Specification For Approval

Customer : _____

Description : EC FAN

Customer Part No. : _____ Rev : ____

Delta Model No. : GTB036PUD25E N1 Rev : X03

Safety Model No. : GTB036PUD25

Sample Issue No. : _____

Sample Issue Date : 03/20/2017

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

Approved by : _____

Date : _____

Delta Electronics, Inc.
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Taoyuan City, 33341, Taiwan FAX : +886-3-359-1991

*** SAMPLE HISTORY ***

CUSTOMER：

CUSTOMER P/N：

DELTA　MODEL：GTB036PUD25E N1

REV	DESCRIPTION	DRAWN	CHECKED		APPROVED	ISSUE DATE
			ME	EE		
X02	ISSUE SPEC.	邱瀞美 01/24'17	邱瀞美 01/24'17	林科亦 01/24'17	顏承偉 01/24'17	01/24'17
X03	MODIFY PD & NOTE	邱瀞美 03/20'17	邱瀞美 03/20'17	林科亦 03/20'17	顏承偉 03/20'17	03/20'17

Smarter. Greener. Together.

GTB036PUD25E N1

Electronically Commutated (EC) Fan

Centrifugal Fan

ϕ360 x 250 mm

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Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	830 W
Power @ Max. load	1000 W
Output Side	
Speed (RPM)	2200
Qmax. (CMH / CFM)	5573 / 3280
Pmax. (Pa / inAq)	919 / 3.69
Noise (dB-A) @ Qmax.	81.0
Functions	
Passive power factor correction	
Control input 0-10VDC / PWM / 4-20mA.	
Output +10VDC (±10%), max. 10mA.	
Control voltage output: 0-10VDC.	
RS485 control bus	
Alarm relay, Locked rotor protection, Soft start.	
Speed telling, Frequency generator signal.	
Voltage / Current monitoring.	

Physical	
Rotation Direction	CW, Seen on rotor
Material (Impeller / Frame)	Aluminum sheet / Die-cast aluminum
Bearing system	Ceramic ball bearings
Weight (kg)	11.1
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
Safety	
Safety	UL; cUL; TUV
IP Level	IP54
EMC	EN61000-6-1/3 , EN61000-3-2/3
Protection class	I
Insulation class	B
Leakage current	<= 3.5 mA
Motor protection	Over temperature protected
Life expectance	60,000 hrs at 40 ℃ / 15 ~ 65 %RH

