Specification For Approval

Customer : _____

Description : EC FAN

Customer Part No. : _____ Rev : ____

Delta Model No. : GTB031PHJ22M N1 Rev : 03

Safety Model No. : CCC：MU084EP3SA0-030、UL / TUV：GTB031PHJ22M

Sample Issue No. : _____

Sample Issue Date : 07/06/2020

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

Approved by : _____

Date : _____

GTB031PHJ22MN1 Delta Datasheet
sales@fansco.com
www.fansco.com

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GTB031PHJ22M N1

Electronically Commutated (EC) Fan

Centrifugal Fan

ϕ319 x 220.9 mm

GTB031PHJ22MN1 Delta Datasheet
sales@fansco.com www.fansco.com

Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	764 W
Power @ Max. load	1000 W
Output Side	
Speed (RPM)	3060
Qmax. (CMH / CFM)	3704 / 2180
Pmax. (Pa / inAq)	1035 / 4.157
Noise (dB-A) @ Qmax.	81.5
Functions	
Passive power factor correction	
Control input 0-10VDC / PWM / 4-20mA.	
Output +10VDC (±10%), max. 10mA.	
Control voltage output: 0-10VDC.	
RS485 control bus (MODBUS RTU / 8N1)	
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)	7.7
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-30 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
Safety	
Safety	CCC , UL , cUL , TUV
IP Level	IP54
EMC	EN61000-6-2/3 , EN61000-3-2/3
Protection class	I
Insulation class	F
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.

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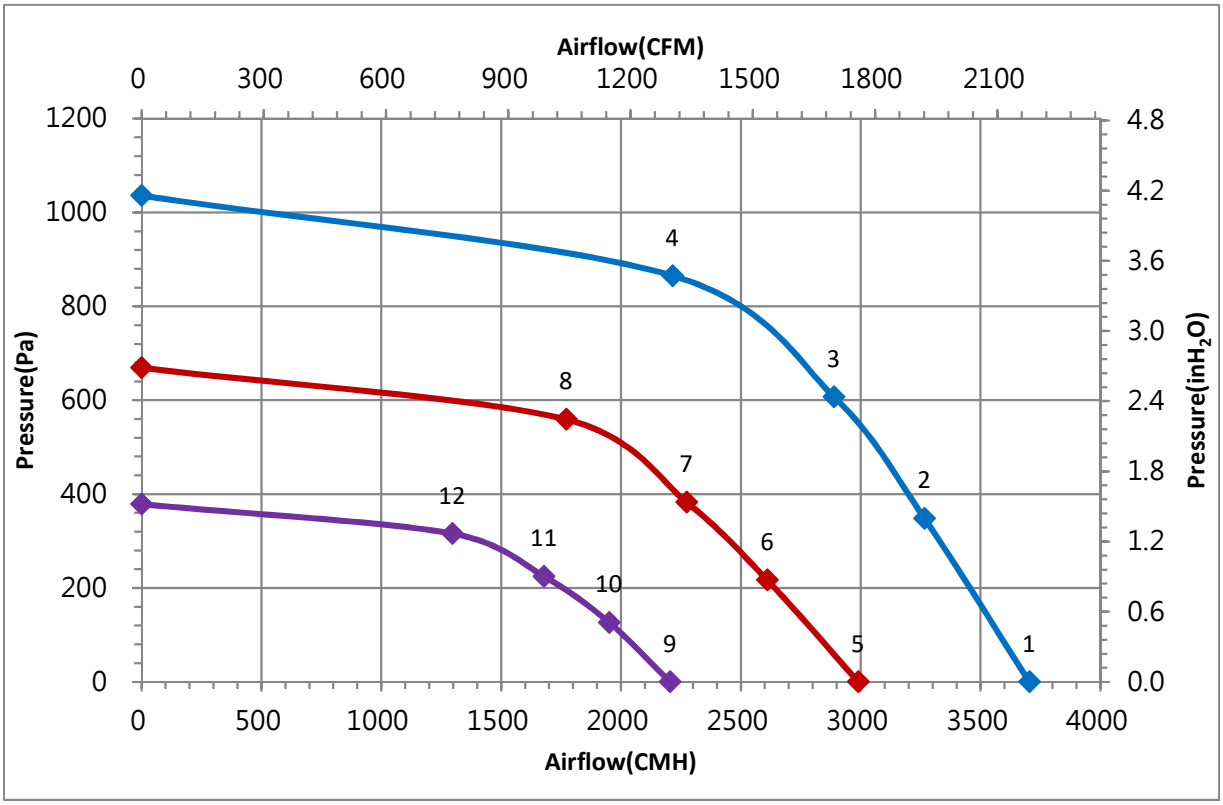
P & Q curves



