Specification For Approval

Customer : _____

Description : EC FAN

Customer Part No. : _____ Rev : ____

Delta Model No. : GTB036EUD25R N1 Rev : 05

Safety Model No. : GTB036EUD25

Sample Issue No. : _____

Sample Issue Date : 02/15/2019

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

Approved by : _____

Date : _____

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Smarter. Greener. Together.

GTB036EUD25R N1

Electronically Commutated (EC) Fan

Centrifugal Fan

ϕ 360 x 251 mm

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Technical features

Input Side	
Nominal Voltage	1~ 230Vac 50/60Hz
Input Source	1~ 200Vac - 277Vac
Power @ Free air	550 W
Power @ Max. load	800 W
Output Side	
Speed (RPM)	2030
Qmax. (CMH / CFM)	4752 / 2797
Pmax. (Pa / inAq)	697 / 2.80
Noise (dB-A) @ Qmax.	78.5
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)	10.5
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
Safety	
Safety	UL; cUL; TUV
IP Level	IP54
EMC	EN61000-6-2/3 , 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

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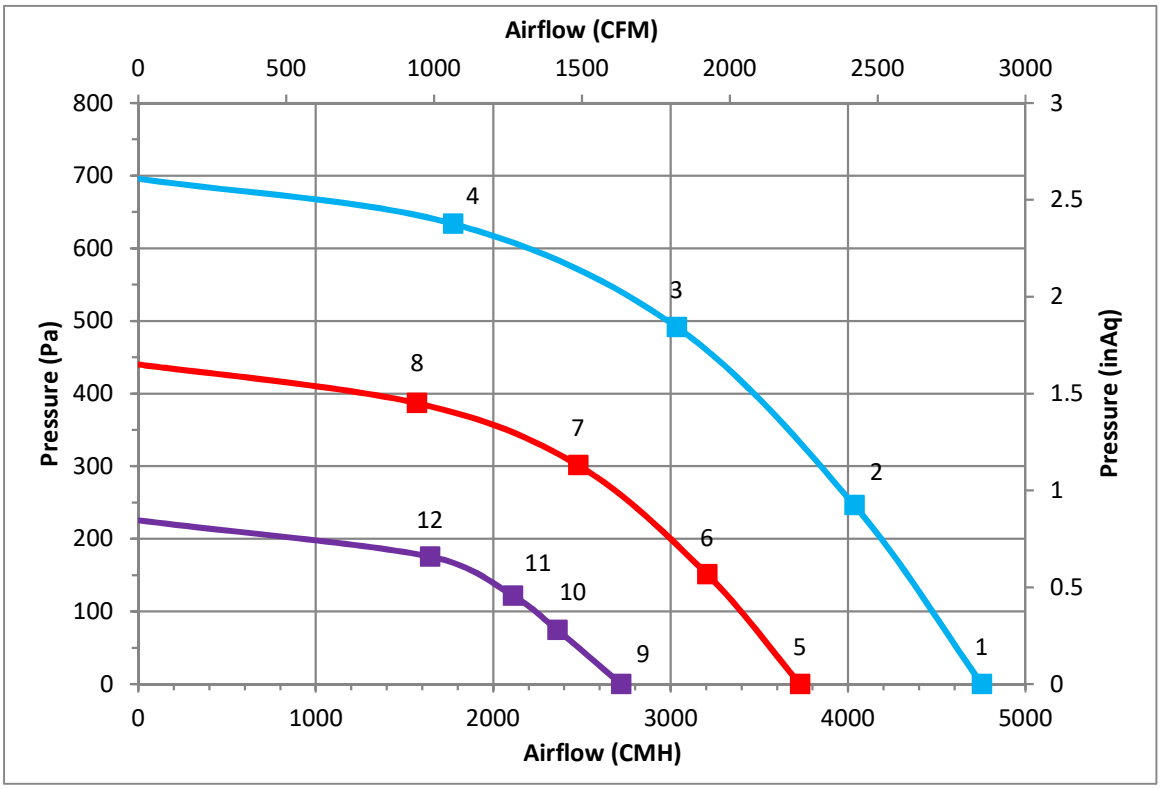
P & Q curves



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	4754	2027	532	2.36	78.5
2	246	4035	2024	683	3.00	
3	492	3034	2019	755	3.32	
4	634	1774	2032	681	2.99	
5	0	3729	1620	285	1.30	72.5
6	151	3205	1620	357	1.62	
7	301	2478	1620	394	1.78	
8	387	1569	1620	367	1.66	
9	0	2721	1197	124	0.63	64.5
10	75	2361	1197	147	0.75	
11	122	2110	1194	159	0.81	
12	176	1644	1195	166	0.85	

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.