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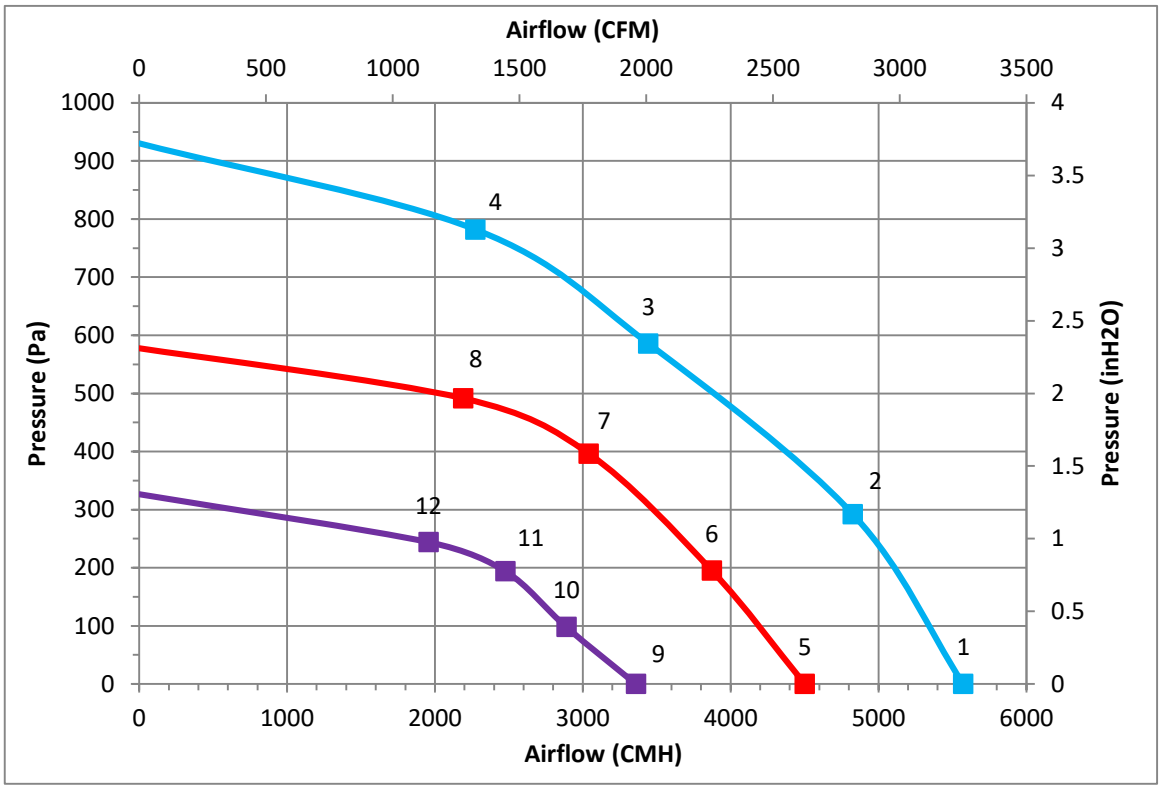
P & Q curves



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	5573	2300	830	1.40	81.0
2	292	4826	2270	1000	1.61	
3	586	3443	2175	1000	1.61	
4	782	2273	2255	1000	1.61	
5	0	4501	1836	450	0.84	75.0
6	195	3872	1830	563	0.99	
7	396	3040	1824	608	1.06	
8	492	2191	1845	595	1.04	
9	0	3359	1385	176	0.37	73.5
10	98	2889	1361	208	0.43	
11	194	2476	1382	240	0.48	
12	244	1956	1366	234	0.47	

