



Specification For Approval

Customer : _____
Description : EC FAN
Customer Part No. : _____ Rev : _____
Delta Model No. : GTW012FU604 Rev : 02
Safety Model No. : _____
Sample Issue No. : _____
Sample Issue Date : 04/15'19

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

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Electronically Commutated (EC) Fan

Axial Fan

(120 x 145 x 38 mm)



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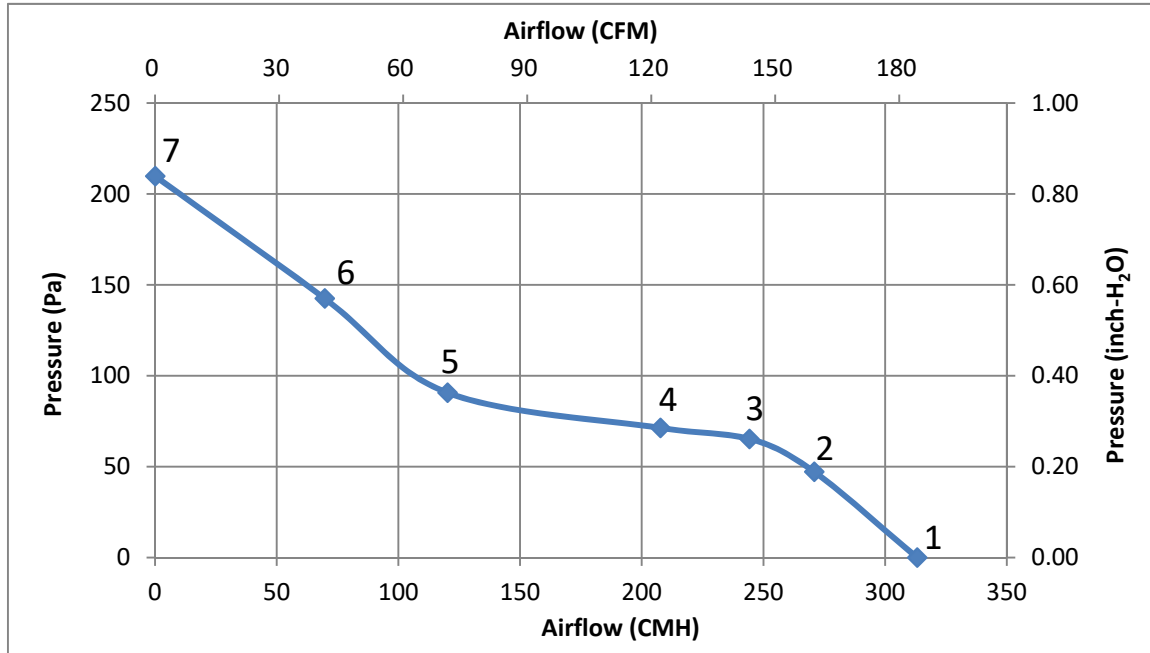
Technical features

Input Side	
Input Source	1~ 100Vac - 240Vac
Nominal Voltage	1~ 230Vac 50/60Hz
Power @ Free air	18W
Power @ Max. load	26W
Power On Label	26W
Output Side	
Speed (RPM)	4100
Qmax. (CMH / CFM)	313 / 184
Pmax. (Pa / inAq)	210 / 0.84
Noise (dB-A)-FREE AIR	55.5 (MAX. 59.5)
Functions	
Locked rotor protection Speed Signal Output (F00) Speed control (0~10VDC / PWM)	

Physical	
Rotation Direction	CCW seen on rotor
Material (Impeller / Frame)	Plastic / Plastic
Bearing system	Ball bearings
Weight (kg)	0.48
Electrical leads	Lead wire
Environmental	
Operating temperature range	-20 ~ +70 °C
Storage temperature range	-40 ~ +75 °C
Safety	
Safety	CE, UL
IP Level	IP54
EMC	EN61000-6-1 , EN61000-6-3 , EN61000-3-2/3
Protection class	II
Insulation class	A
Leakage current	≤ 3.5 mA
Life expectancy (L10)	70,000 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	313	4148	18.0	0.14	55.5
2	47	271	4156	20.2	0.16	
3	65	244	4188	20.8	0.16	
4	71	207	4151	17.4	0.14	
5	91	120	4148	18.5	0.15	
6	143	70	4142	20.5	0.16	
7	210	0	4156	25.5	0.18	

