



Specification For Approval

Customer : _____
Description : _____ EC FAN _____
Customer Part No. : _____ Rev : _____
Delta Model No. : _____ GTB056NUT35R N5 _____ Rev : X00
Safety Model No. : _____
Sample Issue No. : _____
Sample Issue Date : _____ 11/30/2016 _____

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 : GTB056NUT35R N5

REV	DESCRIPTION	DRAWN	CHECKED		APPROVED	ISSUE DATE
			ME	EE		
X00	Issue spec.	鍾明翰 11/30'16	鍾明翰 11/30'16	林科亦 11/30'16	顏承偉 11/30'16	11/30'16

Electronically Commutated (EC) Fan

Centrifugal Fan

φ 565 x 345 mm



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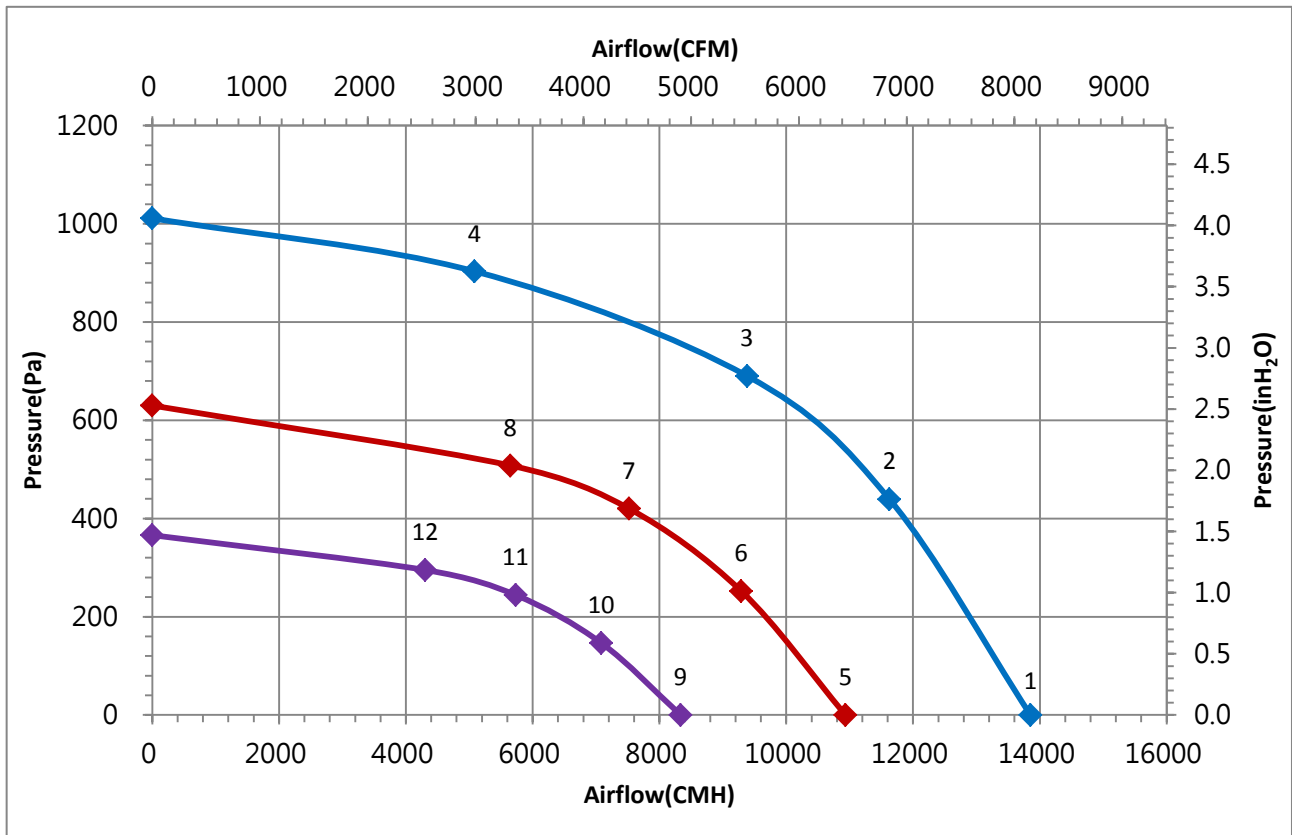
Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	2103 W
Power @ Max. load	3100 W
Output Side	
Speed (RPM)	1550
Qmax. (CMH / CFM)	13852 / 8153
Pmax. (Pa / inAq)	1009 / 4.05
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)	31
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	13852	1550	2103	3.31	85.5
2	439	11628	1550	2891	4.36	
3	690	9382	1550	3126	4.67	
4	903	5084	1550	2581	3.89	
5	0	10934	1220	1043	1.78	80.0
6	252	9290	1220	1391	2.31	
7	420	7519	1220	1521	2.48	
8	507	5649	1220	1451	2.36	
9	0	8335	930	462	0.86	72.5
10	146	7082	930	616	1.12	
11	244	5731	930	673	1.22	
12	295	4306	930	642	1.16	

