



## Specification For Approval

Customer : \_\_\_\_\_  
Description : \_\_\_\_\_ EC FAN \_\_\_\_\_  
Customer Part No. : \_\_\_\_\_ Rev : \_\_\_\_\_  
Delta Model No. : \_\_\_\_\_ GTB023FUA10R-V E1 \_\_\_\_\_ Rev : 03  
Safety Model No. : \_\_\_\_\_ GTB023FUA10 \_\_\_\_\_  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : \_\_\_\_\_ 03/10/2020 \_\_\_\_\_

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

### Centrifugal Fan

225 (225 x 99 mm)



Delta Electronics, Inc.  
 No.252, Shangying Road, Guishan  
 Industrial Zone, Taoyuan City, 33341,  
 Taiwan  
 TEL: +886-3-359-1968  
 FAX: +886-3-359-1991  
[www.deltaww.com](http://www.deltaww.com)



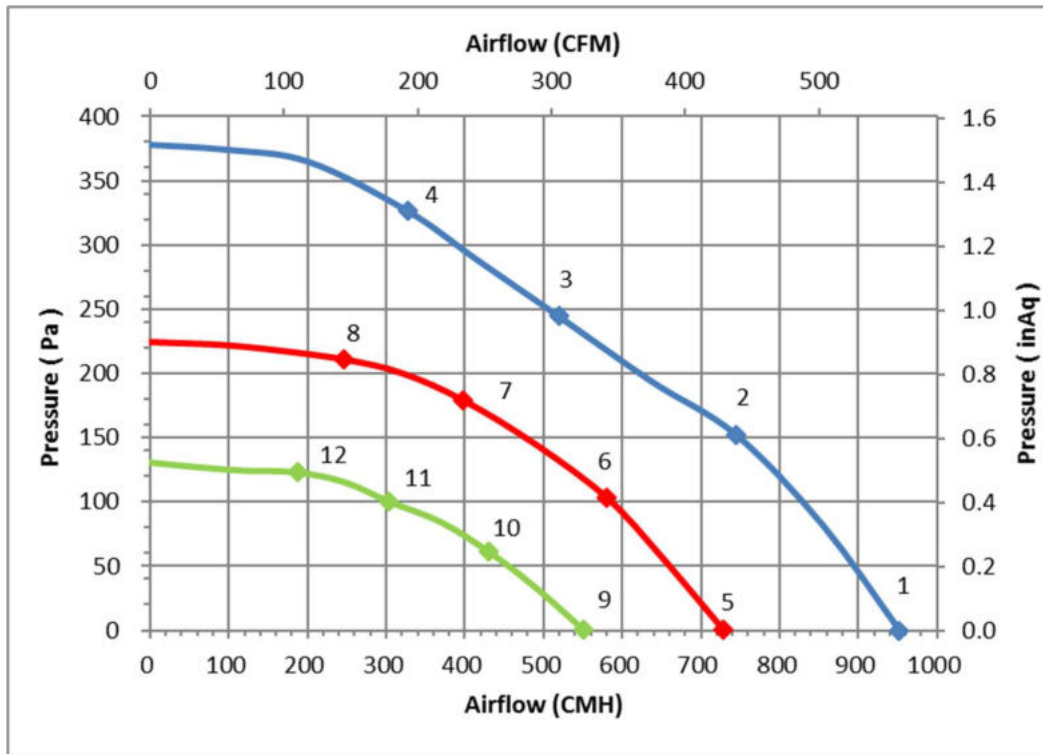
## Technical features

Input Side	
Nominal Voltage	1~ 230Vac 50/60Hz
Input Source	1~ 200Vac - 240Vac
Power @ Free air	63 W
Power @ Max. load	85 W
Output Side	
Speed (RPM)	2250
Qmax. (CMH / CFM)	952 / 560
Pmax. (Pa / inAq)	378 / 1.5
Noise (dB-A) @ Qmax.	67.5
Functions	
Control input 0-10VDC or PWM pattern.	
Output +10VDC(±10%), max. 5mA.	
Locked rotor protection, Soft start.	