Test Condition :

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

Dimension drawing

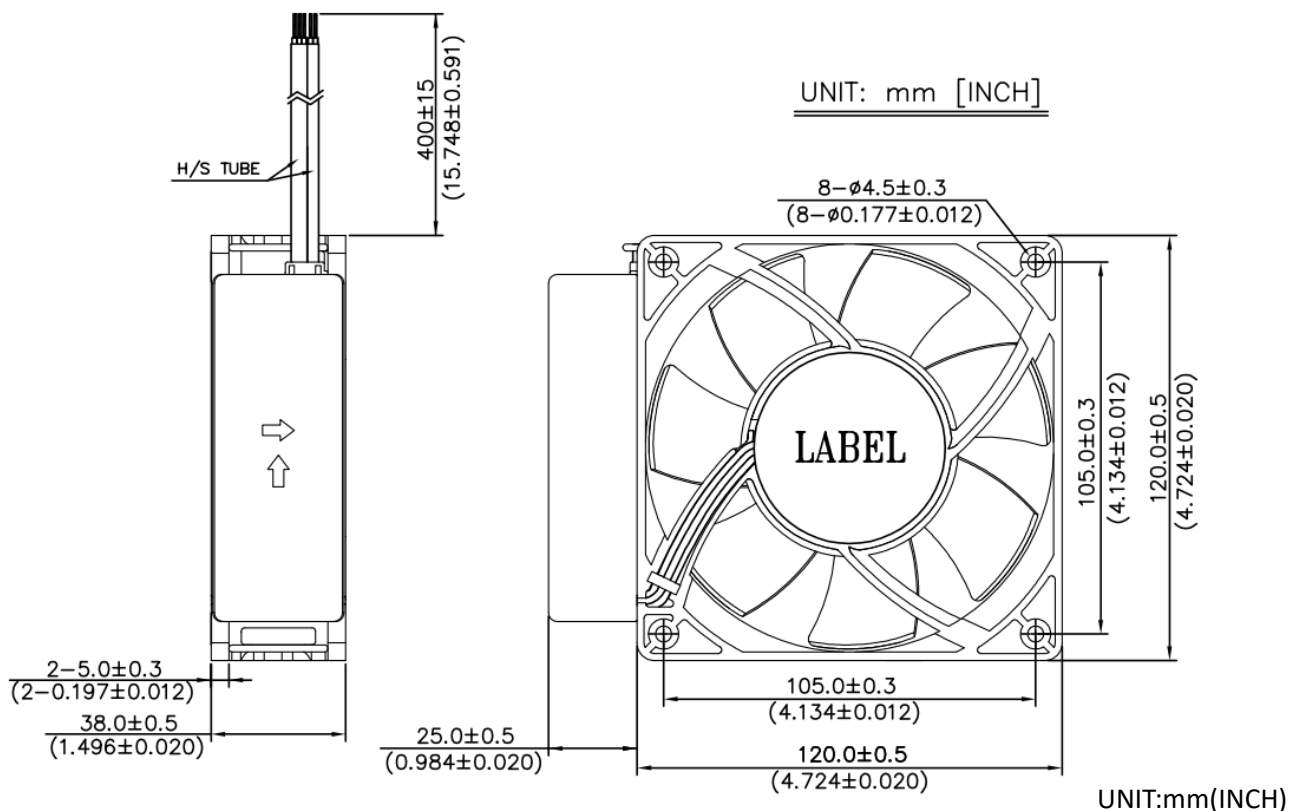
Label :



