Specification For Approval

Customer : STD

Description : EC FAN

Customer Part No. : Rev :

Delta Model No. : GTB028EUB16 N1 Rev : X04

Safety Model No. : GTB028EUB16

Sample Issue No. :

Sample Issue Date : 12/12/2016

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

Approved by :

Date :

Delta Electronics, Inc.
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Taoyuan City, 33341, Taiwan FAX : +886-3-359-1991

*** SAMPLE HISTORY ***

CUSTOMER：

CUSTOMER P/N：

DELTA　MODEL：GTB028EUB16 N1

REV	DESCRIPTION	DRAWN	CHECKED		APPROVED	ISSUE DATE
			ME	EE		
X03	ISSUE SPEC.	邱瀞美 11/21'16	邱瀞美 11/21'16	林科亦 11/21'16	顏承偉 11/21'16	11/21'16
X04	CHANGE THE DIAMETER OF INLET CONE FROM Ø182.5 TO Ø180.2 & Ø189.6 TO Ø191.1.	邱瀞美 12/12'16	邱瀞美 12/12'16	林科亦 12/12’16	顏承偉 12/12’16	12/12’16

Smarter. Greener. Together.

GTB028EUB16 N1

Electronically Commutated (EC) Fan

Centrifugal Fan

ϕ280x 162 mm

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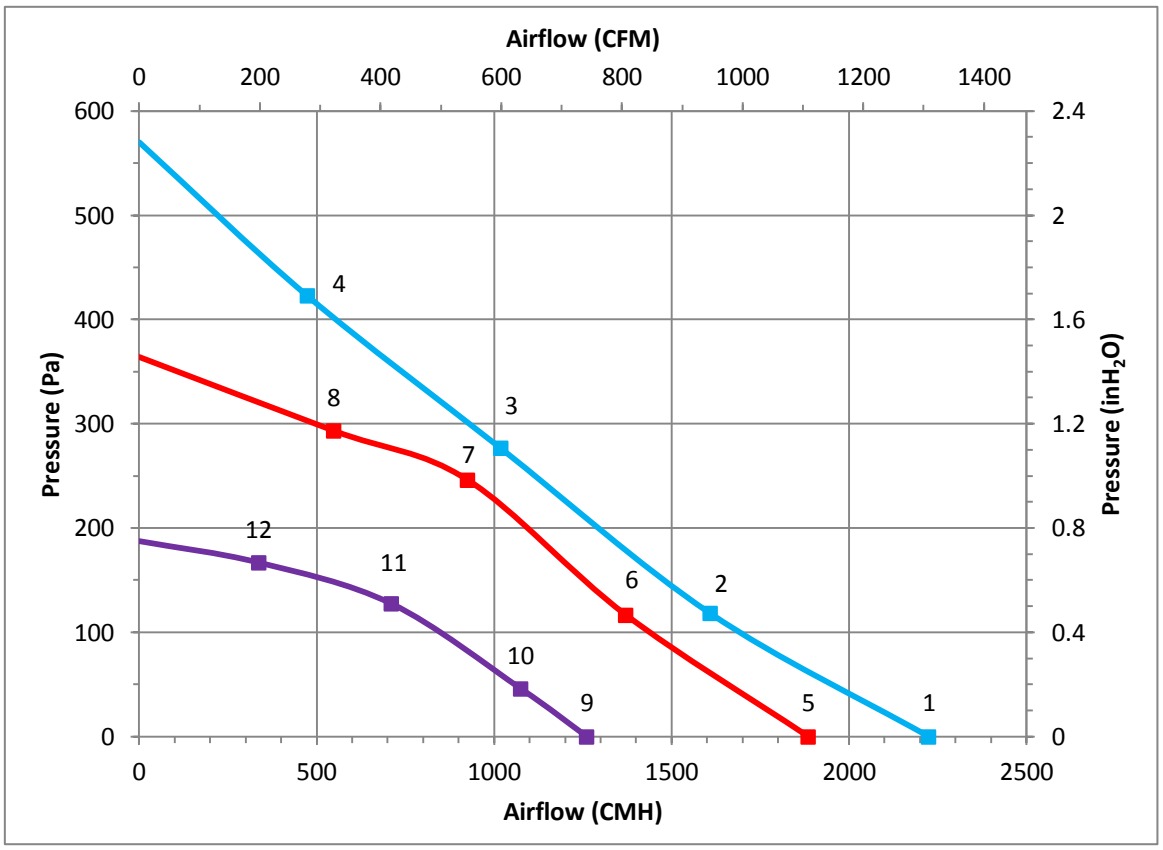
Technical features

