Specification For Approval

Customer : STD

Description : EC FAN

Customer Part No. : N/A Rev :

Delta Model No. : GTW091PUU23E Rev : 01

Safety Model No. : EMBP5E5FHL

Sample Issue No. :

Sample Issue Date : 10/05’22

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

Approved by : _____

Date : _____

GTW091PUU23E Delta Datasheet
sales@fansco.com
www.fansco.com

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Electronically Commutated (EC) Fan

Axial Fan

1070 x 1070 x 237 mm

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sales@fansco.com www.fansco.com

Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	2320 W
Power @ Max. load	3100 W
Output Side	
Speed (RPM)	1100
Qmax. (CMH / CFM)	36186 / 21286
Pmax. (Pa / inAq)	219 / 0.88
Noise (dB-A) @ Qmax	86
Functions	
Passive power factor correction	
Control input 0-10VDC / PWM	
Output +10VDC (±10%), max. 10mA.	
RS485 control bus (MODBUS (V1.3) RTU / 8N1)	
Alarm relay, Locked rotor protection, Soft start.	
Voltage / Current monitoring.	

Physical	
Rotation Direction	CCW, seen on rotor
Material (Impeller / Motor Frame)	Plastic / Cast iron
Material (Wallring / Fan Guard)	Steel / Steel
Bearing system	Ball bearings
Weight (kg)	57
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
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 ℃ / 15 ~ 65 %RH

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

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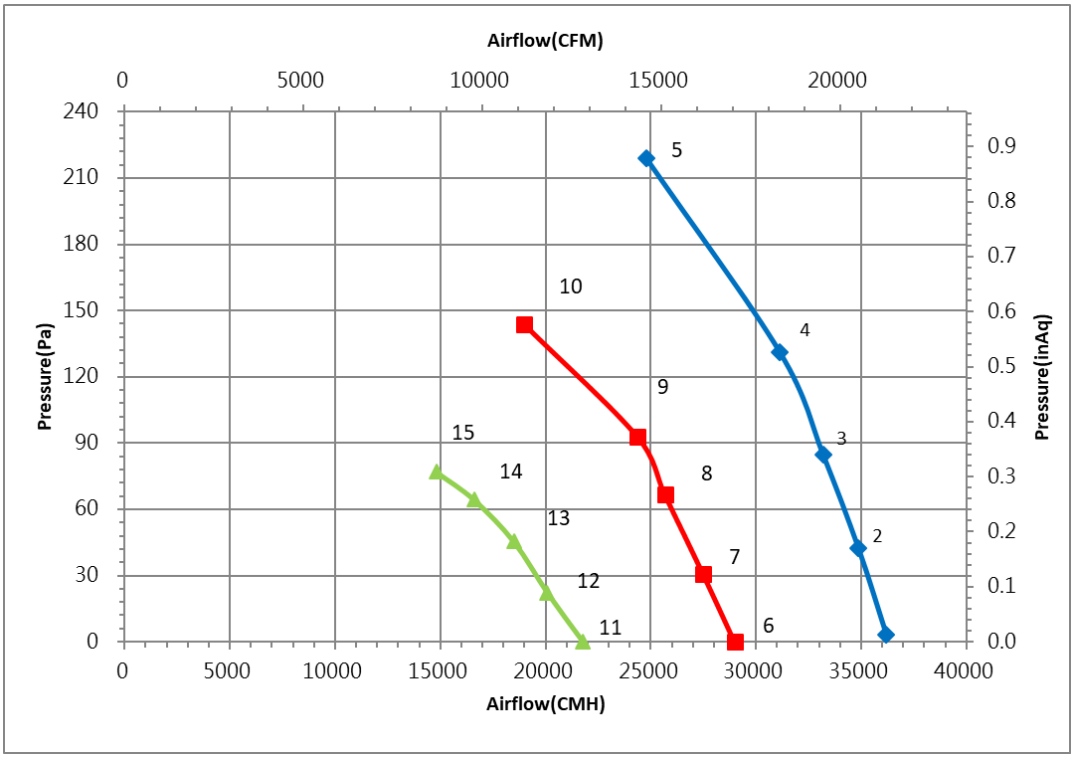
P & Q curves (without fanguard condition)