LLL: SUPPLIER LOCATION, DCD --- DELTA CHINA DONGGUAN.
 YY: PRODUCTION YEAR, THE FIRST YEAR OF THIS SPECIFICATION (2012) WILL BE DENOTED AS 12, 2013 WILL BE 13 AND 2099 WILL BE 99.
 M: PRODUCTION MONTH: 1 for Jan, 2 for Feb,....., 9 for Sep, X for Oct, Y for Nov, Z for Dec.
 D: PRODUCTION DAY : 1 for 1st, 2 for 2nd, 9 for 9th, A for 10th, B for 11th, T for 29th, U for 30th, V for 31th.
 SSSSSS (6 digit): PRODUCTION SERIAL NUMBER 000001- 999999

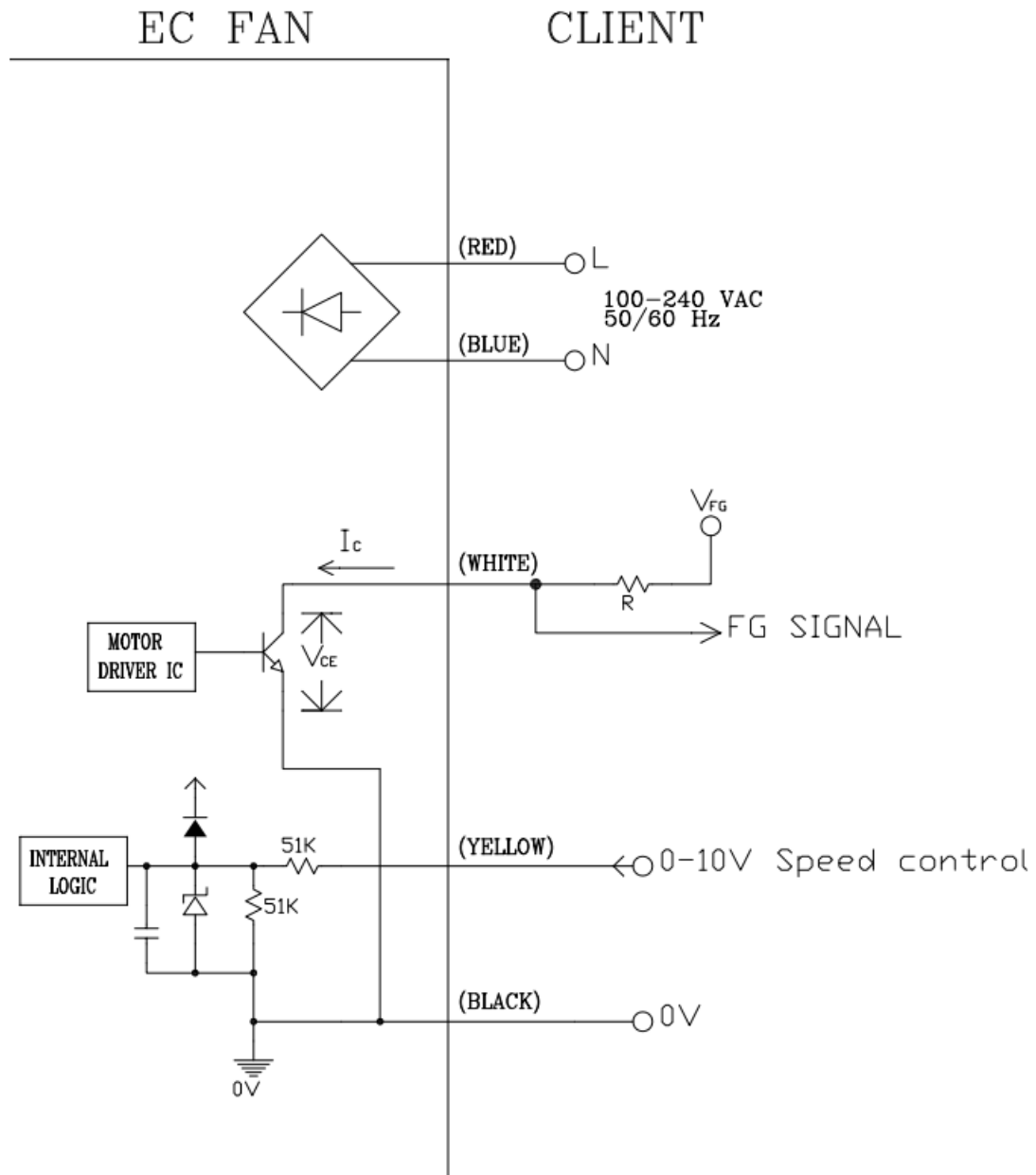
Example:
 DCD186E : from DELTA CHINA DONGGUAN ; DATE : 2018.Jun.14 ; Serial no. 123456
 123456