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	3704	3060	764	1.34	81.5
2	349	3266	3060	892	1.52	
3	607	2888	3060	987	1.64	
4	865	2215	3060	989	1.64	
5	0	2989	2450	420	0.81	76.5
6	217	2610	2450	458	0.87	
7	383	2274	2450	522	0.98	
8	559	1771	2450	528	0.98	
9	0	2205	1840	185	0.39	68.5
10	127	1950	1840	203	0.42	
11	225	1679	1840	229	0.48	
12	316	1297	1840	226	0.48	

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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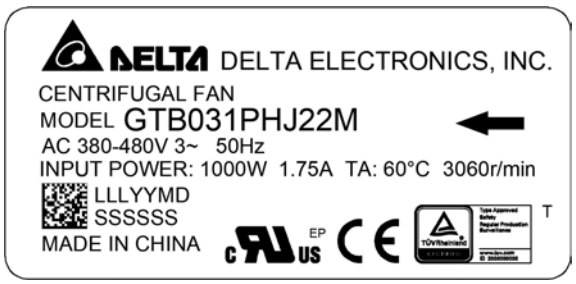
Dimension drawing

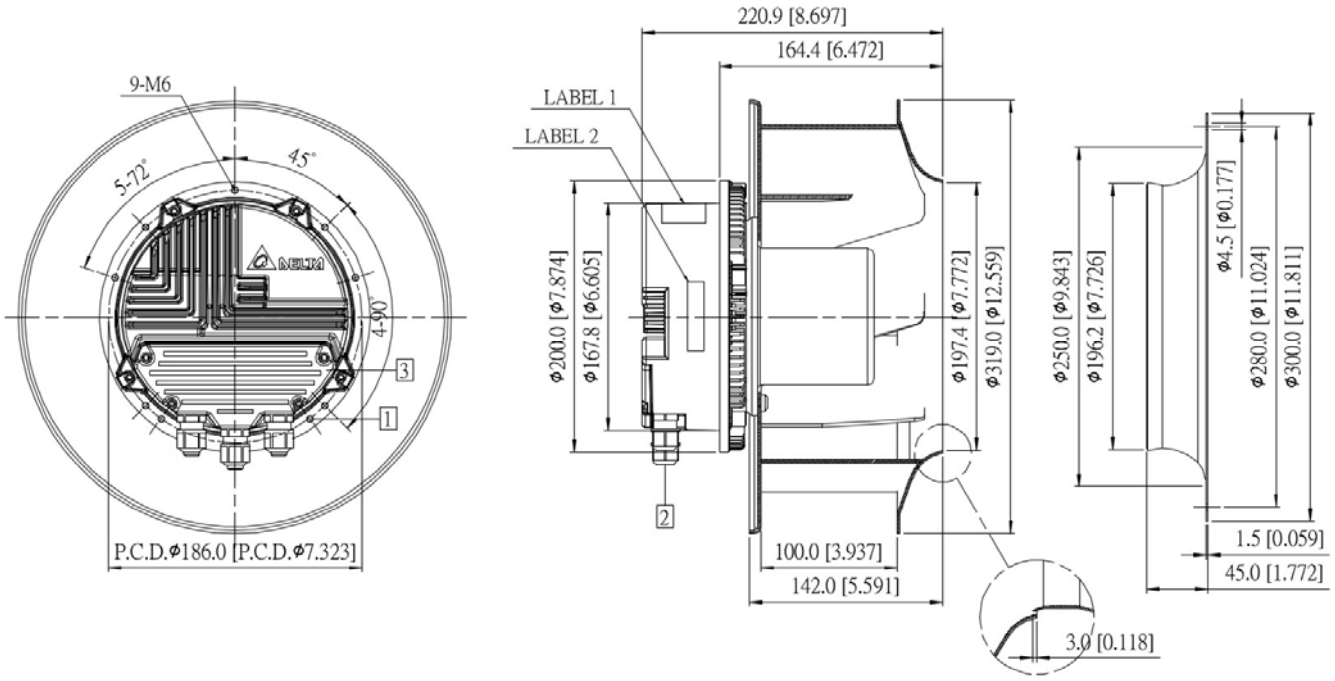
Label :