Test Condition：

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

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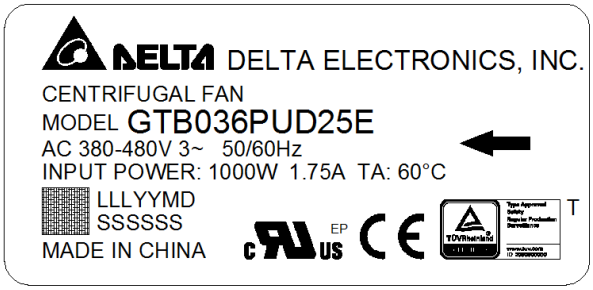
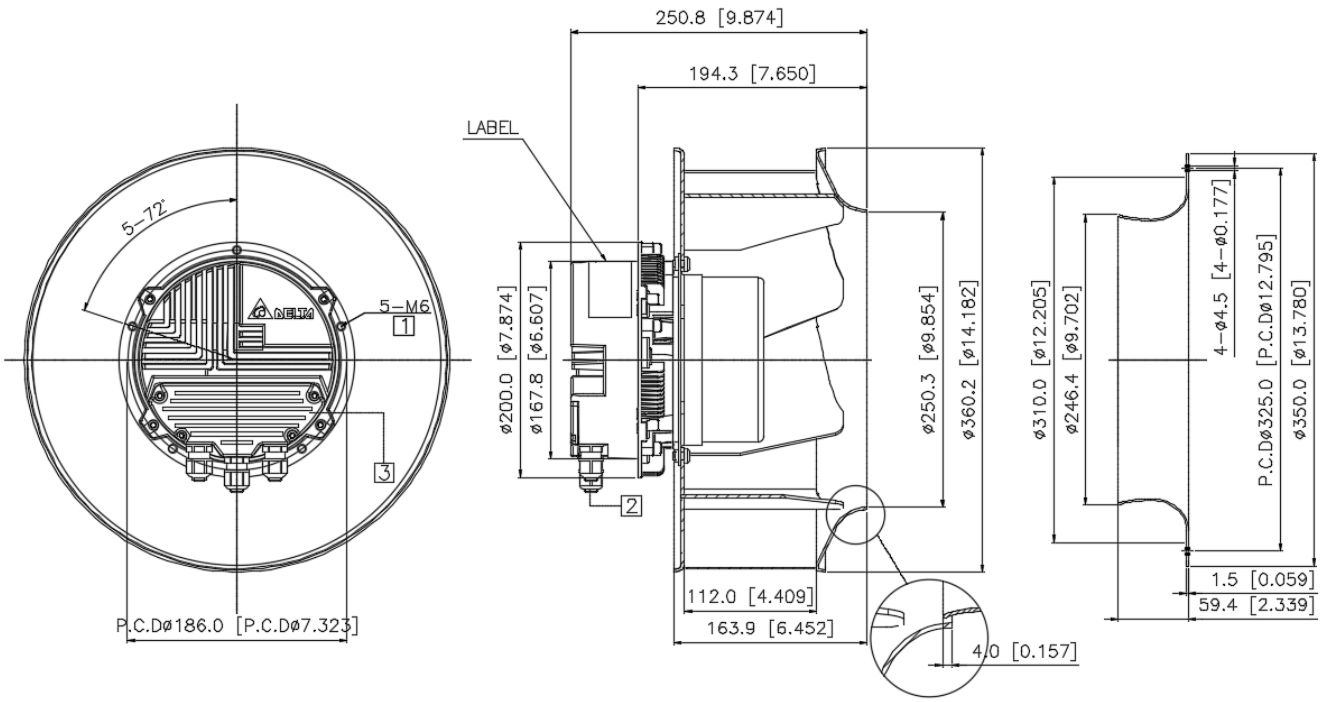
Dimension drawing

Label :



Fan :



Note :

UNIT : mm[INCH]

1. Depth of screw : 12 ~16 mm.
2. Cable Diameter : Ø 6.0 ~ Ø 10.0 mm
3. Open the cover and refer to definition of terminal block.

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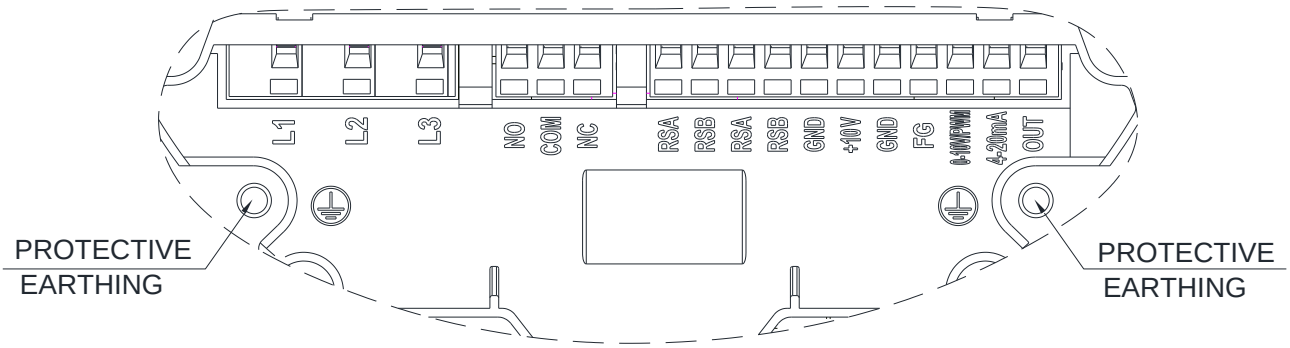
Definition of terminal block