Test Condition :

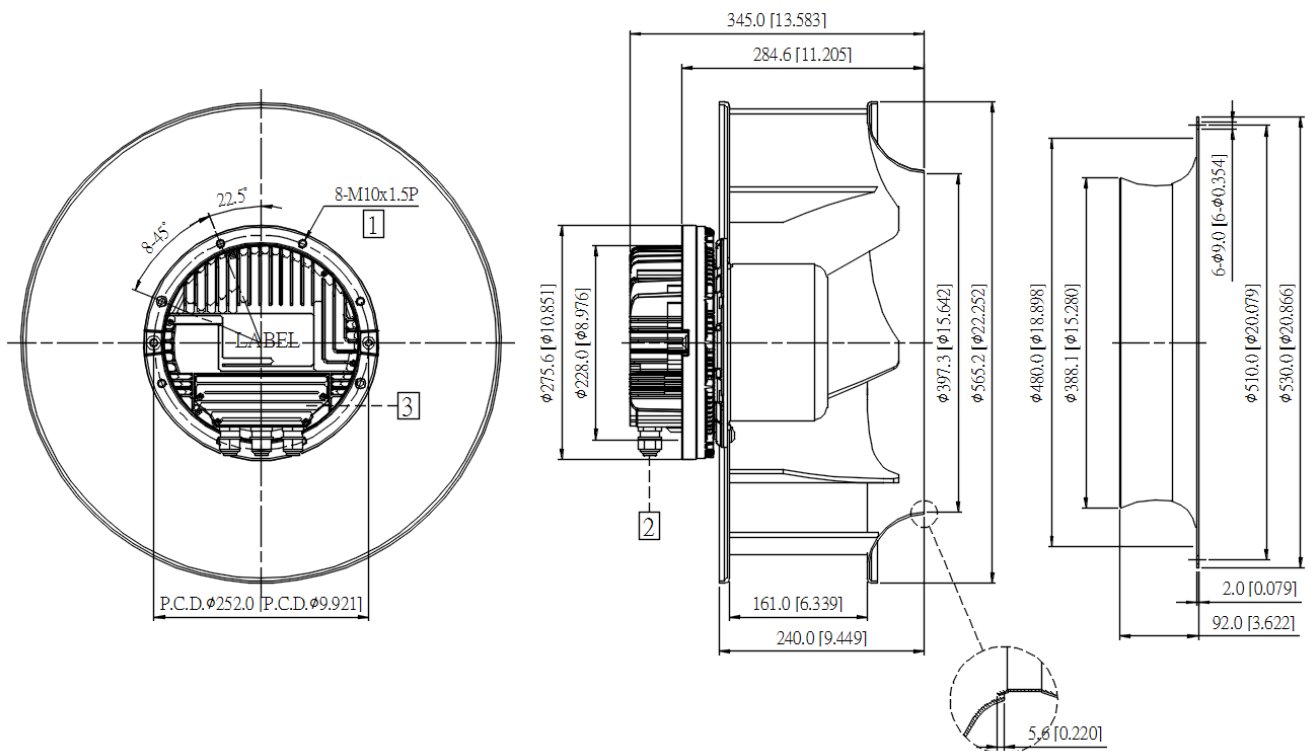
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side.