Label 1

Label 2

Fan :



UNIT : mm[INCH]

Note :

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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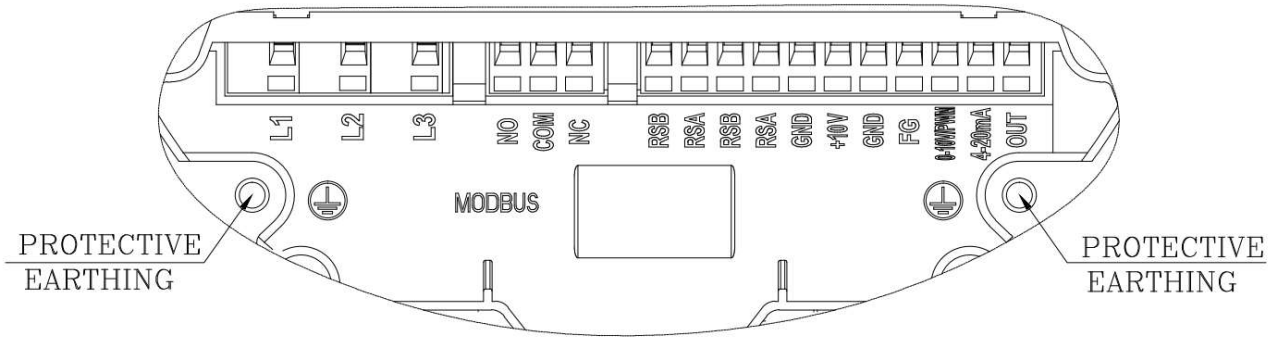
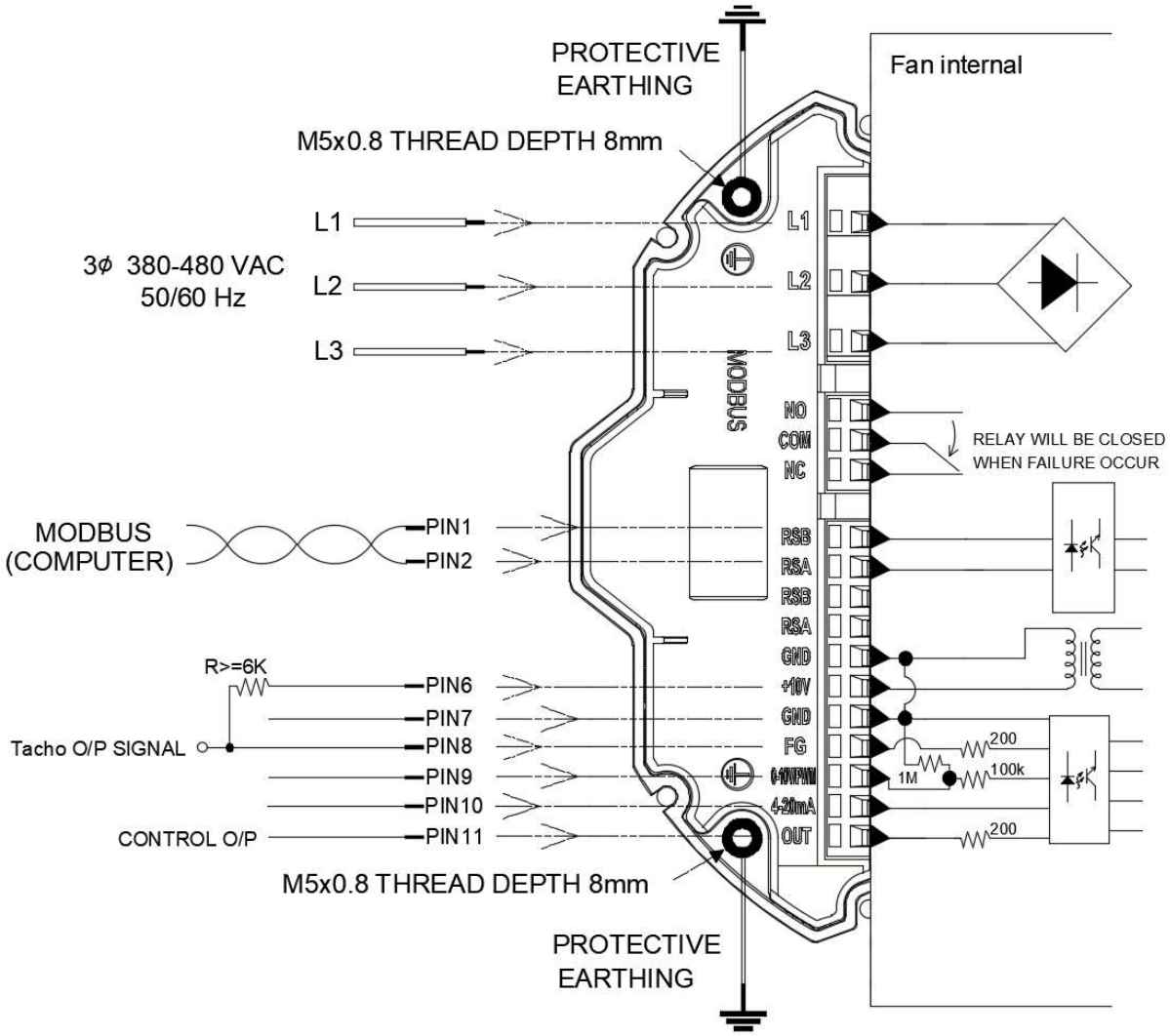
Definition of terminal block



