Specification For Approval

Customer : _____

Description : EC FAN

Customer Part No. : _____ Rev : ____

Delta Model No. : GTB040EUD26R N1 Rev : 05

Safety Model No. : GTB040EUD26

Sample Issue No. : _____

Sample Issue Date : 05/03/2019

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.

GTB040EUD26R N1

Electronically Commutated (EC) Fan

Centrifugal Fan

ϕ 404 x 257 mm

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Technical features

Input Side	
Nominal Voltage	1~ 230Vac 50/60Hz
Input Source	1~ 200Vac - 277Vac
Power @ Free air	530 W
Power @ Max. load	800 W
Output Side	
Speed (RPM)	1750
Qmax. (CMH / CFM)	5692 / 3350
Pmax. (Pa / inAq)	690 / 2.77
Noise (dB-A) @ Qmax.	77.5
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)	11.3
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	EN61000-6-2/4 , 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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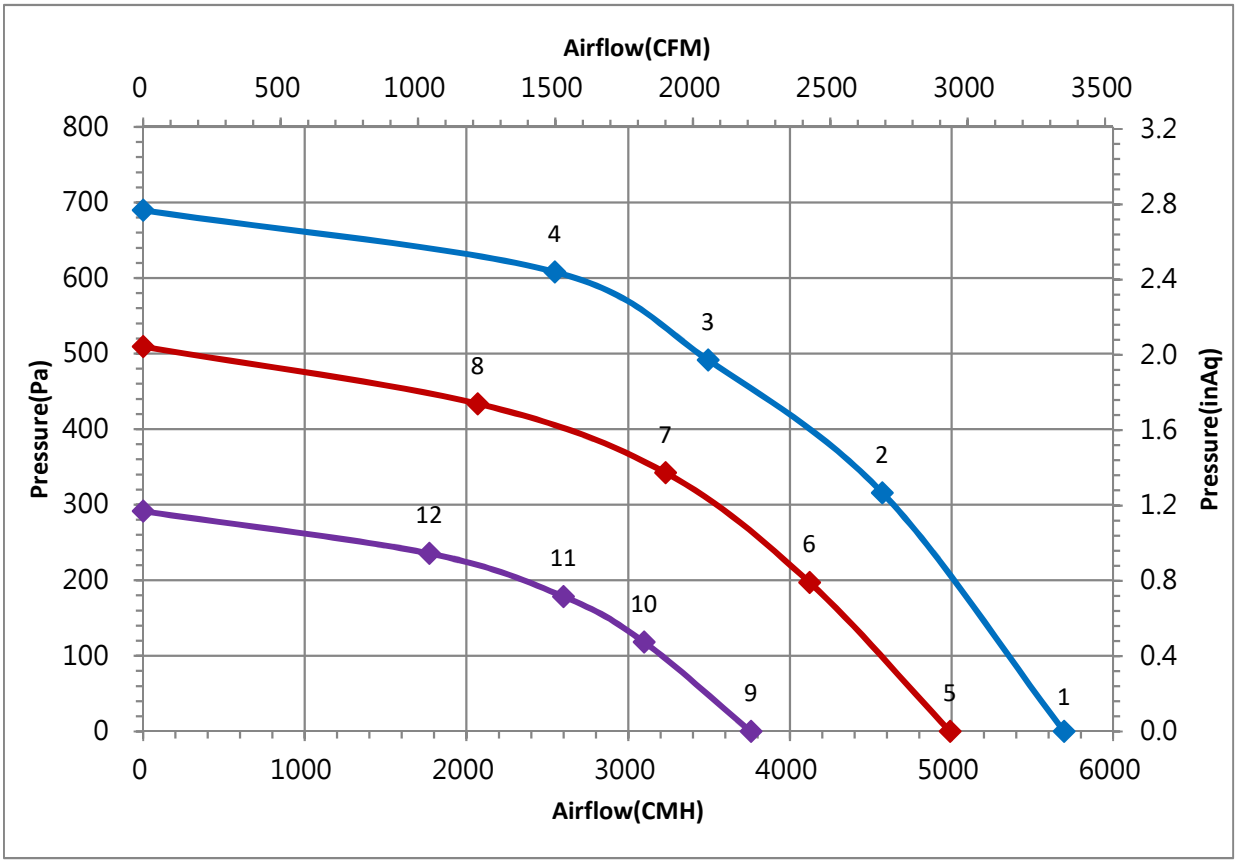
P & Q curves



