



## Specification For Approval

Customer : \_\_\_\_\_  
Description : \_\_\_\_\_ EC FAN \_\_\_\_\_  
Customer Part No. : \_\_\_\_\_ Rev : \_\_\_\_\_  
Delta Model No. : \_\_\_\_\_ GTB040PUD27R N1 \_\_\_\_\_ Rev : X04  
Safety Model No. : \_\_\_\_\_ GTB040PUD27 \_\_\_\_\_  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : \_\_\_\_\_ 05/31/2017 \_\_\_\_\_

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

FAX : +886-3-359-1991

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

CUSTOMER :

CUSTOMER P/N :

DELTA MODEL : GTB040PUD27R N1

REV	DESCRIPTION	DRAWN	CHECKED		APPROVED	ISSUE DATE
			ME	EE		
X04	ISSUE SPEC.	邱澗美 05/31'17	邱澗美 05/31'17	林科亦 05/31'17	顏承偉 05/31'17	05/31'17

# Electronically Commutated (EC) Fan

Centrifugal Fan

φ 404 x 270 mm



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 Taiwan  
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[www.deltaww.com](http://www.deltaww.com)



RoHS

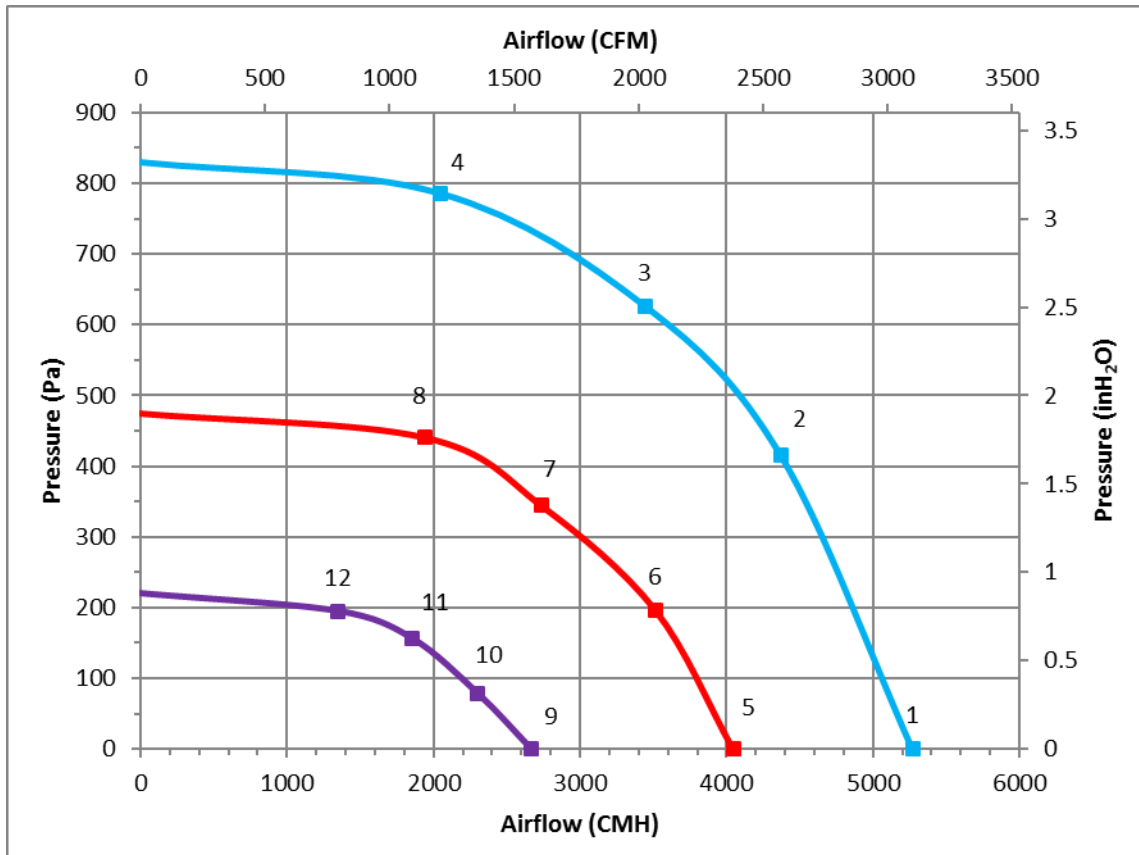
## Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	690 W
Power @ Max. load	1000 W
Output Side	
Speed (RPM)	2140
Qmax. (CMH / CFM)	5270 / 3102
Pmax. (Pa / inAq)	832 / 3.34
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)	11.6
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 °C
Storage temperature range	-40 ~ +70 °C
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 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	5270	2120	690	1.26	81.0
2	416	4371	2116	950	1.63	
3	626	3448	2114	1000	1.72	
4	786	2048	2119	910	1.56	
5	0	4045	1610	316	0.65	73.1
6	197	3512	1605	393	0.81	
7	344	2741	1605	440	0.86	
8	441	1942	1608	430	0.86	
9	0	2669	1071	101	0.26	64.3
10	78	2304	1065	126	0.31	
11	157	1852	1070	143	0.33	
12	195	1348	1070	141	0.33	