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	36185.9	1100	2320	4.16	86
2	42.3	34862.0	1100	2514	4.40	
3	84.6	33184.6	1100	2691	4.59	
4	131.1	31128.3	1100	2867	4.79	
5	219.1	24780	1100	3091	5.06	
6	0.0	28982	880	1194	2.50	81
7	30.6	27492	880	1303	2.61	
8	66.5	25678	880	1416	2.72	
9	93.0	24349	880	1497	2.81	
10	143.8	18981	880	1603	2.95	
11	0.0	21778	660	523	1.49	74
12	22.1	20091	660	585	1.57	
13	45.4	18497	660	634	1.64	
14	64.4	16610	660	664	1.67	
15	77.1	14808	660	687	1.70	

Test Condition:

- Input Voltage: 3~400Vac
- Temperature : Room Temperature
- Humidity : 65%RH
- Noise (Lp) is measured at a distance of one meter from the inlet side.
- Testing method is compliance with ISO 3745

ErP Directive:

	Actual	2015
Over all Eff (%)	51.3	36.8
Eff Grade N	54.6	40
Power (kW)	3.09	
Air flow (CMH)	24780	
Pressure (Pa)	219	
Speed (RPM)	1100	

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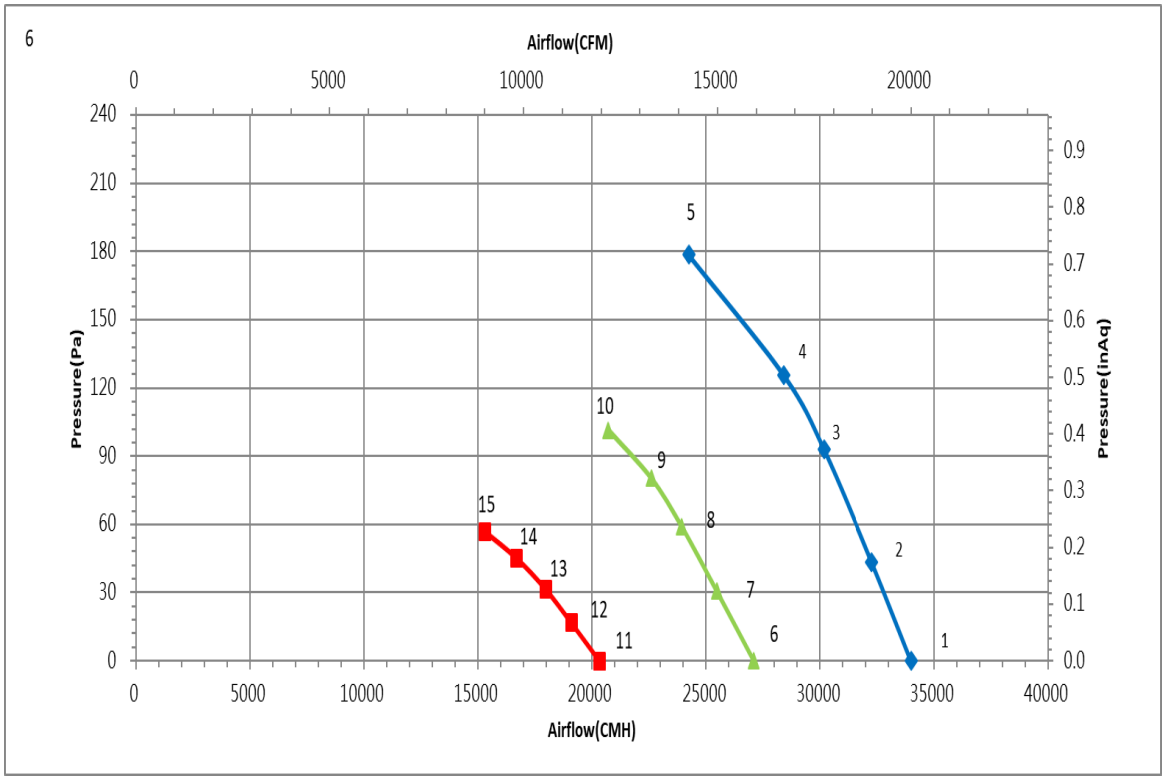
P & Q curves (with fanguard condition)



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0.0	34000.1	1100	2578	4.45	86
2	43.3	32285.0	1100	2728	4.60	
3	93.0	30184.1	1100	2895	4.79	
4	125.8	28407.0	1100	3002	4.91	
5	178.6	24246.9	1100	3078	5.01	
6	0.0	27100	880	1319	2.63	81
7	30.6	25475	880	1409	2.72	
8	59.1	23926	880	1479	2.79	
9	80.2	22596	880	1529	2.84	
10	101.4	20715	880	1565	2.87	
11	0.0	20328	660	576	1.58	74
12	16.9	19085	660	612	1.64	
13	31.6	17957	660	642	1.68	
14	45.4	16678	660	664	1.71	
15	57.0	15292	660	678	1.72	