Fan :


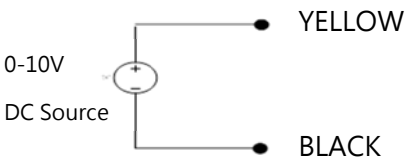
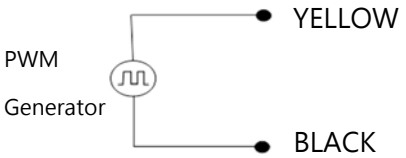


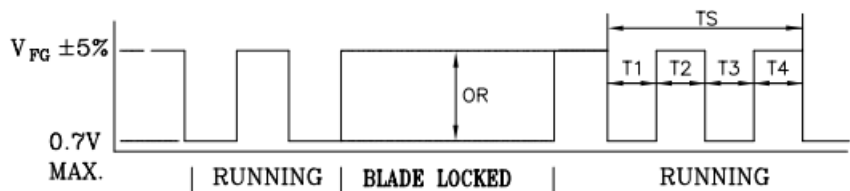
WIRE TYPE	Cable	Color	Functions
UL1007 26#AWG	Cable1 Power	Red	Line/ AC main (1~ 100-240VAC)
		Blue	Neutral/ AC main (1~ 100-240VAC)
	Cable2 Signal	White	F00
		Yellow	Speed control (0~10V _{DC} / PWM)
		Black	0V