Dimension drawing

Label :



Fan :

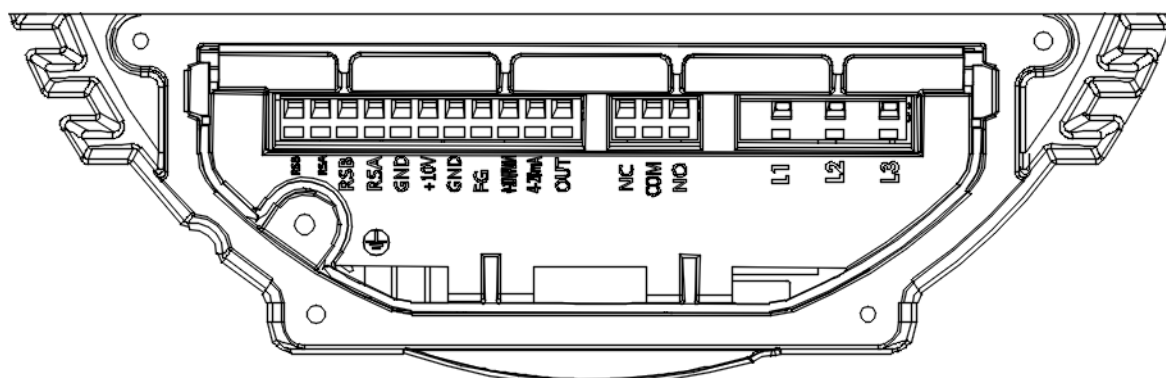


UNIT : mm [INCH]

Note :

