



## Specification For Approval

Customer : \_\_\_\_\_ STD  
Description : \_\_\_\_\_ EC FAN  
Customer Part No. : \_\_\_\_\_ Rev : \_\_\_\_\_  
Delta Model No. : \_\_\_\_\_ GTW020EUB12 Rev : 04  
Safety Model No. : \_\_\_\_\_ GTW020EUB12  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : \_\_\_\_\_ 10/16/2019

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

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

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

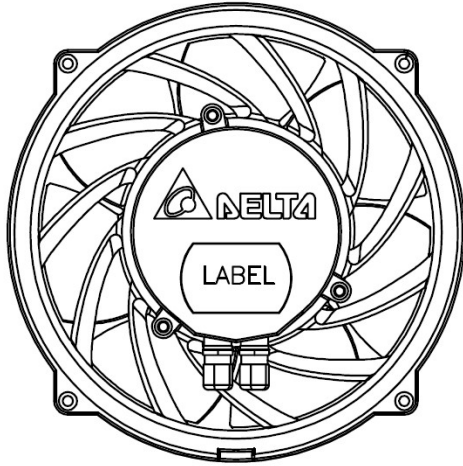
Delta Electronics, Inc.  
No.252, Shangying Road, Guishan Industrial Zone,  
Taoyuan City, 33341, Taiwan

TEL : +886-3-359-1968  
FAX : +886-3-359-1991

## Electronically Commutated (EC) Fan

Axial Fan

(200 x 122 mm)



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[www.deltawww.com](http://www.deltawww.com)