	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NO	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NC	Alarm relay, close by failure
Signal	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	GND	Ground
	+10V	+10V output, MAX 10mA (For external potentiometer)
	GND	Ground
	FG	Frequency generator (FG) signal
	0-10V/PWM	Speed control ,input 0-10VDC
	4-20mA	Speed control ,input 4-20mA
	OUT	Control voltage output 0-10VDC (For external potentiometer)

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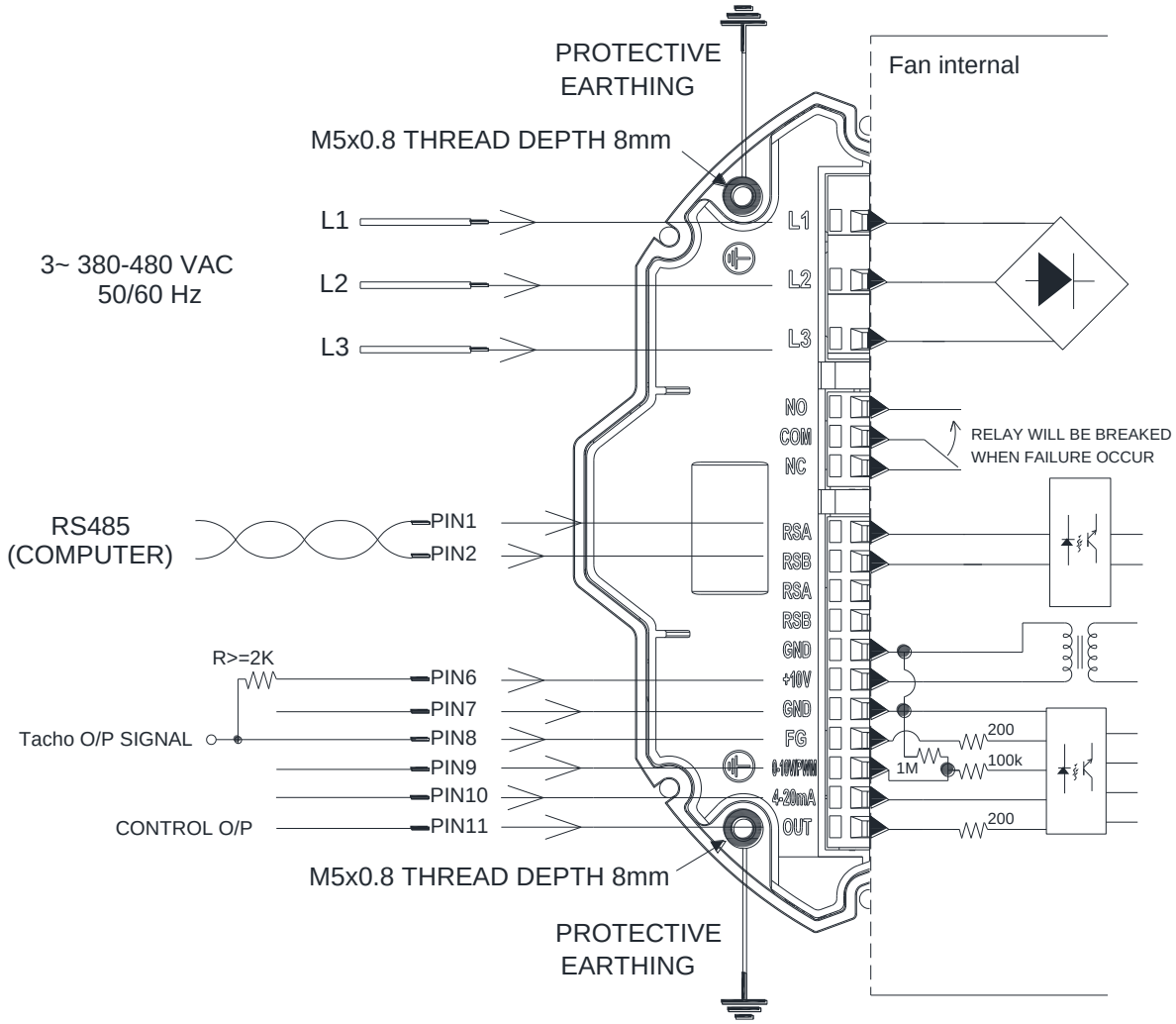
Lead wire connection:



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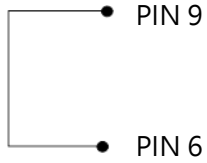
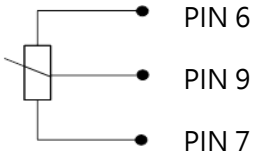
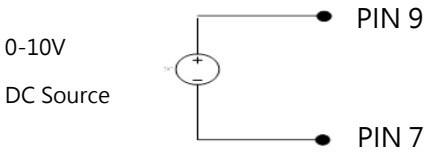
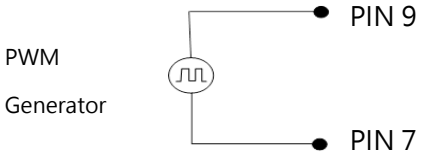
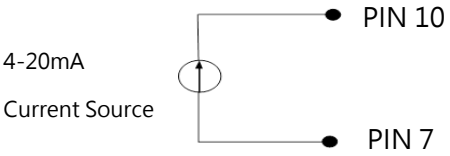
Speed setting	
Full Speed  	**Short PIN6 & PIN9** Fan will run full speed.
Voltage Control A  	**Connector 1-10kΩ variable resistor** Between **+10VDC** with **GND** and **0-10V/PWM** Turn the variable resistor，can change the '**0-10V/PWM**' voltage (0...10V)。
Voltage Control B  	**Use voltage source support 0~10VDC voltage** DC+ : connector PIN9(+) DC - : connector PIN7(-)
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。
Current Control  	**4~20mA Current Control** Open 0-10V/PWM PIN - Lower than 4.8 mA → Fan Stop - Higher than 5.6 mA → Fan Start up - Higher than 19.5 mA →Maximum Speed

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<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.</td></tr>
<tr><td>Control O/P</td><td>The analog signal level is the derivative of current control level.
<table>
<tr><th>Current (mA)</th><th>Control O/P (VDC) (REF)</th></tr>
<tr><td>4.0</td><td>0</td></tr>
<tr><td>6.3</td><td>1.45</td></tr>
<tr><td>14.0</td><td>5.95</td></tr>
<tr><td>19.5</td><td>9.46</td></tr>
</table></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) (REF)</th></tr>
<tr><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1.5</td><td>15</td><td>390±50RPM</td></tr>
<tr><td>6.0</td><td>60</td><td>1566±8%</td></tr>
<tr><td>9.5</td><td>95</td><td>2200±5%</td></tr>
</table></td></tr>
<tr><td>Current control</td><td>The speed comparison will control level
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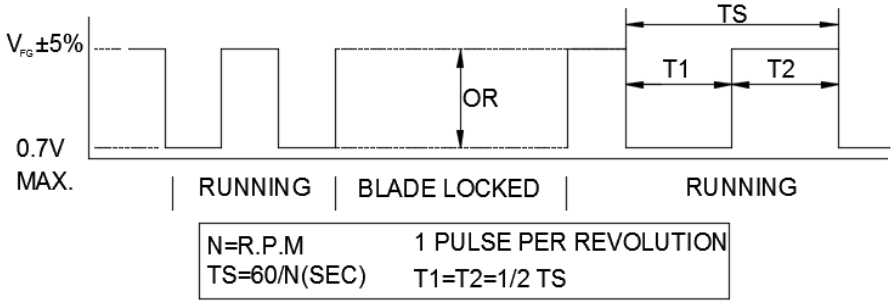
<tr><td>14.0</td><td>1560±8%</td></tr>
<tr><td>19.5</td><td>2200±5%</td></tr>
</table></td></tr>
<tr><td>Alarm state</td><td>NO and COM will OPEN ; NC and COM will CLOSE.</td></tr>
<tr><td>FG</td><td>V_{CE}(sat) = 0.7V MAX. V_{FG} = 30.0V MAX.
I_C = 5mA MAX. R ≥ V_{FG} / I_C