Input Side	
Nominal Voltage	1~ 230Vac 50/60Hz
Input Source	1~ 200Vac - 277Vac
Power @ Free air	170 W
Power @ Max. load	180 W
Output Side	
Speed (RPM)	1850
Qmax. (CMH / CFM)	2222 / 1308
Pmax. (Pa / inAq)	569.7 / 2.287
Noise (dB-A) @ Qmax.	73.0
Functions	
Active power factor correction	
Input 0~10V_{DC} /PWM for speed control.	
Fan speed signal output.	
Output +10V_{DC} (±10%), max. 10mA.	

Physical	
Rotation Direction	CW, Seen on rotor
Material (Impeller / Frame)	Aluminum sheet / Die-cast aluminum
Bearing system	Ball bearings
Weight (kg)	3.2
Electrical leads	Lead wire
Environmental	
Operating temperature range	-25 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
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 expectance	60,000 hrs at 40 ℃ / 15 ~ 65 %RH

NOTE : Delta reserves the right to change specifications and other product information without prior notice.

P & Q curves



Measure data:

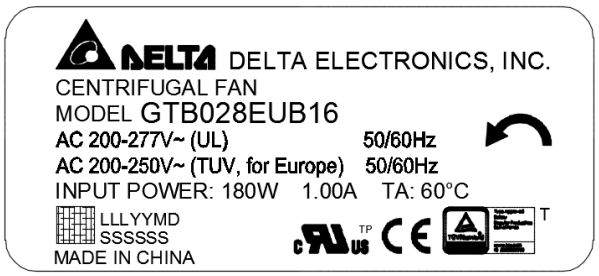
	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0.0	2224	2010	164	3.31	73.0
2	118	1608	1862	165	3.96	
3	277	1018	1820	162	4.41	
4	423	473	2048	165	4.59	
5	0.0	1885	1764	118	2.18	72.0
6	117	1371	1702	134	2.53	
7	246	925	1673	144	2.75	
8	293	548	1728	129	2.79	
9	0.0	1261	1286	49	1.00	65.4
10	46	1075	1259	54	1.18	
11	128	710	1235	60	1.29	
12	167	337	1277	51	1.33	

Test Condition :

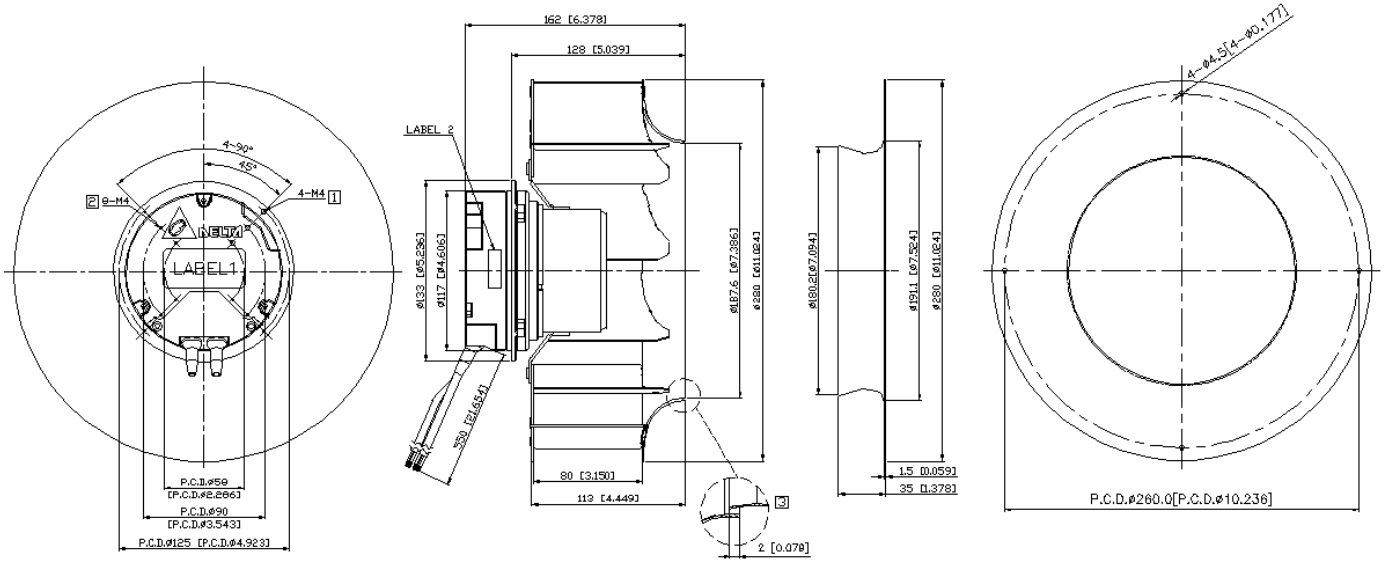
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side.