Physical	
Rotation Direction	CW, Seen on rotor
Material (Impeller / Frame)	Plastic / Aluminum
Bearing system	Ball bearings
Weight (kg)	1.3
Electrical leads	Lead wire
Environmental	
Operating temperature range	-25 ~ +60 °C
Storage temperature range	-40 ~ +80 °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	952	2411	60	0.45	67.5
2	153	744	2320	83	0.59	64.0
3	244	520	2226	83	0.59	60.5
4	327	327	2314	83	0.59	61.5
5	0	729	1850	28	0.25	62.5
6	103	581	1850	42	0.35	57.0
7	179	399	1850	46	0.38	58.5
8	211	247	1850	41	0.35	60.0
9	0	551	1416	14	0.13	58.0
10	61	431	1412	20	0.18	51.0
11	100	304	1415	22	0.19	52.0
12	123	188	1414	20	0.18	53.5

Test Condition :

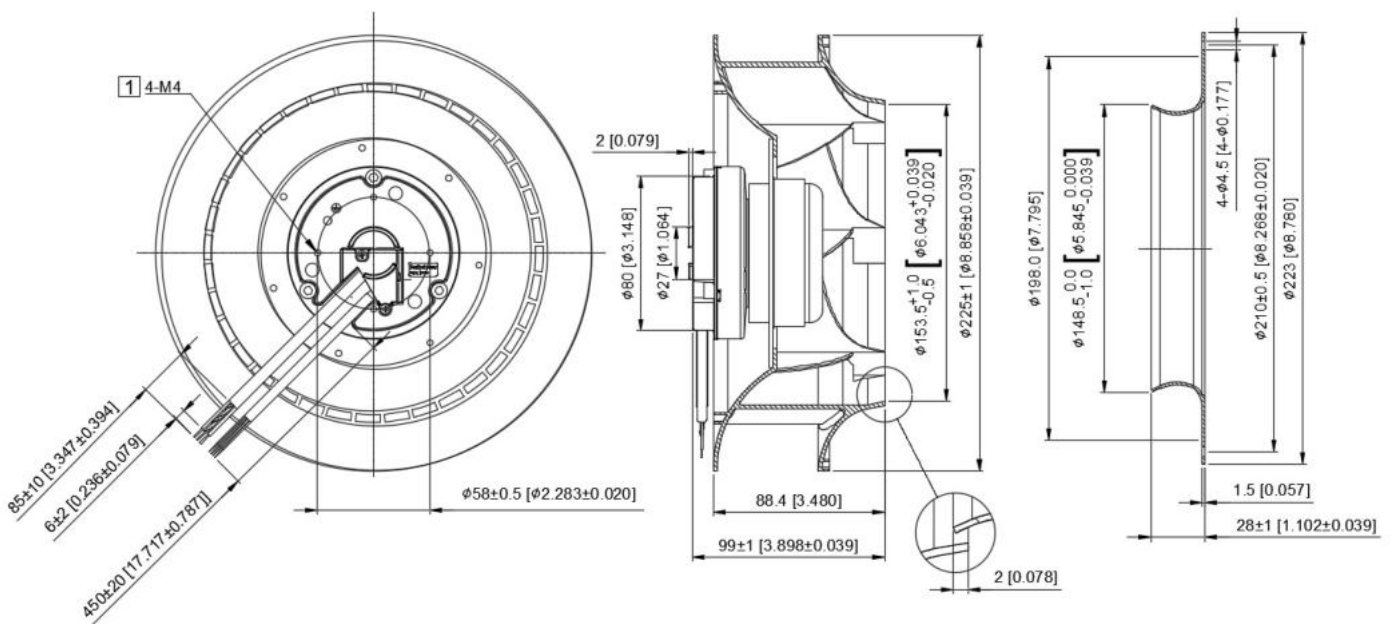
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side
- Testing method is compliance with ISO 3745.