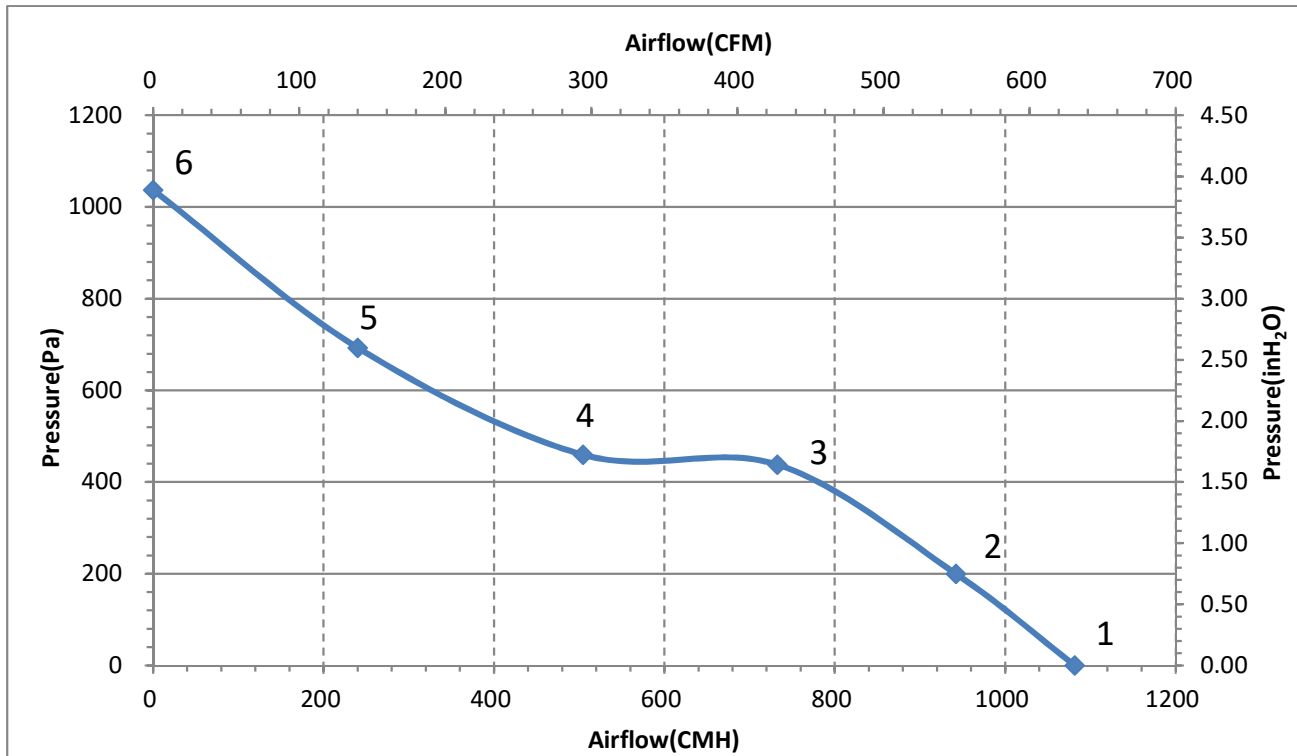
### Technical features

Input Side	
Input Source	1~ 200Vac - 240Vac
Power @ Free air	149 W
Power @ Max. load	240 W
Output Side	
Speed (RPM)	6000
Qmax. (CMH / CFM)	1082 / 637
Pmax. (Pa / inAq)	1037 / 4.16
Noise (dB-A)	70.0(Max 74.0)
Functions	
Control input 0-10VDC or PWM pattern.	
Output +12VDC(±10%), max. 5mA.	
Locked rotor protection, Soft start.	
Fan speed signal output	

Physical	
Rotation Direction	CCW seen on rotor
Material (Impeller / Frame)	Plastic / Die-Cast Aluminum
Bearing system	Ball bearings
Weight (kg)	2.7
Electrical leads	Lead wire
Environmental	
Operating temperature range	-25 ~ +60 °C
