM will OPEN.																

Control Voltage VS. RPM Curve



Voltage (V_{DC}), PWM duty (%) table

Voltage	0	0.5	1	1.5	2	3	4	5	6	7	8	9	10	V _{DC}
PWM duty	0	5	1	15	20	30	40	50	60	70	80	90	100	%