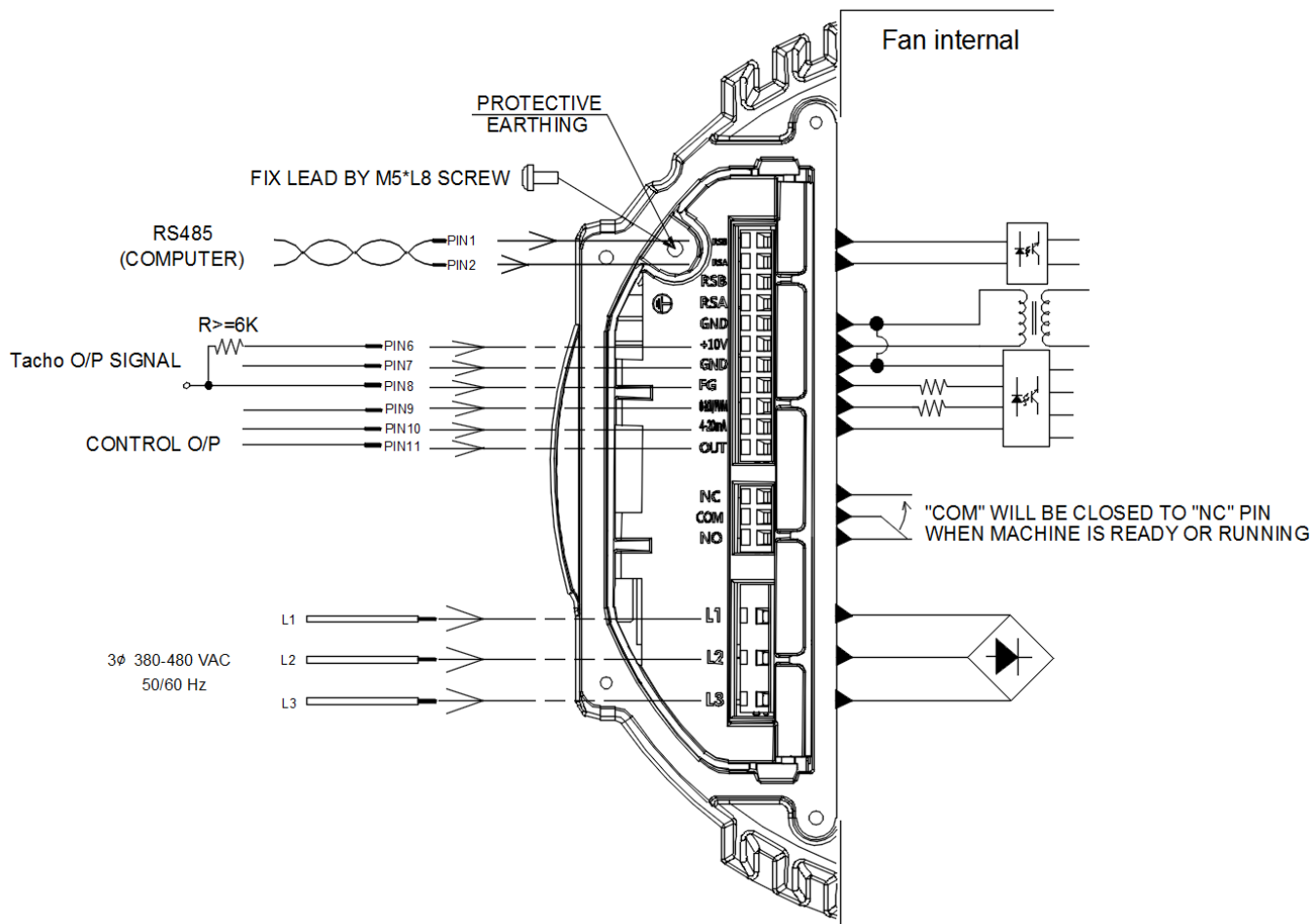
- 1 Depth of screw : 38 ~ 42mm.
- 2 Cable diameter : $\phi 7.0$ ~ $\phi 12.7$ mm.
- 3 Open the cover and refer to definition of terminal block.

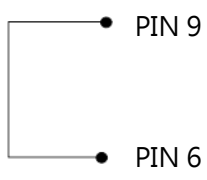
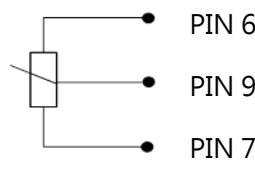
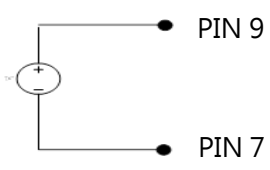
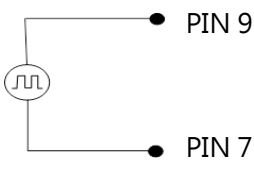
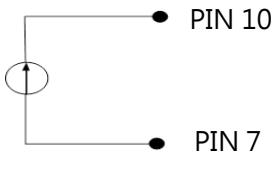
Definition of terminal block

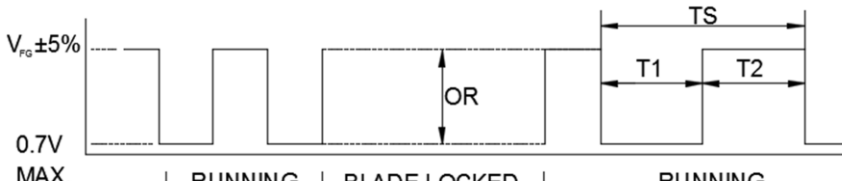


	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NC	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NO	Alarm relay, close by failure
Signal	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	GND	Ground
	+10V	+10V output,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