Storage temperature range	-40 ~ +70 °C
Safety	
Safety	UL & CSA & TUV & CE
IP Level	IP54
EMC	EN61000-6-1 , EN61000-6-3 , EN61000-3-2/3
Protection class	I
Insulation class	A
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:

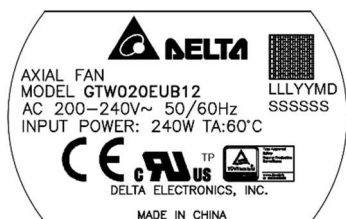
	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	1082	5974	149	0.70	70.0
2	200	942	5838	172	0.79	
3	438	505	5709	196	0.92	
4	460	505	5805	180	0.85	
5	693	240	5681	204	0.96	
6	1037	0	5514	230	1.08	

Test Condition :

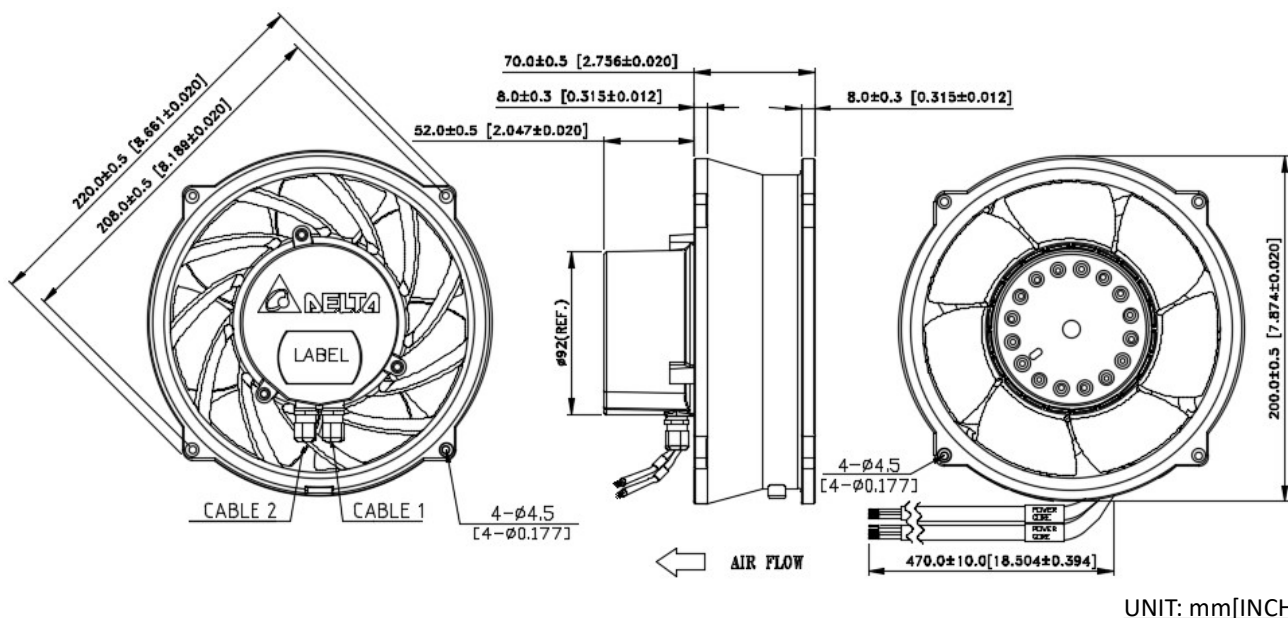
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured without fanguard
- Noise (Lp) is measured at a distance of one meter from the intake side.