Dimension drawing

Label :



Fan :

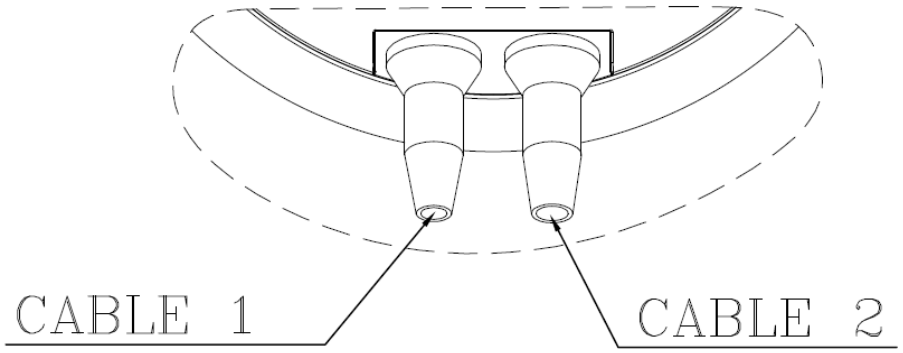


UNIT : mm[INCH]

Note :

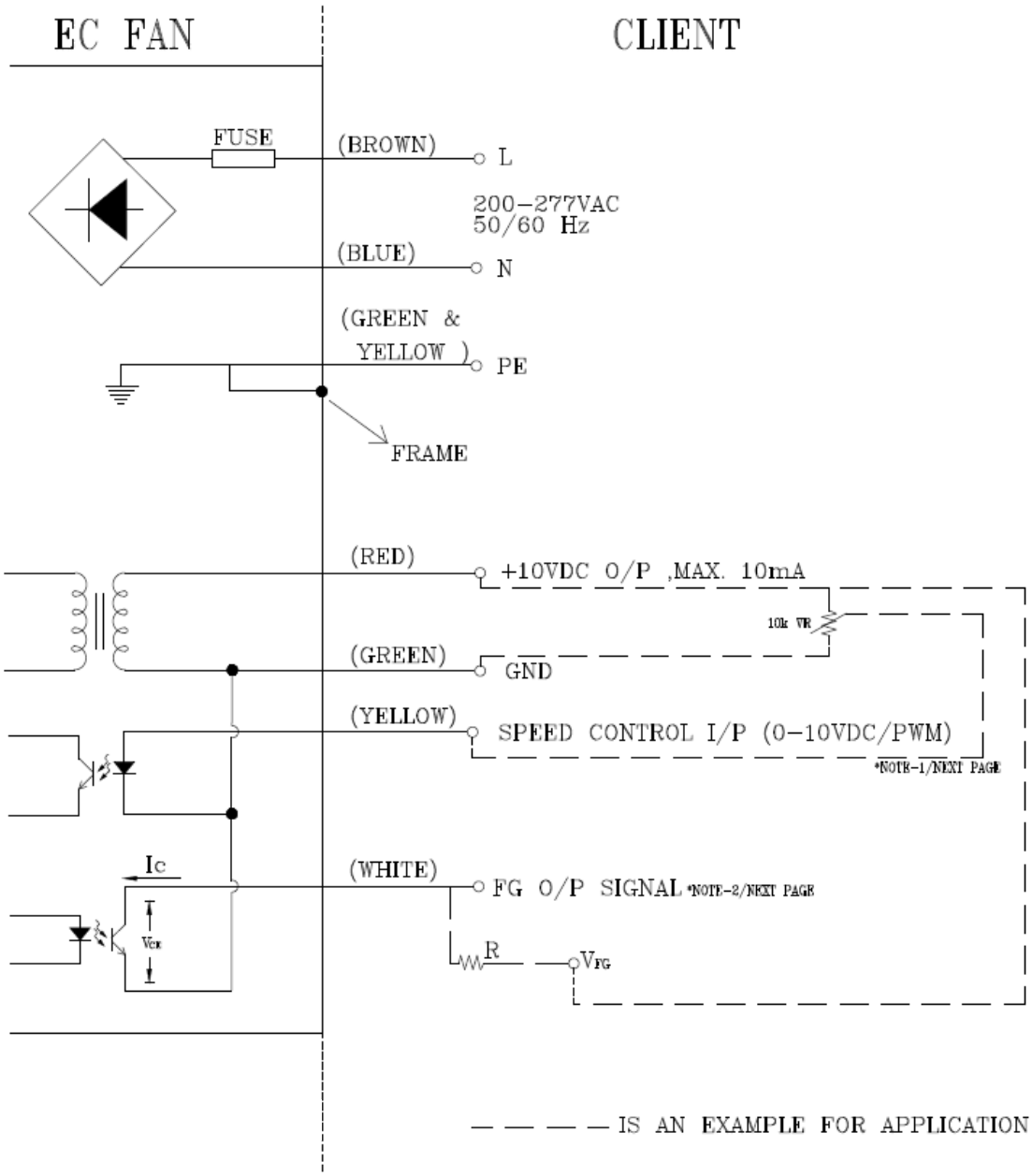
1. Depth of screw : 6 ~ 8 mm.
2. Depth of screw : 6 mm(max.).
3. Accessory : inlet cone, all the performance data are measured with it.

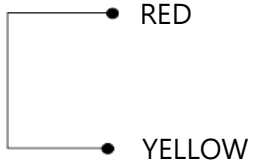
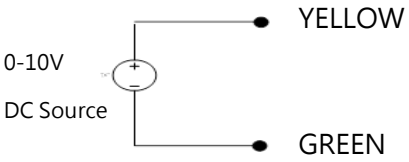