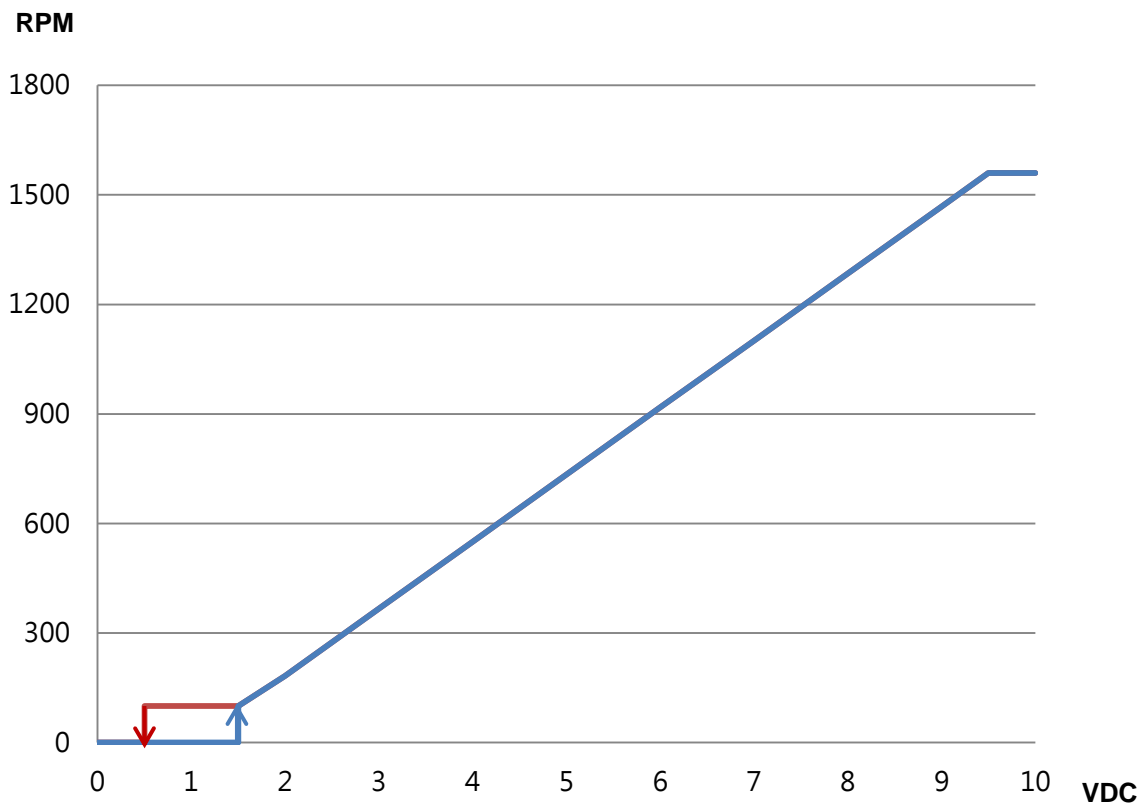
Lead wire connection:



Speed setting	
<p>Full Speed</p> 	<p>Short PIN6 & PIN9 Fan will run full speed.</p>
<p>Voltage Control A</p> 	<p>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) °</p>
<p>Voltage Control B</p> <p>0-10V DC Source</p> 	<p>Use voltage source support 0~10VDC voltage DC+ : connector PIN9(+) DC - : connector PIN7(-)</p>
<p>PWM Control</p> <p>PWM Generator</p> 	<p>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 °</p>
<p>Current Control</p> <p>4-20mA Current Source</p> 	<p>4~20mA Current Control 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>RS485 control function</p> <ul style="list-style-type: none"> -Select the control mode of speed, fixed speed or fixed PWM duty -Speed and power consumption feedback. -Allow multiple FANs control and status patrol. 															
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> $V_{CE(sat)} = 0.7V \text{ MAX.}$ $V_{FG} = 30.0V \text{ MAX.}$ $I_C = 5mA \text{ MAX.}$ $R \geq V_{FG} / I_C$ </p> <p>Frequency generator waveform</p>  <p> $V_{FG} \pm 5\%$ $0.7V \text{ MAX.}$ </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