Dimension drawing

Label :

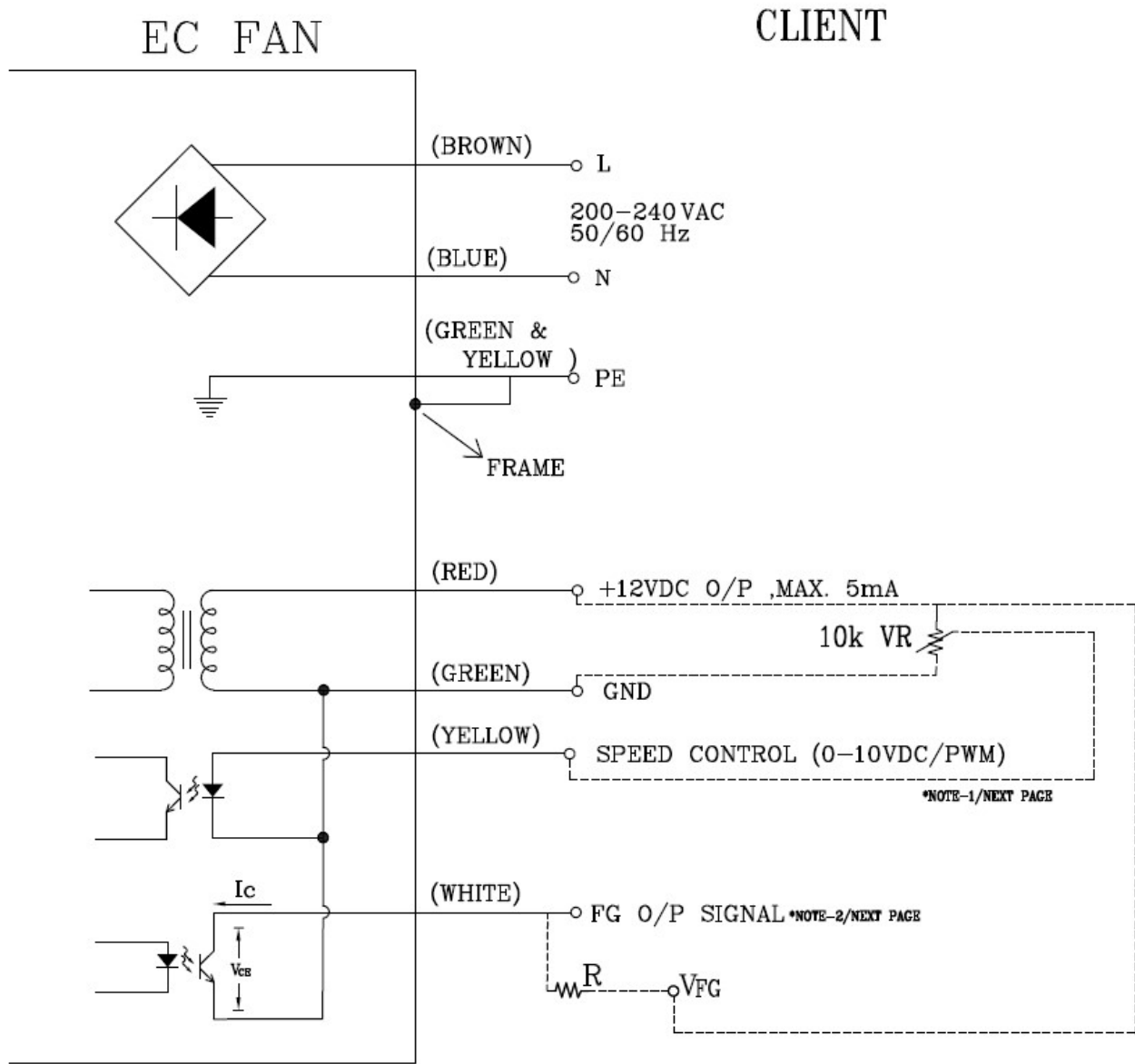


Fan :

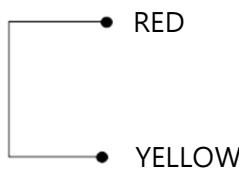
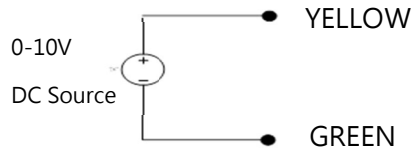
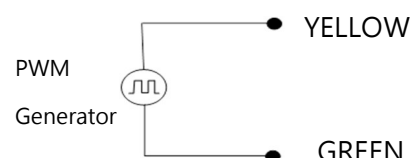


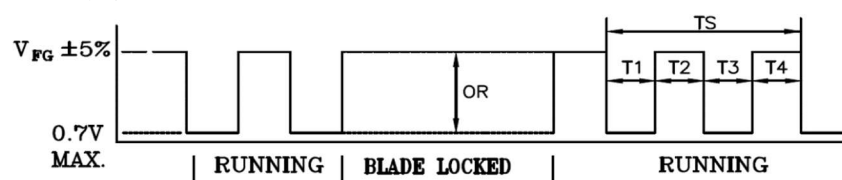
Cable	WIRE TYPE	Color	Functions
1	UL2464 18#AWG	Brown	Line/ AC main (1~ 200-240VAC)
		Blue	Neutral/ AC main (1~ 200-240VAC)
		Green / Yellow	Protective Earth
2	UL2464 24#AWG	Green	Ground
		Red	+12 VDC output MAX.5mA
		White	FG O/P
		Yellow	Speed control(0-10VDC/PWM)

Lead wire connection



Function control:

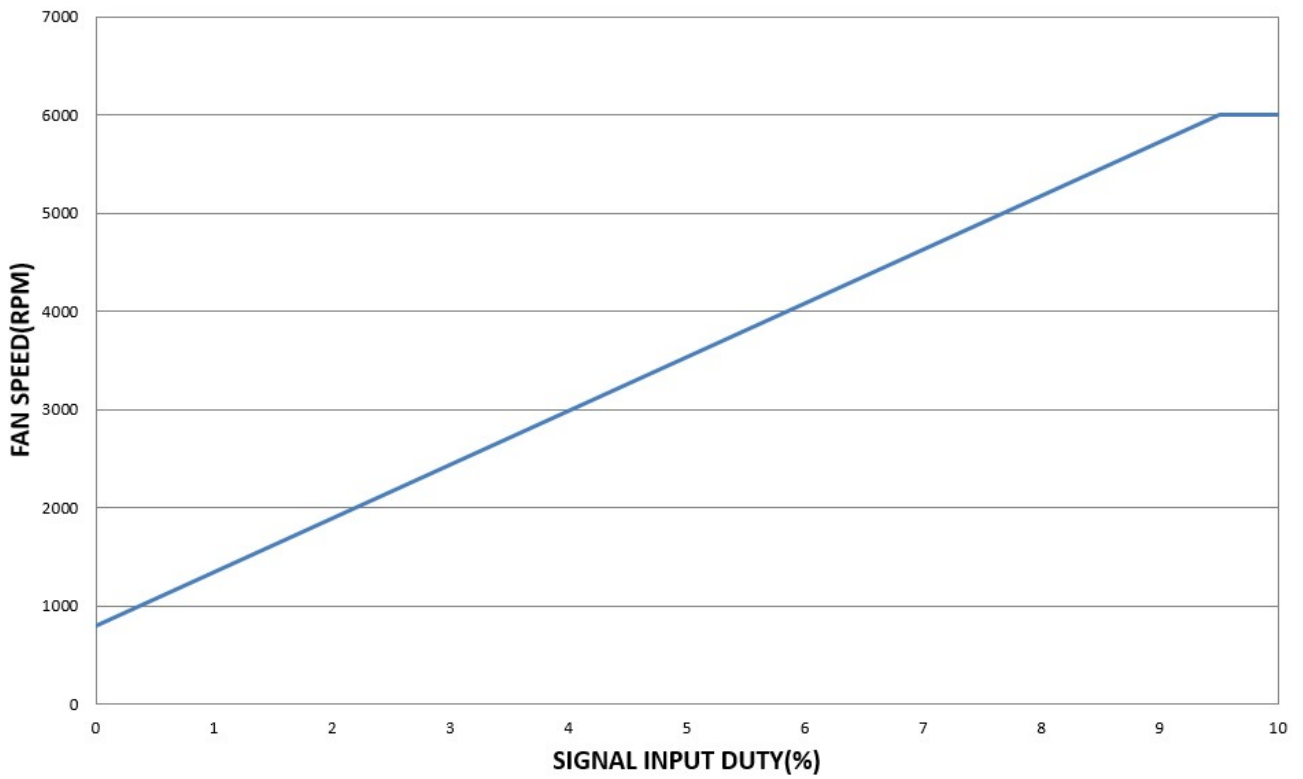
Speed setting	
<p><b>Full speed</b></p> 	<p><b>Short RED &amp; YELLOW</b></p> <p>Fan will run full speed.</p>
<p><b>Voltage Control</b></p> 	<p><b>Use voltage source support 0~10VDC voltage</b></p> <p>DC+ : connector YELLOW</p> <p>DC- : connector GREEN</p> <p>-Voltage higher than 1.5 VDC, fan start up.</p> <p>-Voltage at 10 VDC , the fan will spin at full speed</p>
<p><b>PWM Control</b></p> 	<p><b>PWM duty control</b></p> <p>PWM amplitude is 10VDC(+5%)</p> <p>Frequency Range is 100Hz ~ 100kHz</p> <p>-PWM duty higher than 15%, fan start up</p> <p>-PWM duty at 100% , the fan will spin at full speed</p>

Signal function									
<p>Voltage control</p>	<p>The speed comparison will control level</p> <table border="1"> <thead> <tr> <th>Voltage (V)</th> <th>Speed (RPM)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>800±10%</td> </tr> <tr> <td>5.0</td> <td>3450±10%</td> </tr> <tr> <td>10</td> <td>6000±10%</td> </tr> </tbody> </table>	Voltage (V)	Speed (RPM)	0	800±10%	5.0	3450±10%	10	6000±10%
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10	6000±10%								
<p>FG</p>	<p><math>V_{CE(sat)} = 0.7V \text{ MAX.}</math>      <math>V_{FG} = 20.0V \text{ MAX.}</math></p> <p><math>I_C = 5mA \text{ MAX.}</math>      <math>R \geq V_{FG} / I_C</math></p> <p>Frequency generator waveform</p>  <table border="1"> <tr> <td><math>N = \text{R.P.M}</math></td> <td>2 PULSES PER REVOLUTION</td> </tr> <tr> <td><math>TS = 60/N(\text{SEC})</math></td> <td><math>T1 = T2 = T3 = T4 = 1/4 \text{ TS}</math></td> </tr> </table>	$N = \text{R.P.M}$	2 PULSES PER REVOLUTION	$TS = 60/N(\text{SEC})$	$T1 = T2 = T3 = T4 = 1/4 \text{ TS}$				
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**DUTY & SPEED CURVE :**

Voltage(V)	PWM Duty(%)	Speed R.P.M.(ref.)
0.0	0	800±10%
5.0	50	3450±10%
10.0	100	6000±10%

**PWM DUTY V.S. SPEED**



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	%