Lead wire connection



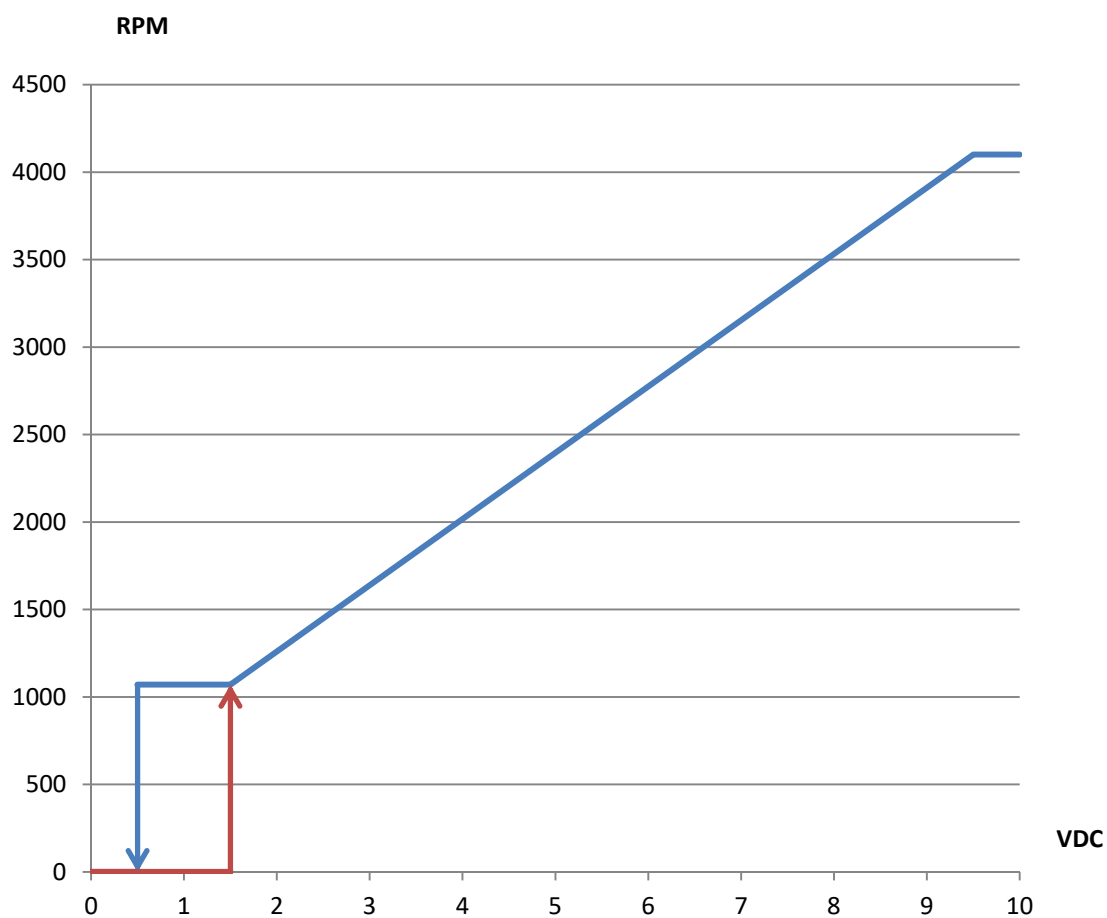
FUNCTION CONTROL

Speed setting	
<p>Full Speed</p> 	<p>Apply "+10V (external voltage source)" to "Speed control pin" (Yellow lead)</p> <p>Fan will run full speed.</p> <p>*Note: The external +10V source (provided by client) must have capability of providing 0.1mA (min)</p>
<p>Voltage Control</p> 	<p>Use voltage source support 0~10VDC voltage</p> <p>DC+ : connector YELLOW</p> <p>DC- : connector BLACK</p> <p>-Voltage higher than 1.5VDC, fan start up.</p> <p>-Voltage lower than 0.5VDC , fan stop</p>
<p>PWM Control</p> 	<p>PWM duty control</p> <p>PWM amplitude is 10VDC(±5%)</p> <p>Frequency Range is 1kHz ~ 30kHz</p> <p>-PWM duty higher than 15%, fan start up °</p> <p>-PWM duty lower than 5%, fan stop °</p>

Signal function										
<p>Voltage control</p>	<p>The speed comparison will control level</p> <table border="1" data-bbox="574 1366 1268 1512"> <thead> <tr> <th>Voltage (V)</th> <th>PWM (%)</th> <th>Speed (RPM) (REF)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>9.5</td> <td>95</td> <td>4100</td> </tr> </tbody> </table>	Voltage (V)	PWM (%)	Speed (RPM) (REF)	0	0	0	9.5	95	4100
Voltage (V)	PWM (%)	Speed (RPM) (REF)								
0	0	0								
9.5	95	4100								
<p>Frequency generator (FG) signal</p>	<p>$V_{CE(sat)} = 0.7V \text{ MAX.}$ $V_{FG} = 60.0V \text{ MAX.}$</p> <p>$I_C = 5mA \text{ MAX.}$ $R \geq V_{FG} / I_C$</p> <p>Frequency generator waveform</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>$N = \text{R.P.M}$ 2 PULSES PER REVOLUTION</p> <p>$TS = 60/N(\text{SEC})$ $T1 = T2 = T3 = T4 = 1/4 \text{ TS}$</p> </div>									

CONTROL LEVEL & SPEED CURVE

Voltage(V)	PWM Duty(%)	Speed R.P.M.(ref.)	Power(W)
0.0	0	0	0.9
9.5	95	4100	18



Voltage(VDC) , PWM duty (%)

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	%