



## Specification For Approval

Customer : \_\_\_\_\_  
Description : \_\_\_\_\_ EC FAN \_\_\_\_\_  
Customer Part No. : \_\_\_\_\_ Rev : \_\_\_\_\_  
Delta Model No. : \_\_\_\_\_ GTB056NUT37R N5 \_\_\_\_\_ Rev : X06  
Safety Model No. : \_\_\_\_\_  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : \_\_\_\_\_ 04/12/2017 \_\_\_\_\_

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

Approved by : \_\_\_\_\_

Date : \_\_\_\_\_

Delta Electronics, Inc.

No.252, Shangying Road, Guishan Industrial Zone,

Taoyuan City, 33341, Taiwan

TEL : +886-3-359-1968

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\*\*\* SAMPLE HISTORY \*\*\*

CUSTOMER :

CUSTOMER P/N :

DELTA MODEL : GTB056NUT37R N5

REV	DESCRIPTION	DRAWN	CHECKED		APPROVED	ISSUE DATE
			ME	EE		
X05	Issue spec.	鍾明翰 02/13'17	鍾明翰 02/13'17	林科亦 02/13'17	顏承偉 02/13'17	02/13'17
X06	Change speed control table.	鍾明翰 04/12'17	鍾明翰 04/12'17	蕭力瑋 04/12'17	莊朝琴 04/12'17	04/12'17

## Electronically Commutated (EC) Fan

### Centrifugal Fan

φ 566 x 365.7 mm



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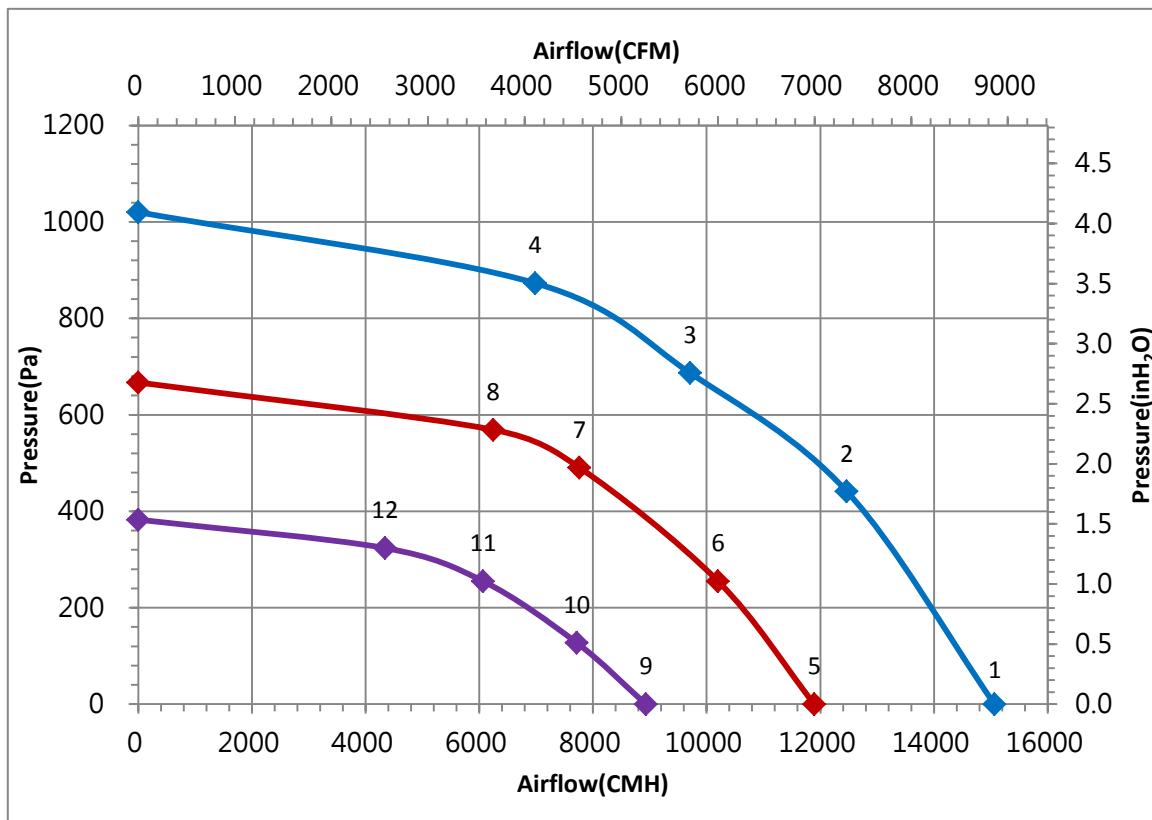
## Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	2392 W
Power @ Max. load	3100 W
Output Side	
Speed (RPM)	1550
Qmax. (CMH / CFM)	15063 / 8861
Pmax. (Pa / inAq)	1020 / 4.09
Noise (dB-A) @ Qmax.	85.5
Functions	
Active 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	Ball bearings
Weight (kg)	32
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 °C
Storage temperature range	-40 ~ +70 °C
Safety	
Safety	UL , cUL , TUV (in progress)
IP Level	IP54
EMC	EN61000-6-2/4 , EN61000-3-2/3 (in progress)
Protection class	I
Insulation class	F
Leakage current	≤ 3.5 mA
Motor protection	Over temperature protected
Life expectancy	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