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	5693	1750	530	2.34	77.5
2	316	4569	1750	775	3.40	
3	491	3493	1744	800	3.51	
4	608	2543	1760	767	3.37	
5	0	4988	1525	370	1.66	75.5
6	197	4119	1528	496	2.19	
7	342	3229	1529	538	2.37	
8	433	2068	1527	483	2.14	
9	0	3757	1160	166	0.82	70.0
10	118	3097	1156	223	1.04	
11	178	2598	1158	238	1.11	
12	235	1769	1164	229	1.07	

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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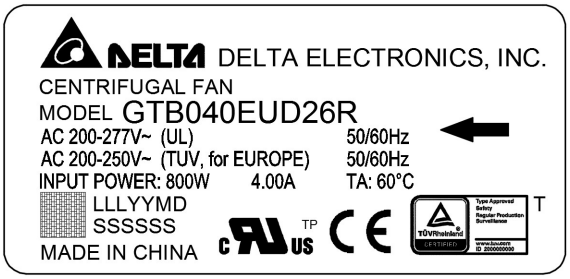
Dimension drawing

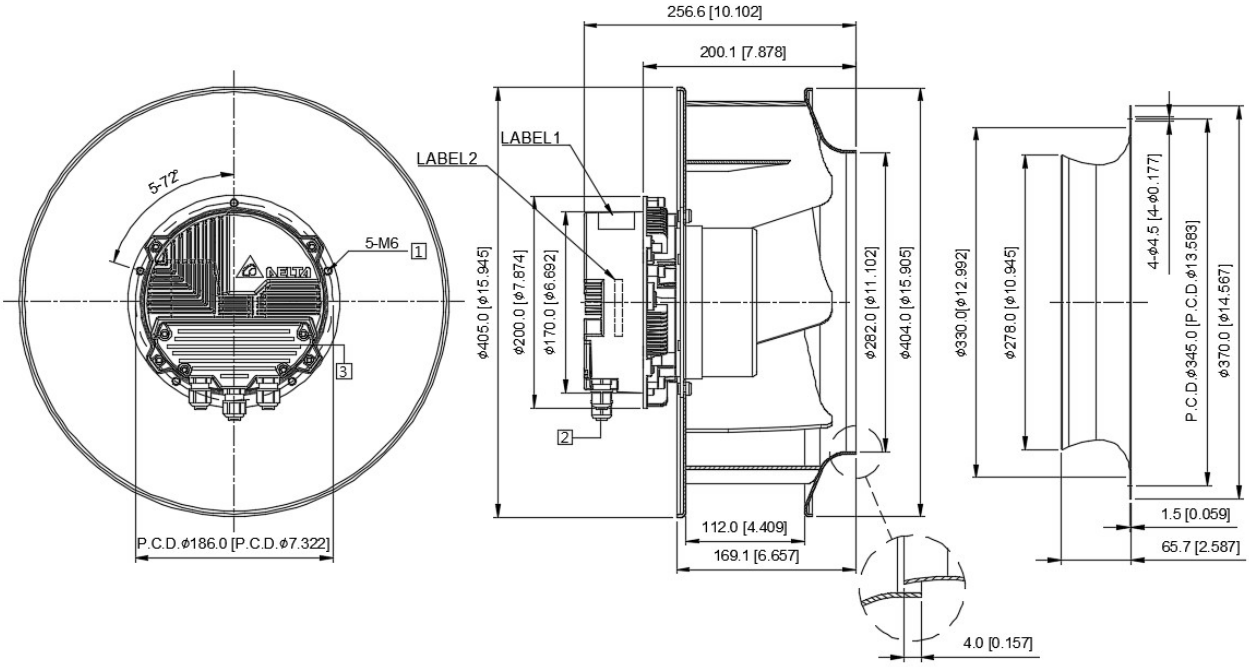
Label :

Label1



Label2

Fan :



Note :

UNIT : mm[INCH]

1. Depth of screw : 12 ~16 mm.
2. Cable Diameter : Ø6.0 ~ Ø10.0 mm
3. Open the cover and refer to definition of terminal block.