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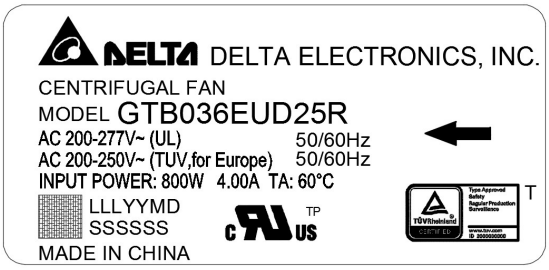
Dimension drawing

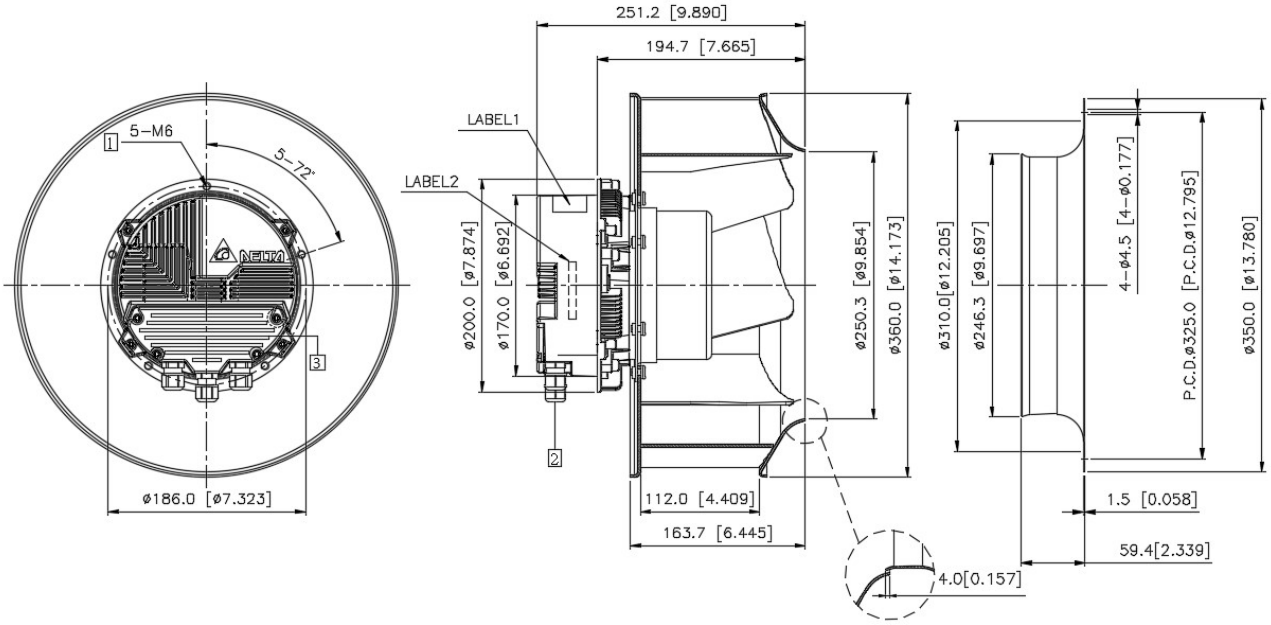
Label :

Label1



Label2

Fan :



Note :

UNIT : mm[INCH]

1. Depth of screw : 12 ~16 mm.
2. Cable Diameter : Ø 6.0 ~ Ø 10.0 mm
3. Open the cover and refer to definition of terminal block.