Test Condition:

- Input Voltage: 3~400Vac
- Temperature : Room Temperature
- Humidity : 65%RH
- Noise (Lp) is measured at a distance of one meter from the inlet side.
- Testing method is compliance with ISO 3745

ErP Directive:

	Actual	2015
Over all Eff (%)	41.1	36.8
Eff Grade N	44.4	40
Power (kW)	3.08	
Air flow (CMH)	24246	
Pressure (Pa)	176	
Speed (RPM)	1097	

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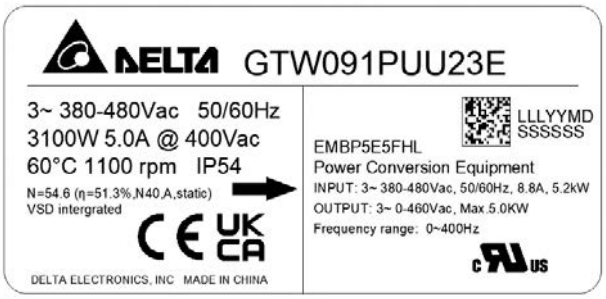
Dimension drawing

Label :



Fan :

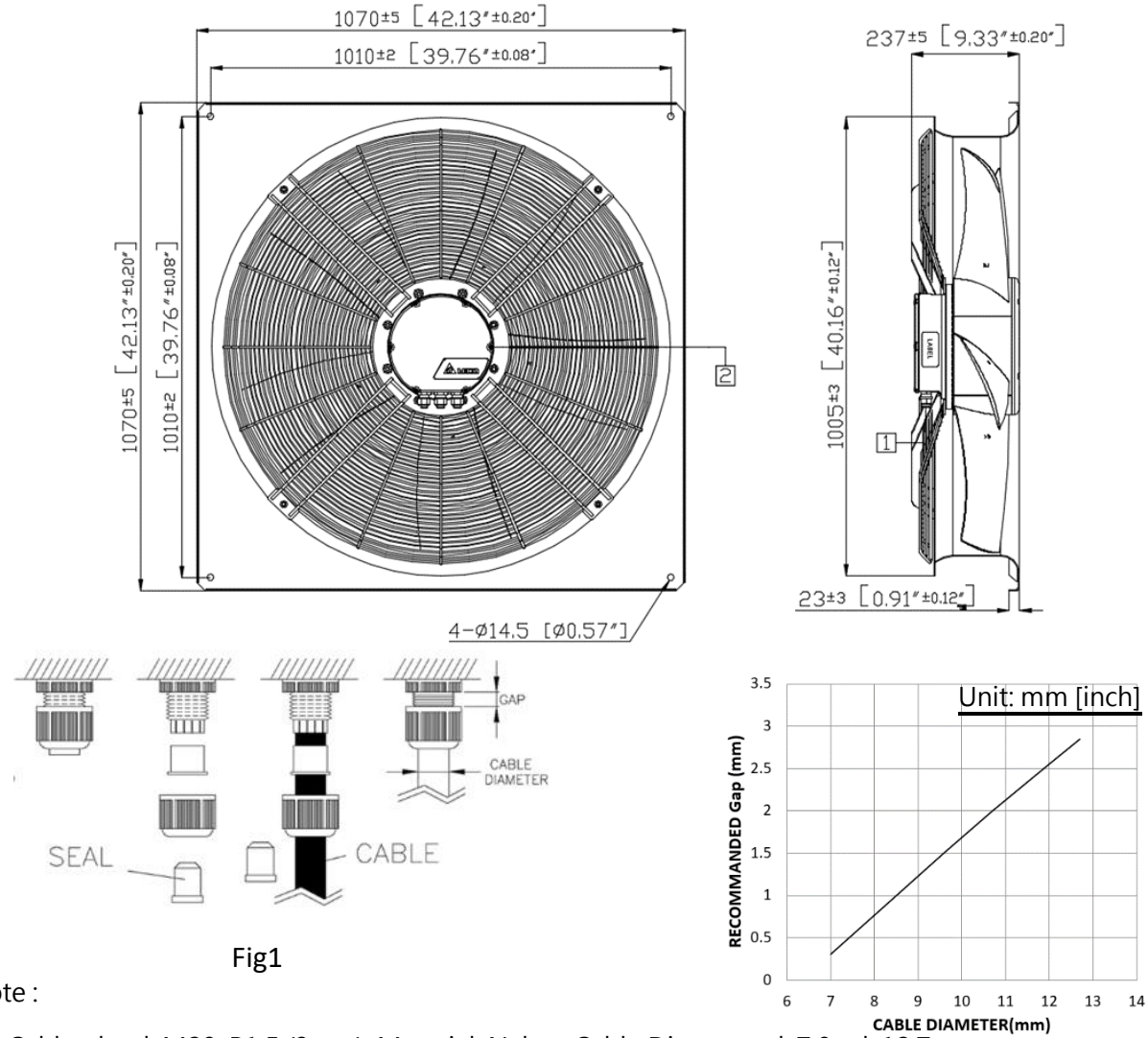


Fig1

Note :

1 Cable gland: M20xP1.5 (3 pcs), Material: Nylon, Cable Diameter: ϕ 7.0~ ϕ 12.7mm

Cable gland nut's gap refer Fig.1 & 2.