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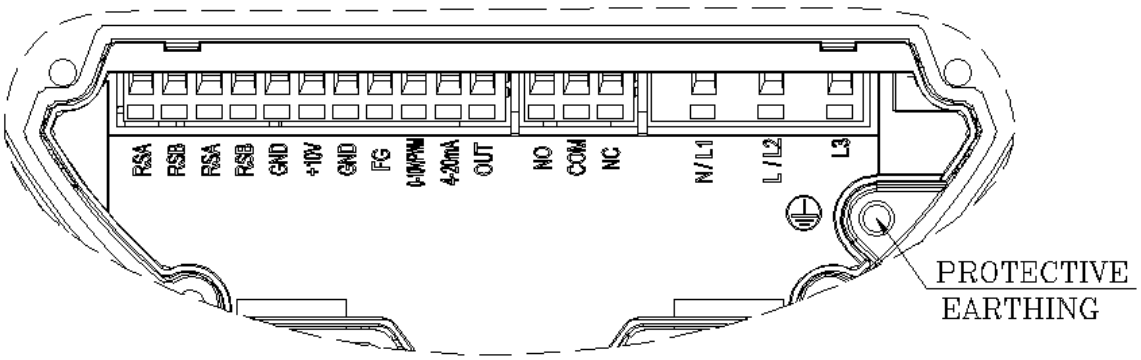
Definition of terminal block



	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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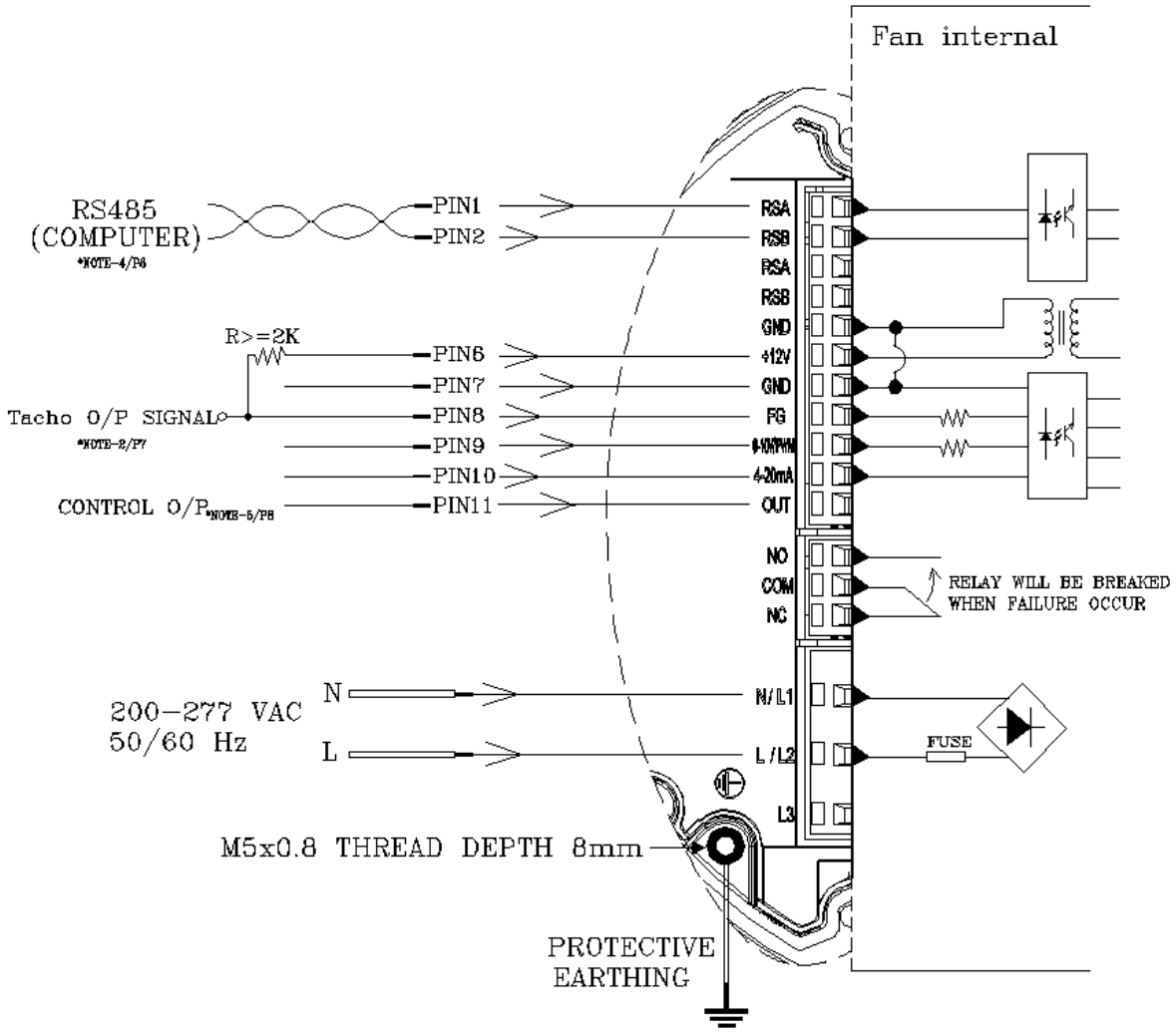
Lead wire connection:



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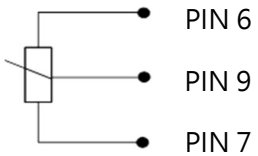
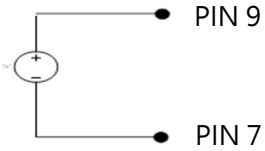
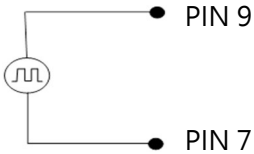
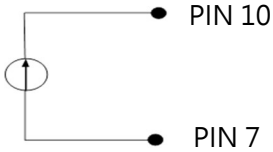
Speed setting	
Full Speed  	**Short PIN6 & PIN9** Fan will run full speed.
Voltage Control A (NOTE5)  	**Connector 1-10kΩ variable resistor** Between **+10VDC** with **GND** and **0-10V/PWM** Turn the variable resistor，can change the '**0-10V/PWM**' voltage (0...10V)。
Voltage Control B 0-10V DC Source  	**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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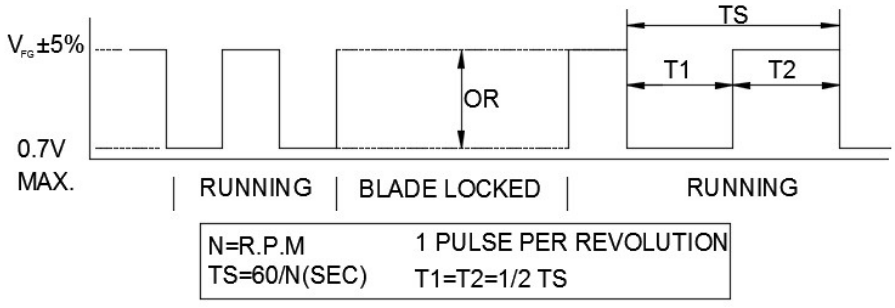
<table>
<tr><th colspan="2">Signal function</th></tr>
<tr><td>RS485 control function</td><td>RS485 control function
-Select the control mode of speed, fixed speed or fixed PWM duty
-Speed and power consumption feedback.
-Allow multiple FANs control and status patrol.</td></tr>
<tr><td>Control O/P</td><td>The analog signal level is the derivative of current control level.
<table>
<tr><th>Current (mA)</th><th>Control O/P (VDC) (REF)</th></tr>
<tr><td>4.0</td><td>0.2</td></tr>
<tr><td>6.2</td><td>1.47</td></tr>
<tr><td>13.7</td><td>5.96</td></tr>
<tr><td>18.7</td><td>8.95</td></tr>
<tr><td>20.0</td><td>9.65</td></tr>
</table></td></tr>
<tr><td>Voltage/PWM control</td><td>The speed comparison will control level
<table>
<tr><th>Voltage (V)</th><th>PWM (%)</th><th>Speed (RPM) (REF)</th></tr>
<tr><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1.5</td><td>15</td><td>330±50RPM</td></tr>
<tr><td>6.0</td><td>60</td><td>1170±8%</td></tr>
<tr><td>9.5</td><td>95</td><td>1750±5%</td></tr>
</table></td></tr>
<tr><td>Current control</td><td>The speed comparison will control level
<table>
<tr><th>Current (mA)</th><th>Speed (RPM) (REF)</th></tr>
<tr><td>4.0</td><td>0</td></tr>
<tr><td>6.2</td><td>335±50RPM</td></tr>
<tr><td>14.0</td><td>1200±8%</td></tr>
<tr><td>19.5</td><td>1750±5%</td></tr>
</table></td></tr>
<tr><td>Alarm state</td><td>NO and COM will OPEN ; NC and COM will CLOSE.</td></tr>
<tr><td>FG</td><td>V_{CE}(sat) = 0.7V MAX. V_{FG} = 30.0V MAX.
I_C = 5mA MAX. R ≥ V_{FG} / I_C