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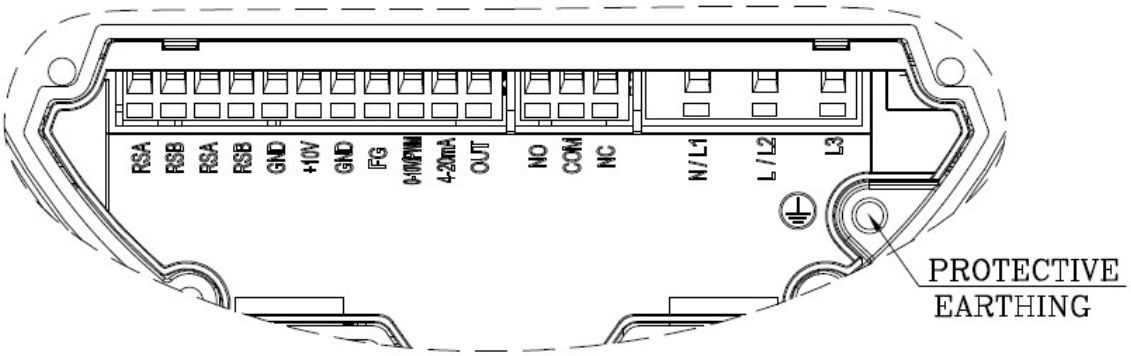
Definition of terminal block



	Text	Functions
Power	N/L1	Neutral / AC mains
	L/L2	AC mains
	L3	--
Status	NO	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NC	Alarm relay, close by failure
Signal	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	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)

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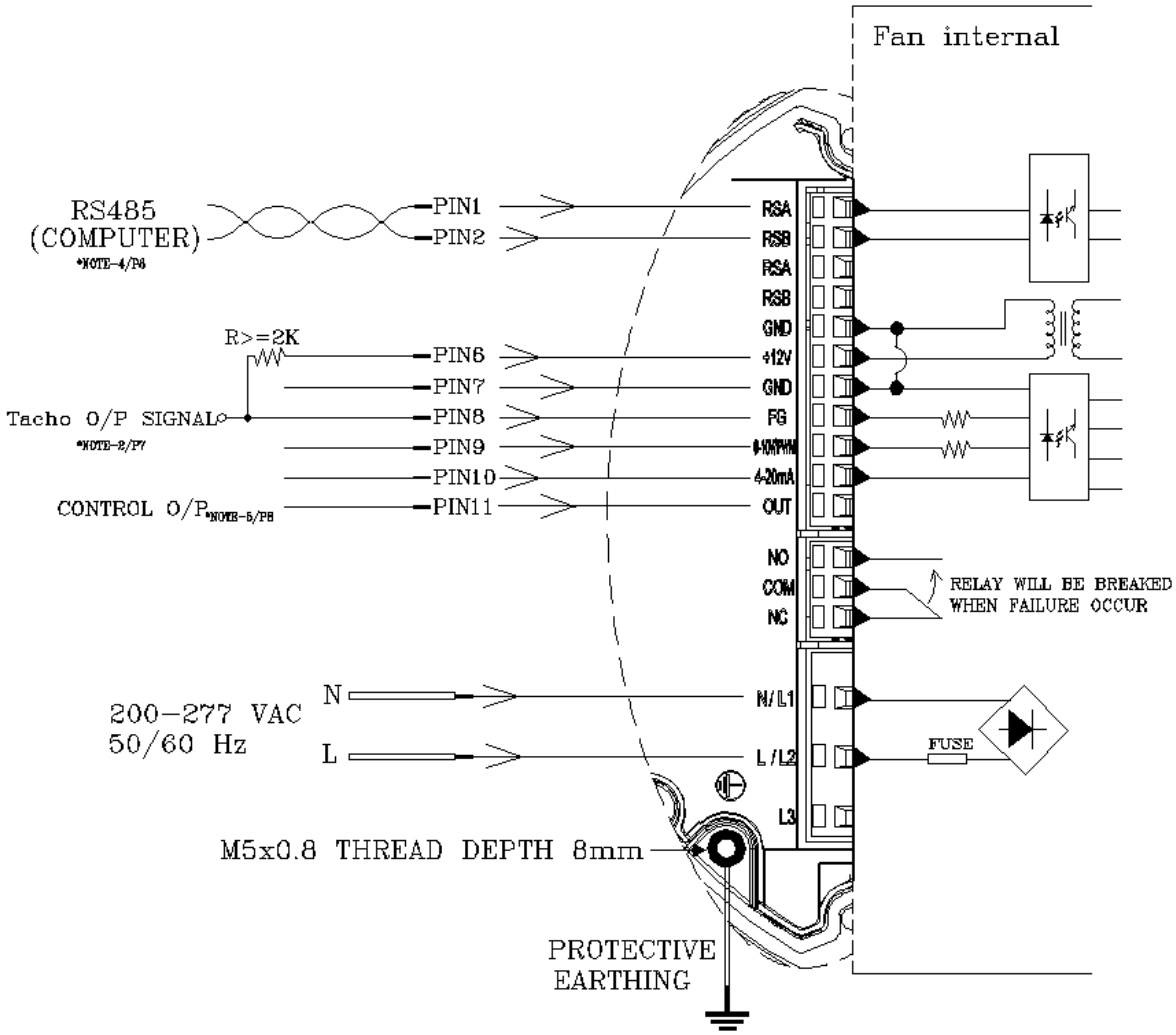
Lead wire connection:



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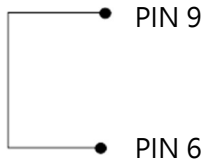
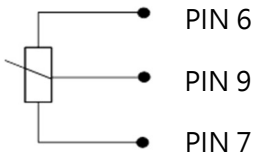
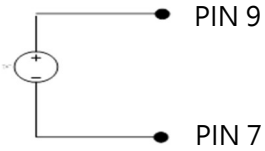
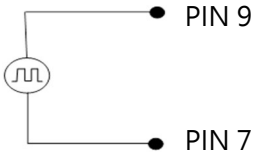
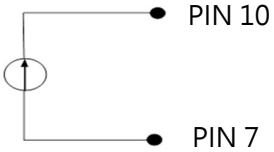
Speed setting	
Full Speed  	**Short PIN6 & PIN9** Fan will run full speed.
 	**Connector 1-10kΩ variable resistor** Between **+10VDC** with **GND** and **0-10V/PWM** Turn the variable resistor，can change the ‘**0-10V/PWM**’ voltage (0...10V)。
Voltage Control B 0-10V DC Source  	**Use voltage source support 0~10VDC voltage** DC+ : connector PIN9(+) DC - : connector PIN7(-)
PWM Control PWM Generator  	**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。
Current Control 4-20mA Current Source  	**4~20mA Current Control** Open 0-10V/PWM PIN - Lower than 4.5 mA → Fan Stop - Higher than 6.0 mA → Fan Start up - Higher than 19.5 mA →Maximum Speed

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Signal function

RS485 control function

RS485 control function

-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

The analog signal level is the derivative of current control level.

Current (mA)	Control O/P (VDC) (REF)
4.0	0.2
6.2	1.47
13.7	5.96
18.7	8.95
20.0	9.65

Voltage/PWM control

The speed comparison will control level

Voltage (V)	PWM (%)	Speed (RPM) (REF)
0	0	0
1.5	15	336±50RPM
6.0	60	1352±8%
9.5	95	2030±5%

Current control

The speed comparison will control level

Current (mA)	Speed (RPM) (REF)
4.0	0
6.3	339±50RPM
14.0	1346±8%
19.5	2028±5%

Alarm state

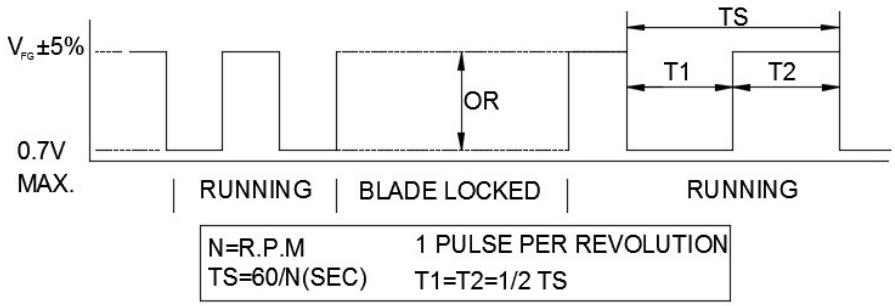
NO and COM will OPEN ; NC and COM will CLOSE.