2. Open the cover and refer to definition of terminal block, screw tightening torque 20±10% kgf-cm.

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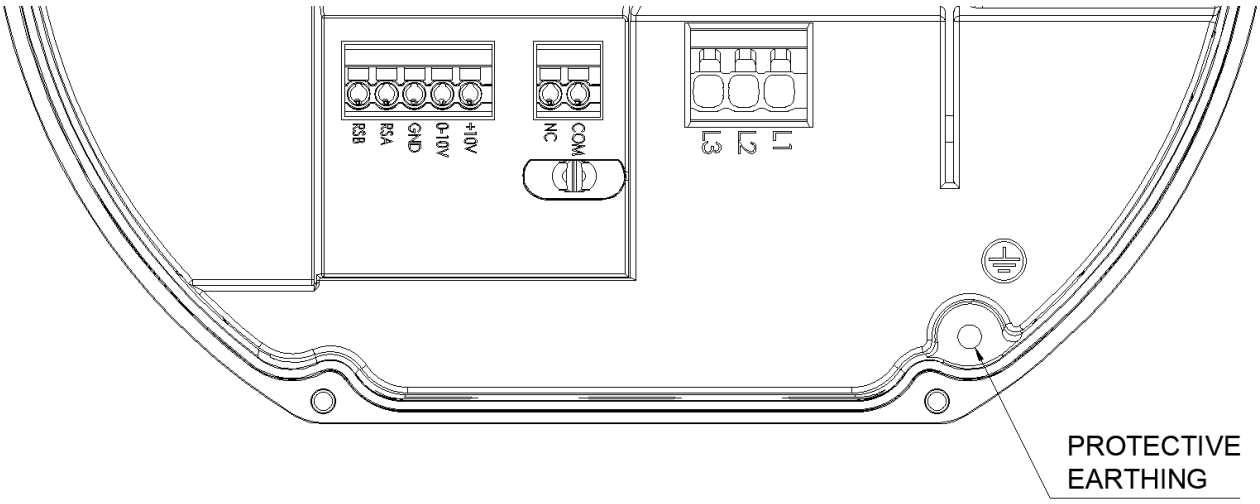
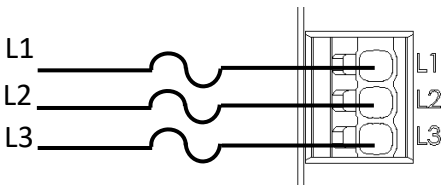
Definition of terminal block



	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



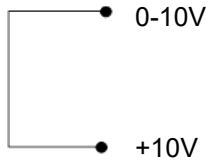
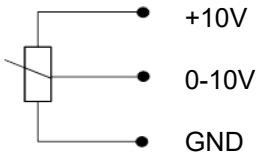
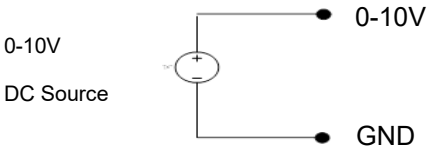
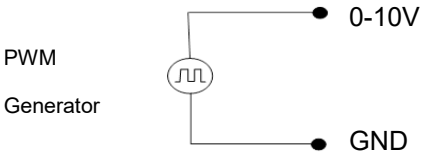
Branch Circuit Protector: 20A class CC fuse
Fuse must be UL listed and CSA certified,
or UL listed and cUL certified.

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.