Test Condition :

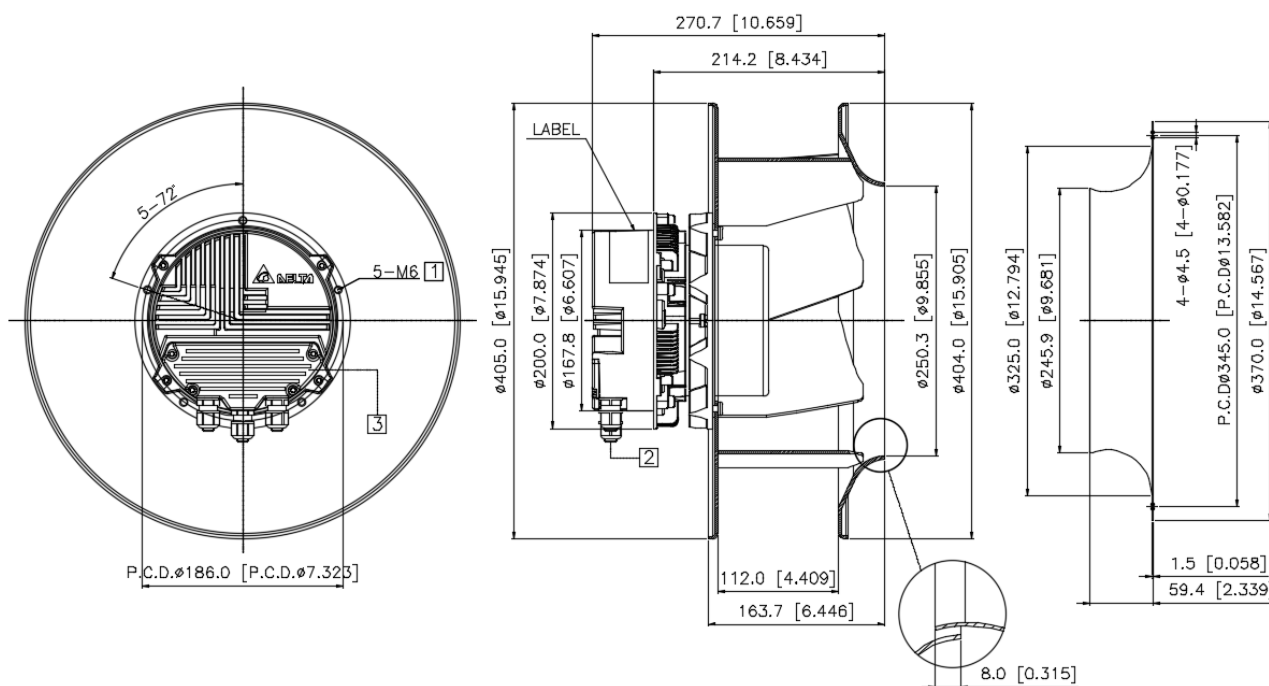
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side.