Frequency generator waveform
 
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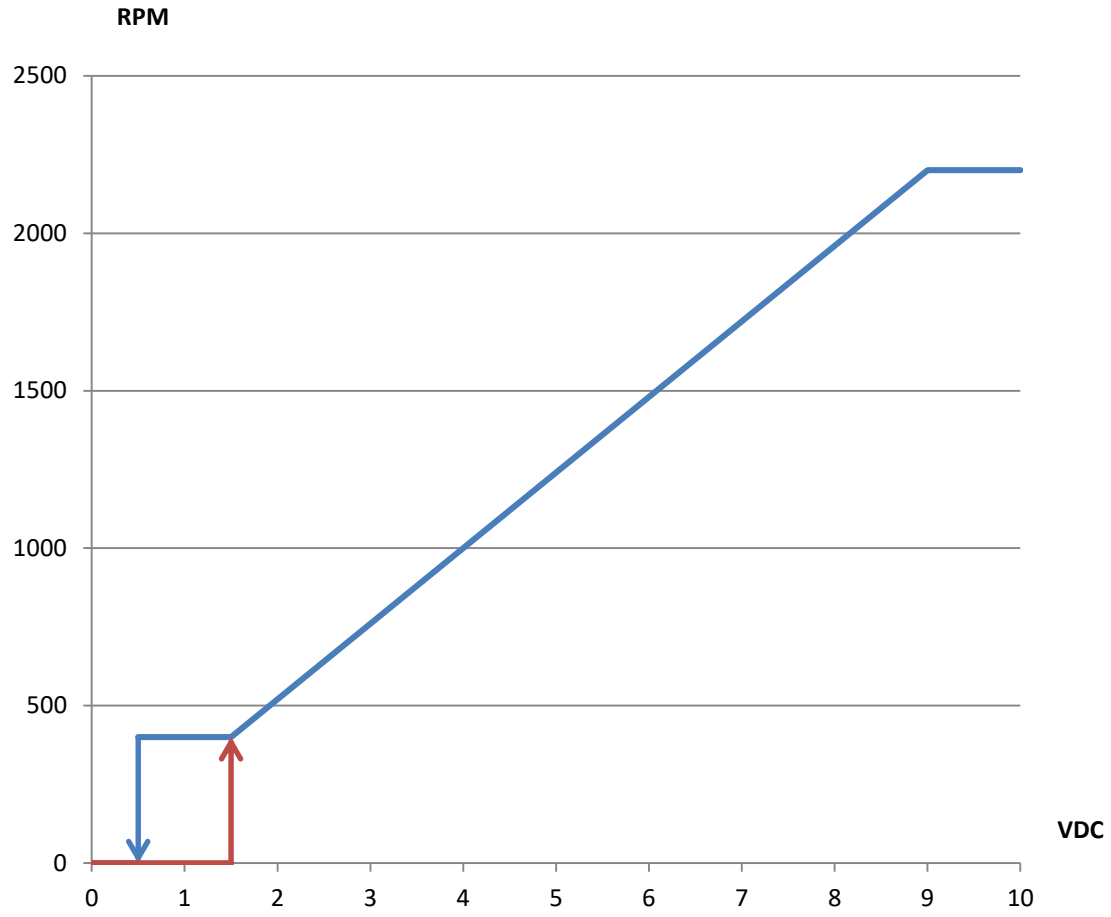
Control Voltage VS. RPM Curve



Voltage(VDC) , PWM duty (%), 4~20mA 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	%
4~20 mA	4	5	5.6	6	7.2	8.8	10.4	12	13.6	15.2	16.8	19	20	mA

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