Dimension drawing

Label :



Fan :

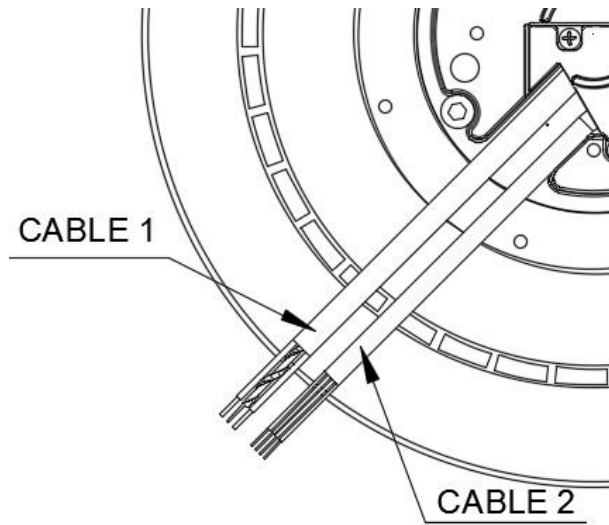


Note :

① Depth of screw : 5 mm(max).

UNIT : mm[INCH]

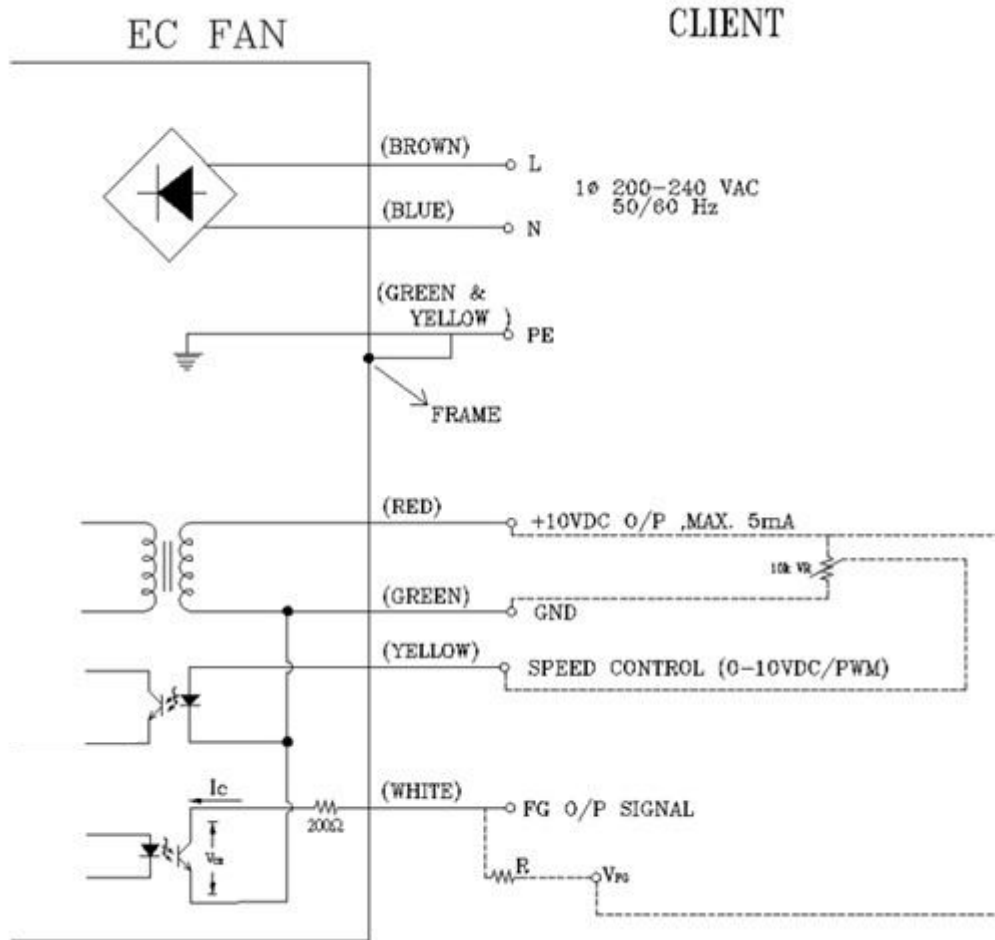
## Definition of terminal block

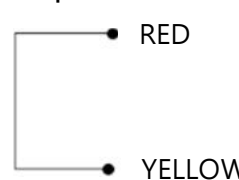
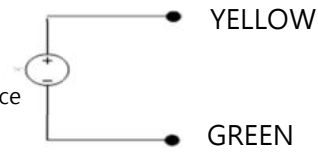



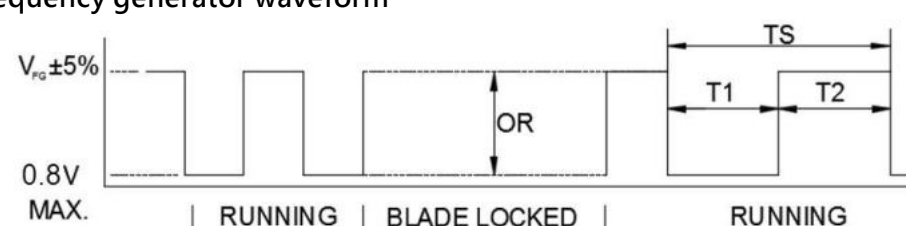
Cable	Wire Type	Color	Functions
1	UL2464 18#AWG	Brown	Line/ AC main
		Blue	Neutral/AC main
		Green / Yellow	Protective Earth

Cable	Wire Type	Color	Functions
2	UL2464 24#AWG	Green	Ground
		Red	+10V output
		White	F00
		Yellow	0-10VDC / PWM