Dimension drawing

Label :



Fan :

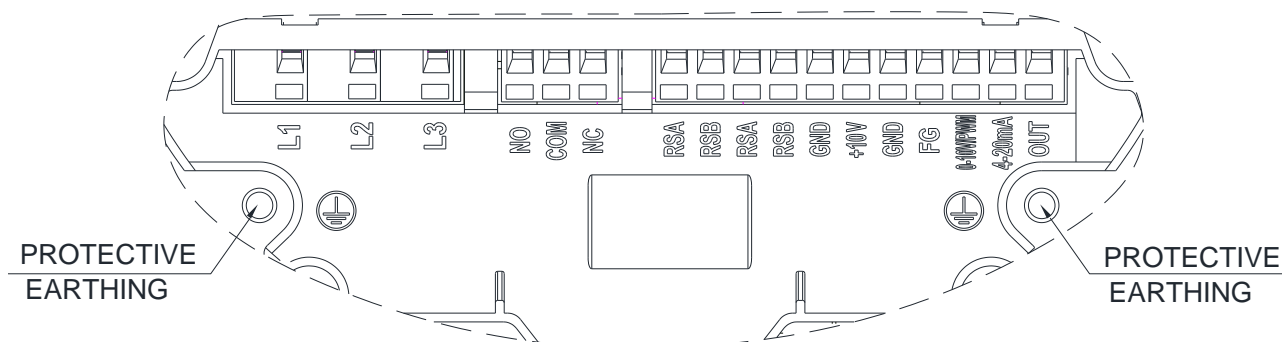


Note :

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

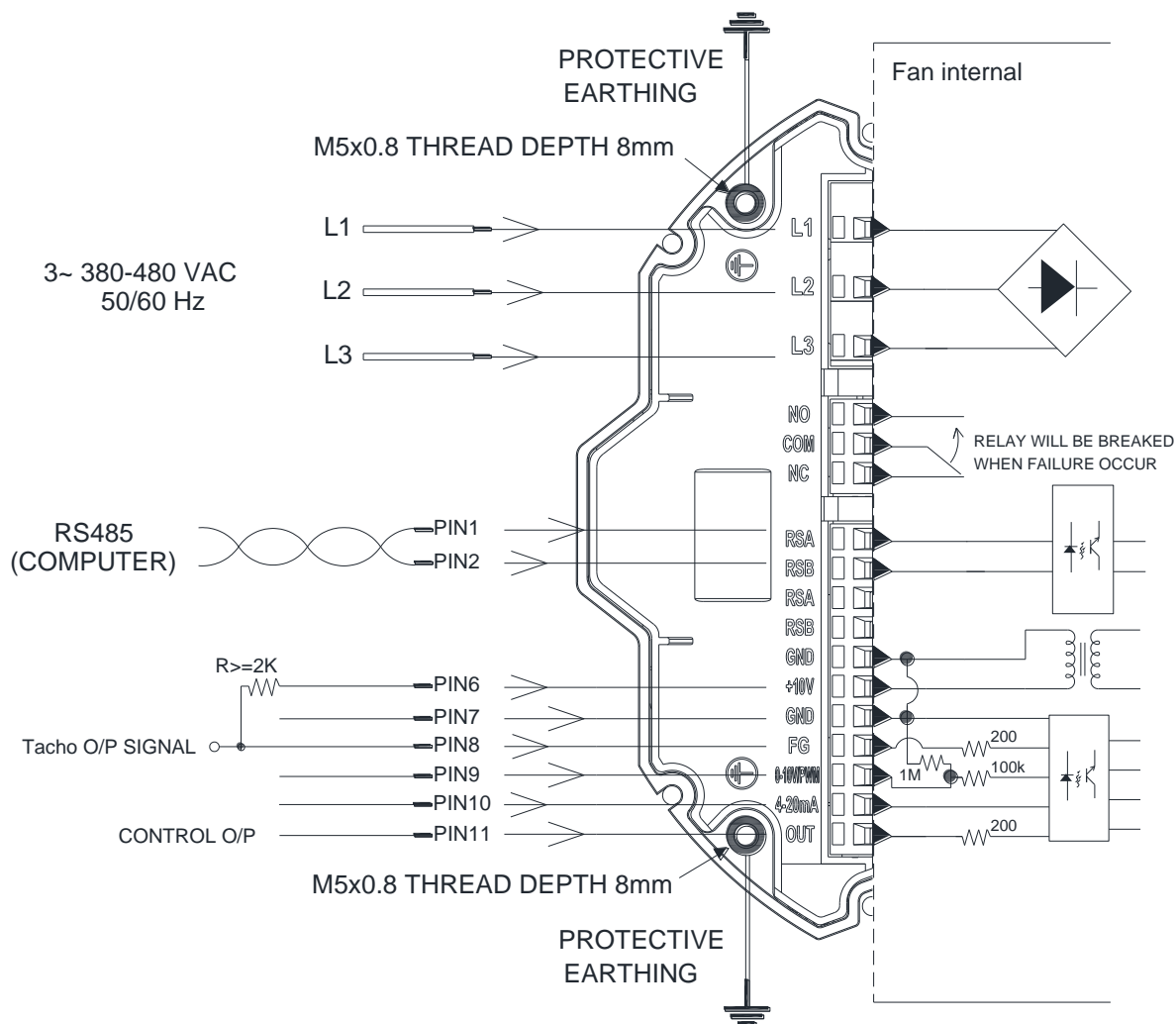
UNIT : mm [INCH]