Measure data:

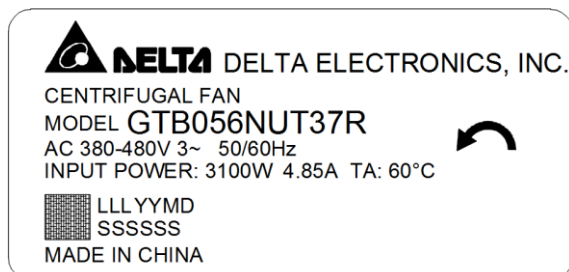
	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	15063	1555	2392	3.60	85.5
2	442	12464	1531	3119	4.69	
3	687	9710	1495	3111	4.68	
4	873	6981	1532	3113	4.68	
5	0	11893	1242	1203	1.85	80.0
6	255	10200	1246	1590	2.44	
7	491	7762	1240	1726	2.65	
8	569	6245	1241	1680	2.58	
9	0	8930	930	527	0.83	72.5
10	128	7712	927	650	1.02	
11	255	6066	928	734	1.15	
12	324	4339	929	693	1.09	

Test Condition :

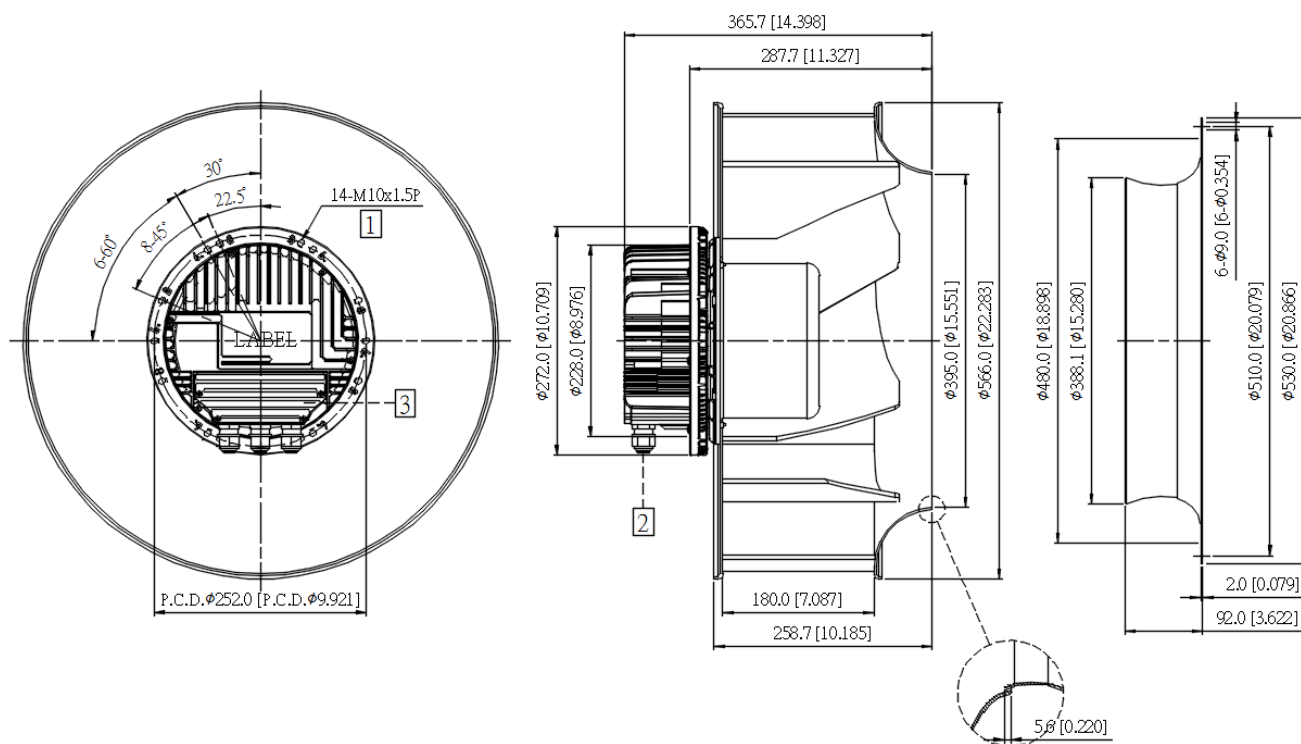
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side.