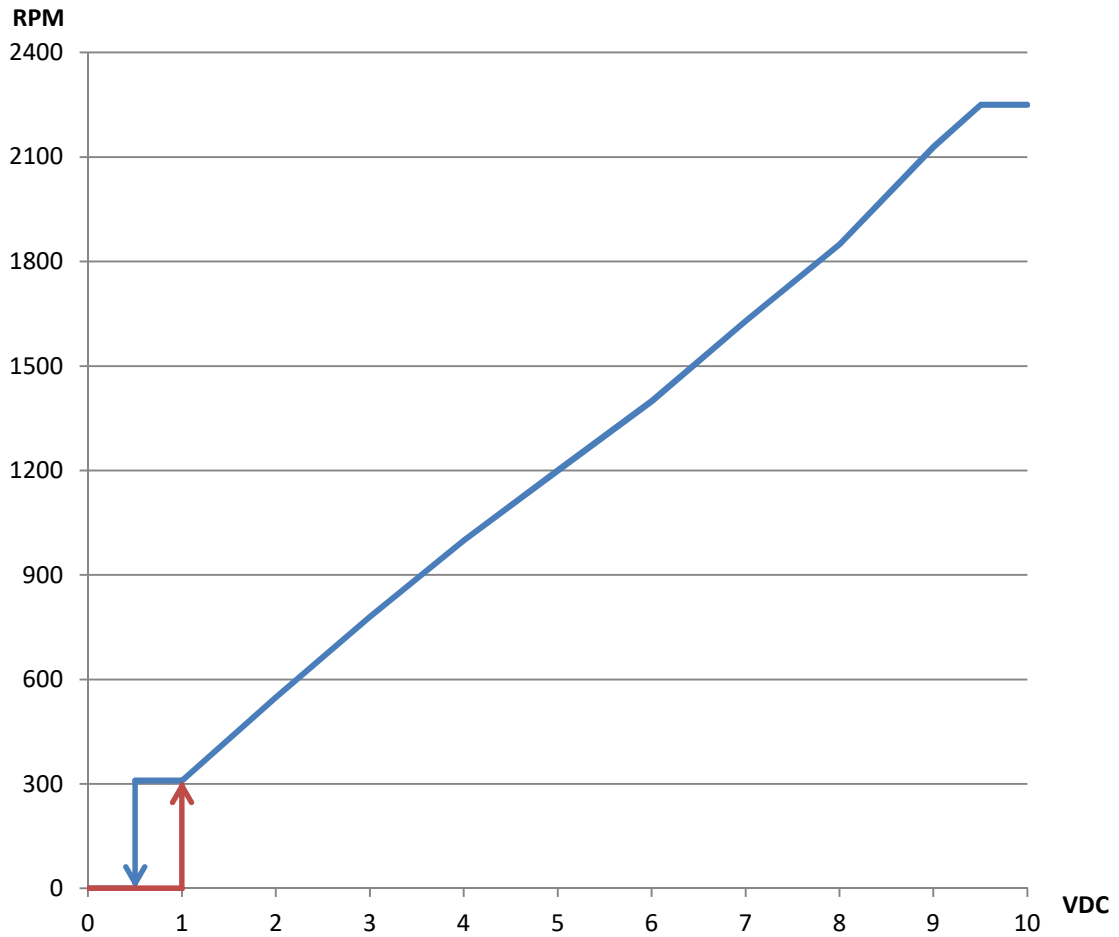
Lead wire connection



Speed setting	
<p><b>Full Speed</b></p> 	<p><b>Short RED &amp; YELLOW</b> Fan will run full speed.</p>
<p><b>Voltage Control</b></p> 	<p><b>Use voltage source support 0~10VDC voltage</b> DC+ : connect to YELLOW DC - : connect to GREEN -Voltage higher than 1.0 VDC, fan start up. -Voltage lower than 0.5 VDC , fan stop</p>
<p><b>PWM Control</b></p> 	<p><b>PWM duty control</b> PWM amplitude is 10VDC(+/-5%) Frequency Range is 100Hz ~ 100kHz -PWM duty higher than 10%, fan start up ◦ -PWM duty lower than 5%, fan stop ◦</p>

Signal function													
<p><b>Voltage/PWM control</b></p>	<p>The speed comparison will control level at Nominal Voltage</p> <table border="1"> <thead> <tr> <th>Voltage (V)</th> <th>PWM (%)</th> <th>Speed (RPM)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>10</td> <td>310 ± 50RPM</td> </tr> <tr> <td>10</td> <td>99</td> <td>2250<sup>(1)</sup> ± 5%</td> </tr> </tbody> </table> <p>(1) Depending on power consumption conditions, speed might be different.</p>	Voltage (V)	PWM (%)	Speed (RPM)	0	0	0	1	10	310 ± 50RPM	10	99	2250 <sup>(1)</sup> ± 5%
Voltage (V)	PWM (%)	Speed (RPM)											
0	0	0											
1	10	310 ± 50RPM											
10	99	2250 <sup>(1)</sup> ± 5%											
<p><b>FG</b></p>	<p><math>V_{CE(sat)} = 0.8V \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>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p><math>N=R.P.M</math>      1 PULSE PER REVOLUTION  <math>TS=60/N(\text{SEC})</math>      <math>T1=T2=1/2 TS</math></p> </div>												

## Control Voltage VS. RPM Curve at Nominal Voltage



Note: If the fan is used on heavy load, the speed will be limited by power consumption.

Voltage	0	0.5	1	2	3	4	5	6	7	8	9	10	VDC
PWM duty	0	5	10	20	30	40	50	60	70	80	90	100	%



Protection Standard

ITEM	Standard
Rain	IEC 60529 IPX4
Dust/sand	IEC 60529 IP5X
Gas corrosion	GR-63-CORE
Salt mist	IEC 60068-2-11

FAN MATERIAL:

- ① Blades: Plastic (PA66+15%GF)
- ② Rotor: Steel
- ③ Pillow: Polyester (BMC)
- ④ Bottom Cover: Die-cast aluminum