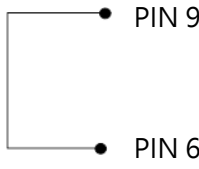
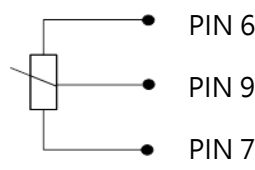
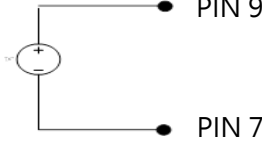
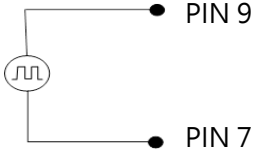
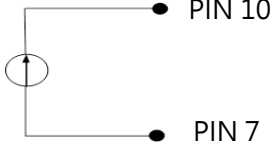
## Definition of terminal block



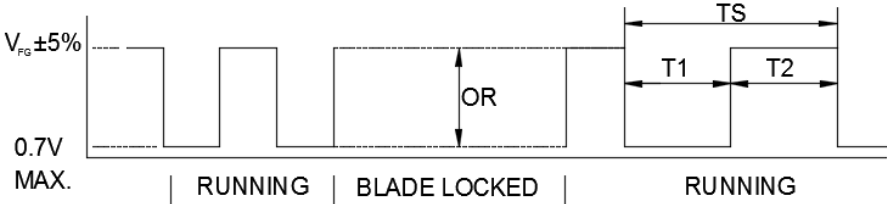
	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NO	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NC	Alarm relay, close by failure
Signal	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	GND	Ground
	+10V	+10V output,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

Lead wire connection:

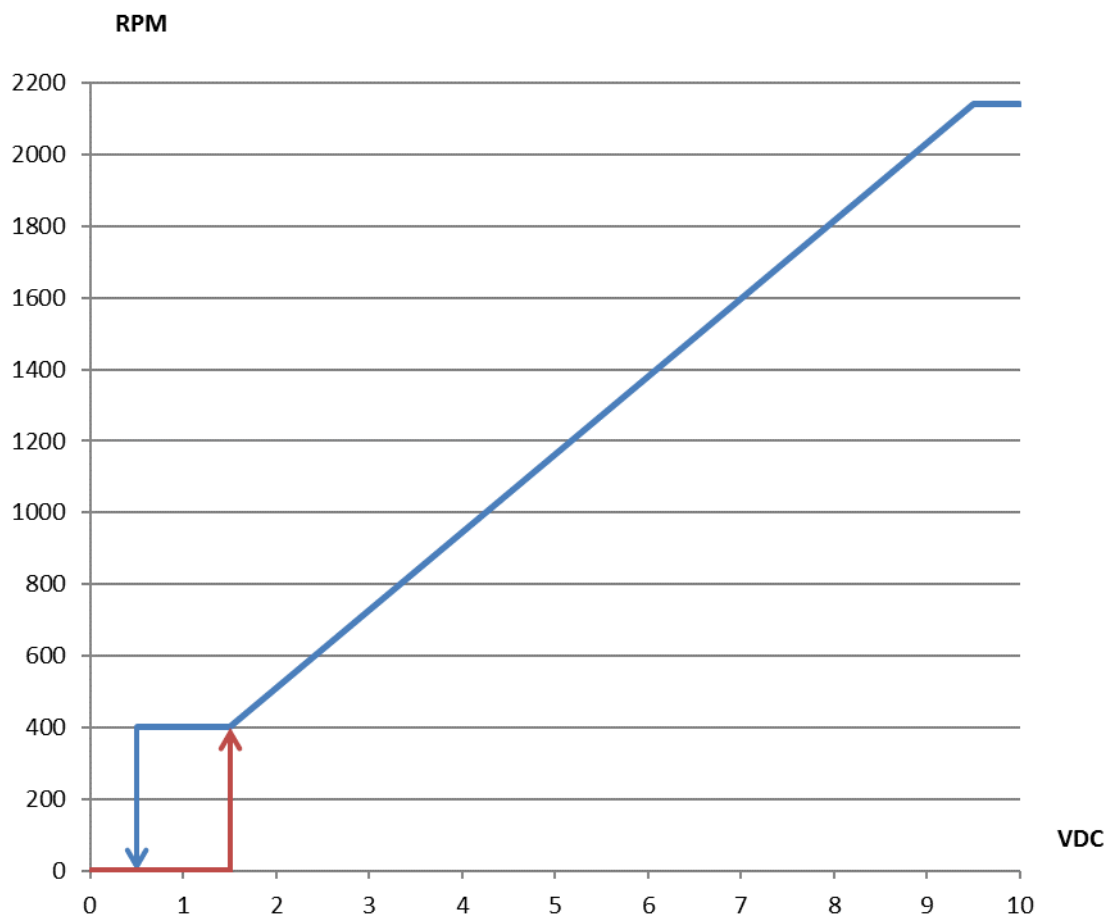


Speed setting	
<p><b>Full Speed</b></p> 	<p><b>Short PIN6 &amp; PIN9</b> Fan will run full speed.</p>
<p><b>Voltage Control A</b></p> 	<p><b>Connector 1-10kΩ variable resistor</b> Between +10VDC with GND and 0-10V/PWM Turn the variable resistor · can change the '0-10V/PWM' voltage (0...10V) °</p>
<p><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 - Lower than 4.8 mA → Fan Stop - Higher than 5.6 mA → Fan Start up - Higher than 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>1.54</td> </tr> <tr> <td>14.0</td> <td>6.15</td> </tr> <tr> <td>19.5</td> <td>9.33</td> </tr> </tbody> </table>	Current (mA)	Control O/P (VDC) (REF)	4.0	0	6.3	1.54	14.0	6.15	19.5	9.33					
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Alarm state	<p><b>NO and COM will OPEN ; NC and COM will CLOSE.</b></p>															
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>  <table border="1"> <tbody> <tr> <td><math>N=R.P.M</math></td> <td>1 PULSE PER REVOLUTION</td> </tr> <tr> <td><math>TS=60/N(\text{SEC})</math></td> <td><math>T1=T2=1/2 \text{ TS}</math></td> </tr> </tbody> </table>	$N=R.P.M$	1 PULSE PER REVOLUTION	$TS=60/N(\text{SEC})$	$T1=T2=1/2 \text{ TS}$											
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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