Frequency generator waveform
 
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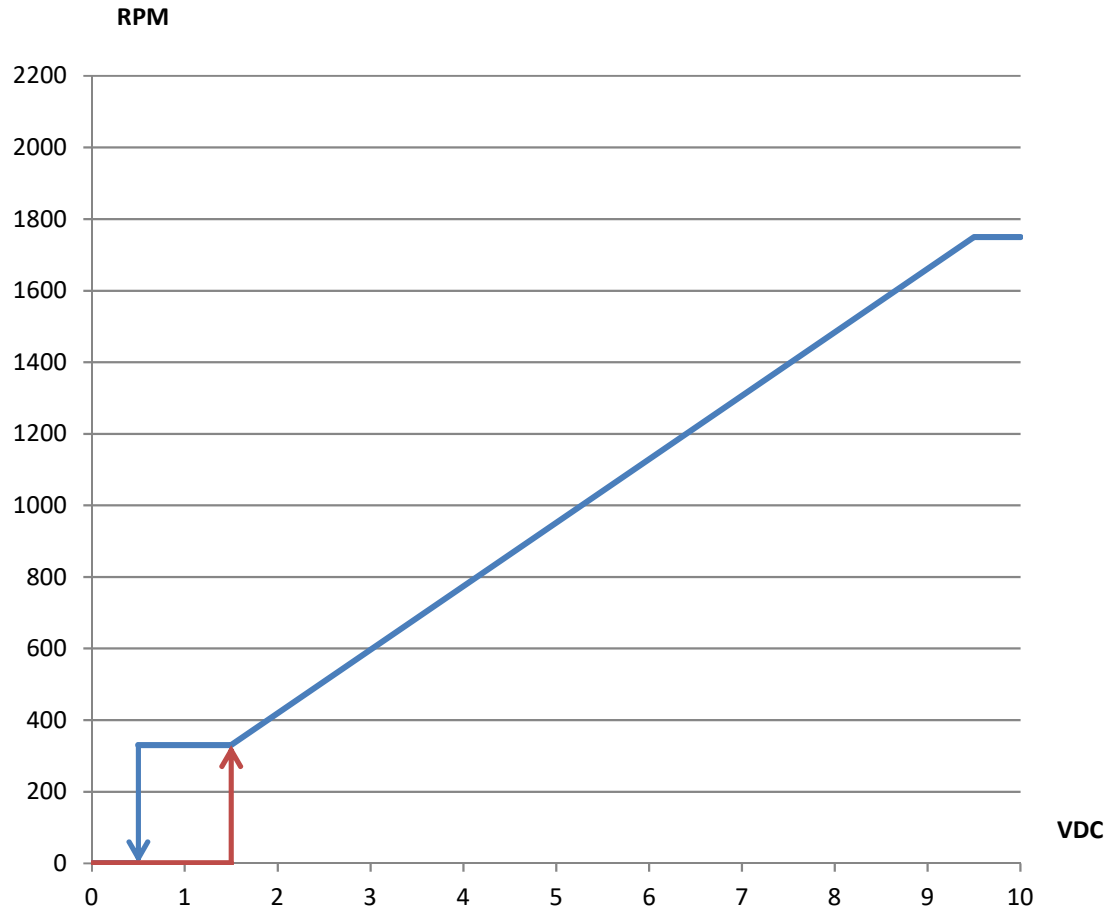
Control Voltage VS. RPM Curve



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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