FG

V_{CE}(sat) = 0.7V MAX. **V_{FG} = 30.0V MAX.**

I_C = 5mA MAX. **$R \geq V_{FG} / I_C$**

Frequency generator waveform



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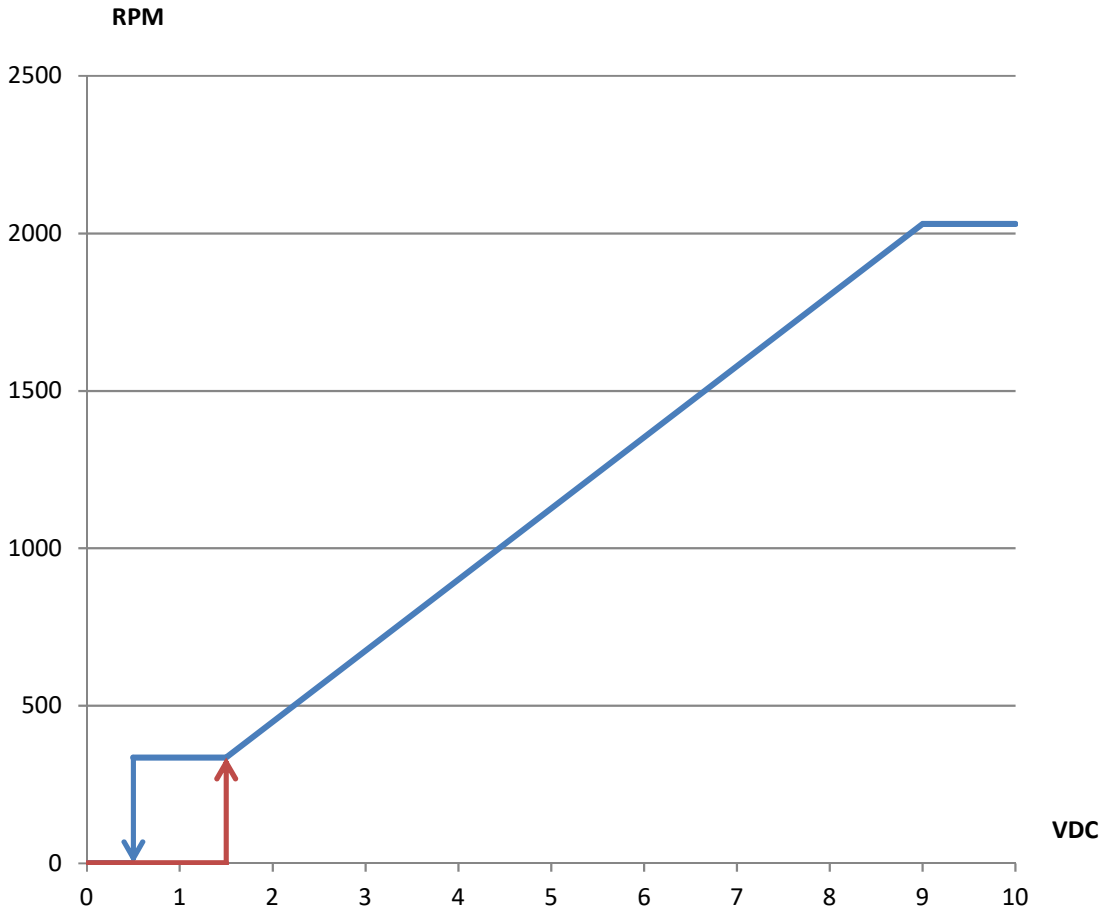
Control Voltage VS. RPM Curve



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

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