## Dimension drawing

Label :



Fan :

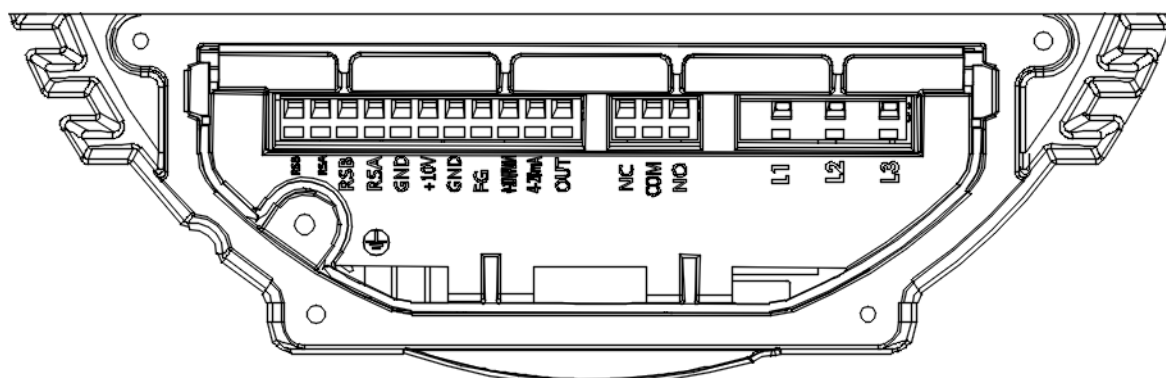


UNIT : mm [INCH]

Note :

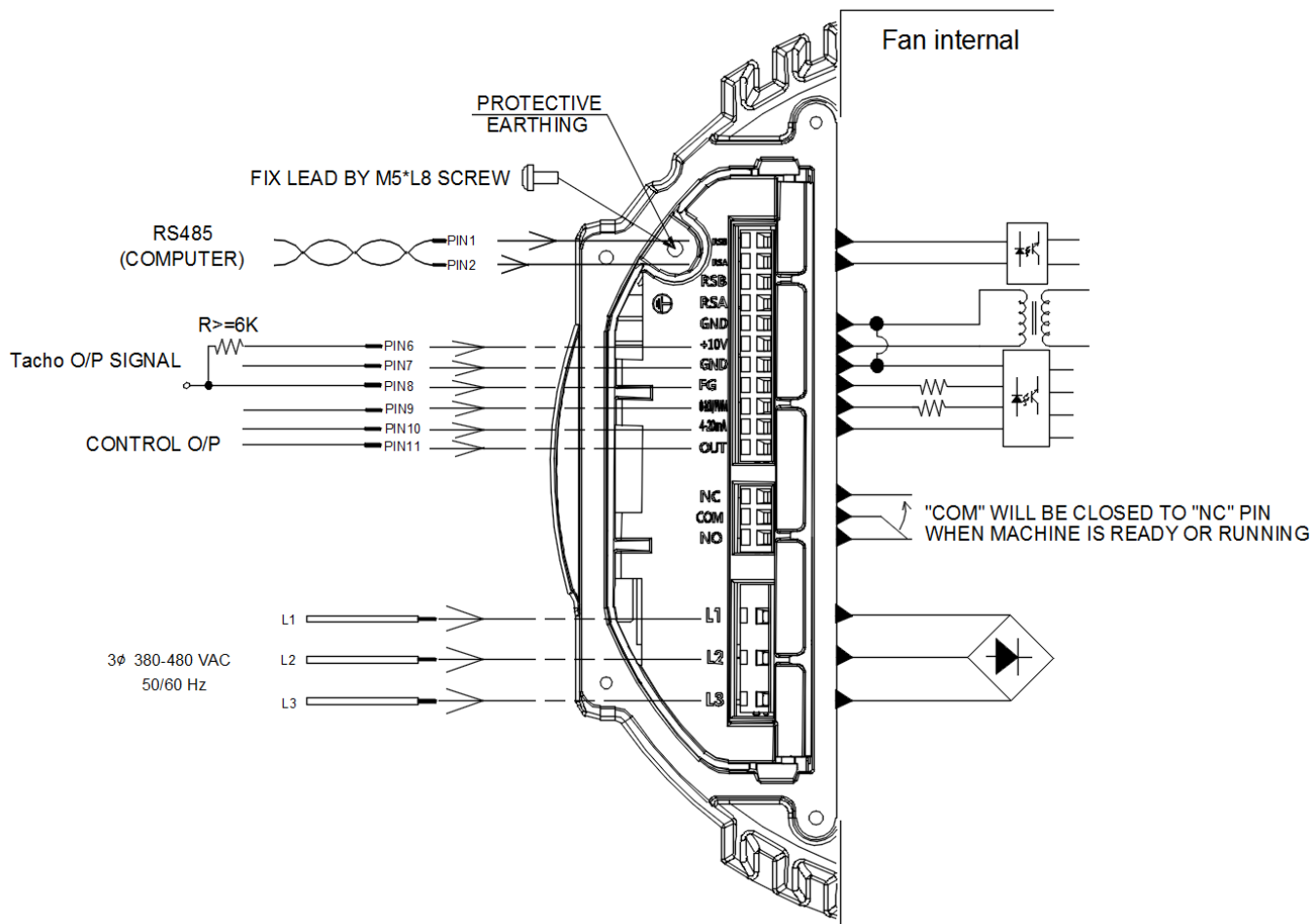
- 1 Depth of screw : 20 ~ 24mm.
- 2 Cable diameter : φ7.0 ~ φ12.7mm.
- 3 Open the cover and refer to definition of terminal block.