Function control:

Speed setting	
Full Speed  	**Short 0-10V & +10V** Fan will run at full speed.
 	**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  	**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。

<table>
<tr><th colspan="2">Signal function</th></tr>
<tr><td>RS485 control function</td><td>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.
Cable: A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.</td></tr>
<tr><td>Voltage/PWM control</td><td>The speed comparison will control level
<table>
<tr><th>Voltage (V)</th><th>PWM (%)</th><th>Speed (RPM)</th></tr>
<tr><td>0</td><td>0</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>705 ± 8%</td></tr>
<tr><td>9.5</td><td>95</td><td>1100± 5%</td></tr>
</table></td></tr>
<tr><td>Alarm state</td><td>NC and COM will OPEN</td></tr>
</table>

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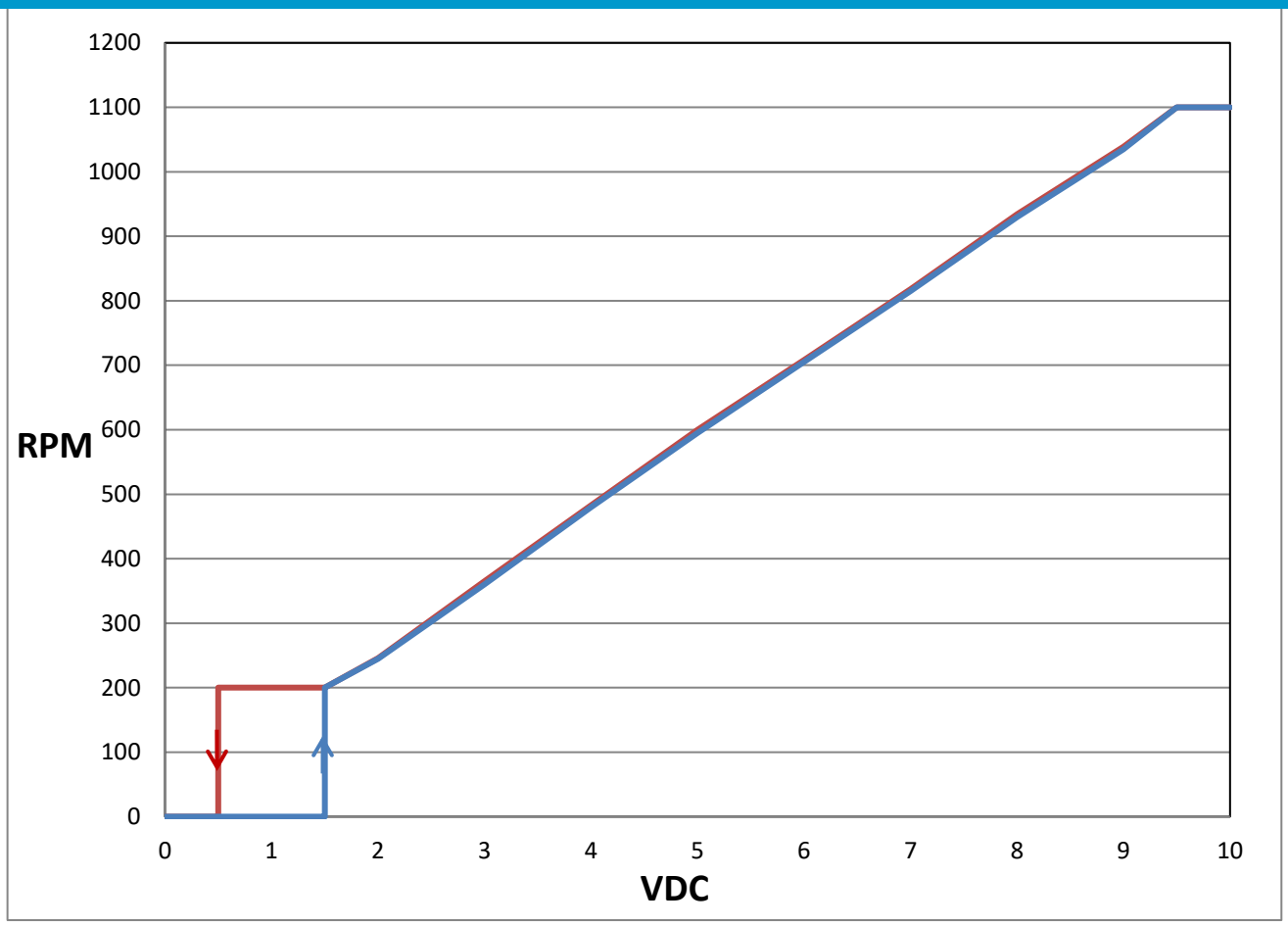
Control Voltage VS. RPM Curve



Voltage(VDC) , PWM duty (%) table

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