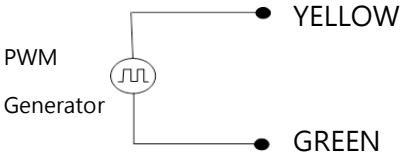
Definition of terminal block

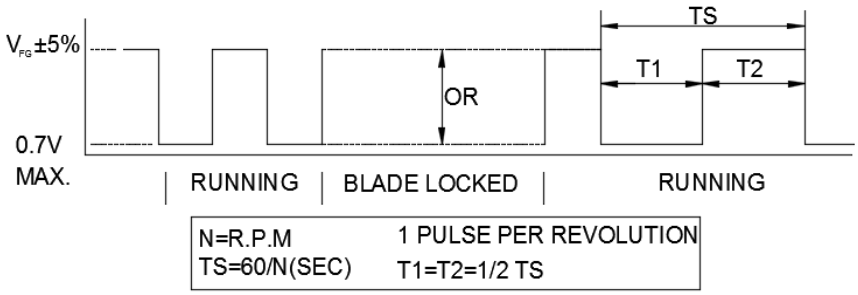


Cable	Wire type	Text	Functions
1	CCC 60227 IEC 52(RVV)300/300 3x0.75mm^2	Green	GND
		Red	+10V
		White	F00
		Yellow	PWM
2	UL 2464 MULTI-CONDUCTOR JACKETED CABLE	Brown	L
		Blue	N
		Green/Yellow	Earth

Lead wire connection:

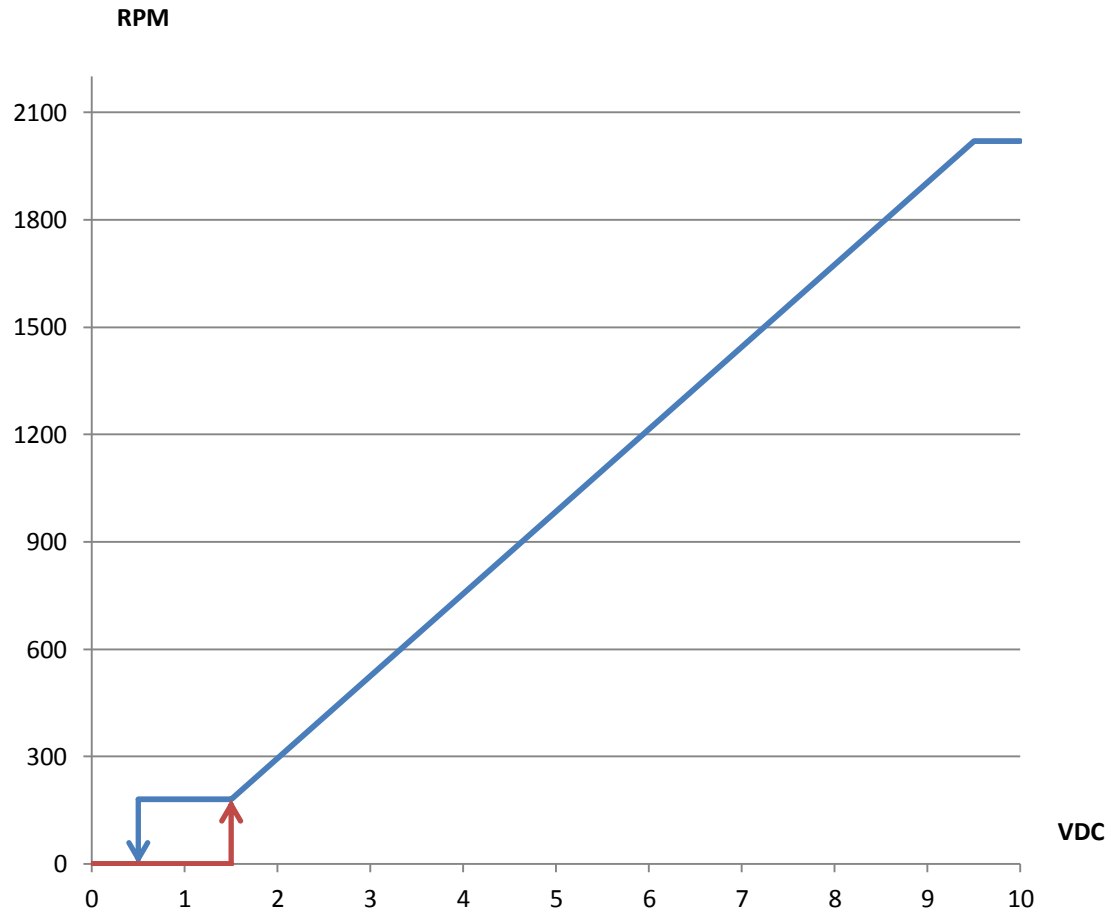


Speed setting	
Full Speed  	**Short RED & YELLOW** Fan will run full speed.
Voltage Control  	**Use voltage source support 0~10VDC voltage** DC+ : connector YELLOW DC - : connector GREEN -Voltage higher than 1.5VDC, fan start up. -Voltage lower than 0.5VDC , fan stop
PWM Control  	**PWM duty control** 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。

Signal function	
Voltage control	The speed comparison will control level Voltage (V) / PWM (%) / Speed (RPM) (REF) 0 / 0 / 0 9.5 / 95 / 1850
Frequency generator (FG) signal	**V_{CE}(sat) = 0.7V MAX.** **V_{FG} = 20.0V MAX.** **I_C = 5mA MAX.** **R ≥ V_{FG} / I_C** **Frequency generator waveform** 

Control Voltage VS. RPM Curve

Voltage(V)	PWM Duty(%)	Speed R.P.M.(ref.)	Power(W)
0.0	0	0	5
9.5	95	1850	180



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	%