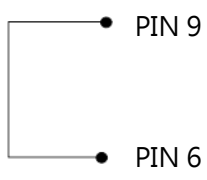
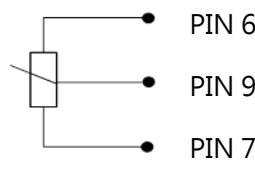
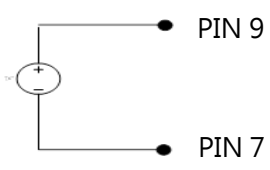
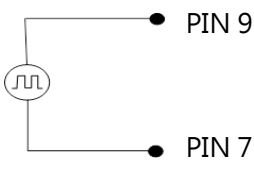
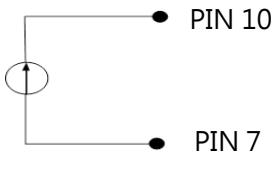
## Definition of terminal block



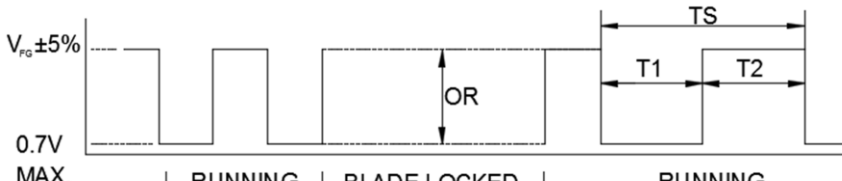
	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NC	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NO	Alarm relay, close by failure
Signal	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	GND	Ground
	+10V	+10V output, 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)

Lead wire connection:

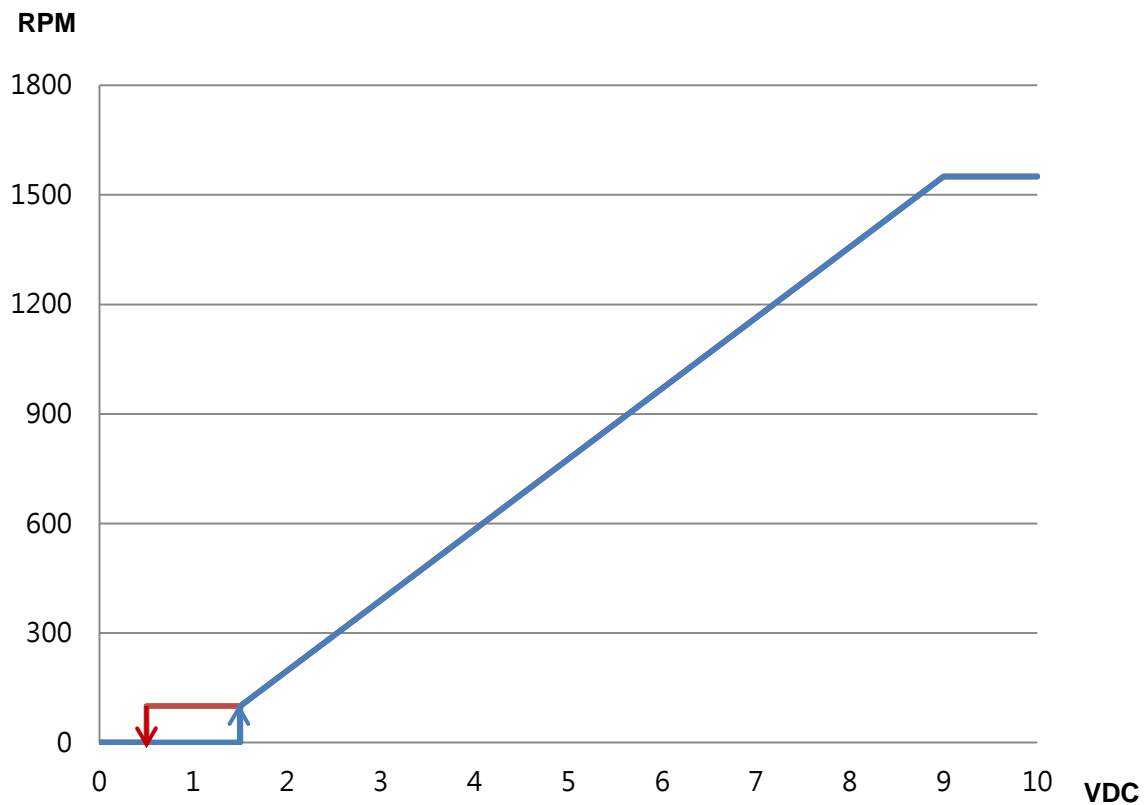


Speed setting	
<p><b>Full Speed</b></p> 	<p><b>Short PIN6 &amp; PIN9</b> Fan will run full speed.</p>
<p><b>Voltage Control A</b></p> 	<p><b>Connector 1-10kΩ variable resistor</b> Between +10VDC with GND and 0-10V/PWM Turn the variable resistor · can change the ' 0-10V/PWM ' voltage (0...10V) °</p>
<p><b>Voltage Control B</b></p> <p>0-10V DC Source</p> 	<p><b>Use voltage source support 0~10VDC voltage</b> DC+ : connector PIN9(+) DC - : connector PIN7(-)</p>
<p><b>PWM Control</b></p> <p>PWM Generator</p> 	<p><b>PWM duty control</b> 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 °</p>
<p><b>Current Control</b></p> <p>4-20mA Current Source</p> 	<p><b>4~20mA Current Control</b> Open 0-10V/PWM PIN - 4.5 mA → Fan Stop - 6.0 mA → Fan Start up - 19.5 mA → Maximum Speed</p>



Signal function																
RS485 control function	<p><b>RS485 control function</b></p> <ul style="list-style-type: none"> <li>-Select the control mode of speed, fixed speed or fixed PWM duty</li> <li>-Speed and power consumption feedback.</li> <li>-Allow multiple FANs control and status patrol.</li> </ul>															
Control O/P	<p>The analog signal level is the derivative of current control level.</p> <table border="1"> <thead> <tr> <th>Current (mA)</th> <th>Control O/P (VDC) (REF)</th> </tr> </thead> <tbody> <tr> <td>4.0</td> <td>0</td> </tr> <tr> <td>6.3</td> <td>1.60</td> </tr> <tr> <td>14.0</td> <td>6.03</td> </tr> <tr> <td>19.5</td> <td>9.19</td> </tr> </tbody> </table>	Current (mA)	Control O/P (VDC) (REF)	4.0	0	6.3	1.60	14.0	6.03	19.5	9.19					
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Alarm state	NC and COM will OPEN; NO and COM will CLOSE.															
FG	<p> <math>V_{CE(sat)} = 0.7V \text{ MAX.}</math>      <math>V_{FG} = 30.0V \text{ MAX.}</math>  <math>I_C = 5mA \text{ MAX.}</math>      <math>R \geq V_{FG} / I_C</math> </p> <p><b>Frequency generator waveform</b></p>  <p> <math>V_{FG} \pm 5\%</math>  <math>0.7V \text{ MAX.}</math> </p> <p>     RUNNING   BLADE LOCKED   RUNNING   </p> <table border="1"> <tbody> <tr> <td>N=R.P.M</td> <td>1 PULSE PER REVOLUTION</td> </tr> <tr> <td>TS=60/N(SEC)</td> <td>T1=T2=1/2 TS</td> </tr> </tbody> </table>	N=R.P.M	1 PULSE PER REVOLUTION	TS=60/N(SEC)	T1=T2=1/2 TS											
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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