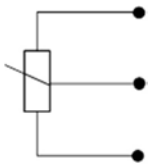
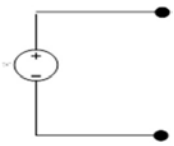
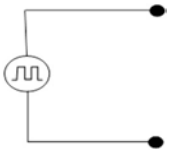
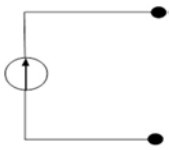
	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NO	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NC	Alarm relay, close by failure
Signal	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	GND	Ground
	+10V	+10V output, 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)

Lead wire connection



Note :

A MODBUS over serial line cable must be shielded. At one end of each cable its shield must be connected to protective ground.

Speed setting	
Full Speed  	**Short PIN6 & PIN9** Fan will run full speed.
Voltage Control A  	**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 4.8 mA → Fan Stop - Higher than 5.6 mA → Fan Start up - Higher than 19.5 mA → Maximum Speed

<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</td></tr>
<tr><td>6.3</td><td>1.50</td></tr>
<tr><td>14.0</td><td>6.00</td></tr>
<tr><td>19.5</td><td>9.45</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>430 ± 50RPM</td></tr>
<tr><td>6.0</td><td>60</td><td>2060 ± 8%</td></tr>
<tr><td>9.5</td><td>95</td><td>3060 ± 5%</td></tr>
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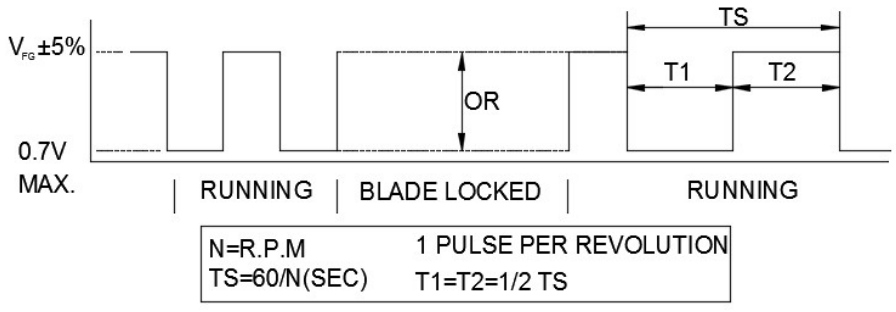
</table></td></tr>
<tr><td>Alarm state</td><td>NO and COM will OPEN ; NC and COM will CLOSE.</td></tr>
<tr><td>FG</td><td>V_{CE}(sat) = 0.7V MAX. V_{FG} = 30.0V MAX.
I_C = 5mA MAX. R ≥ V_{FG} / I_C
Frequency generator waveform
 
</td></tr>
</table>

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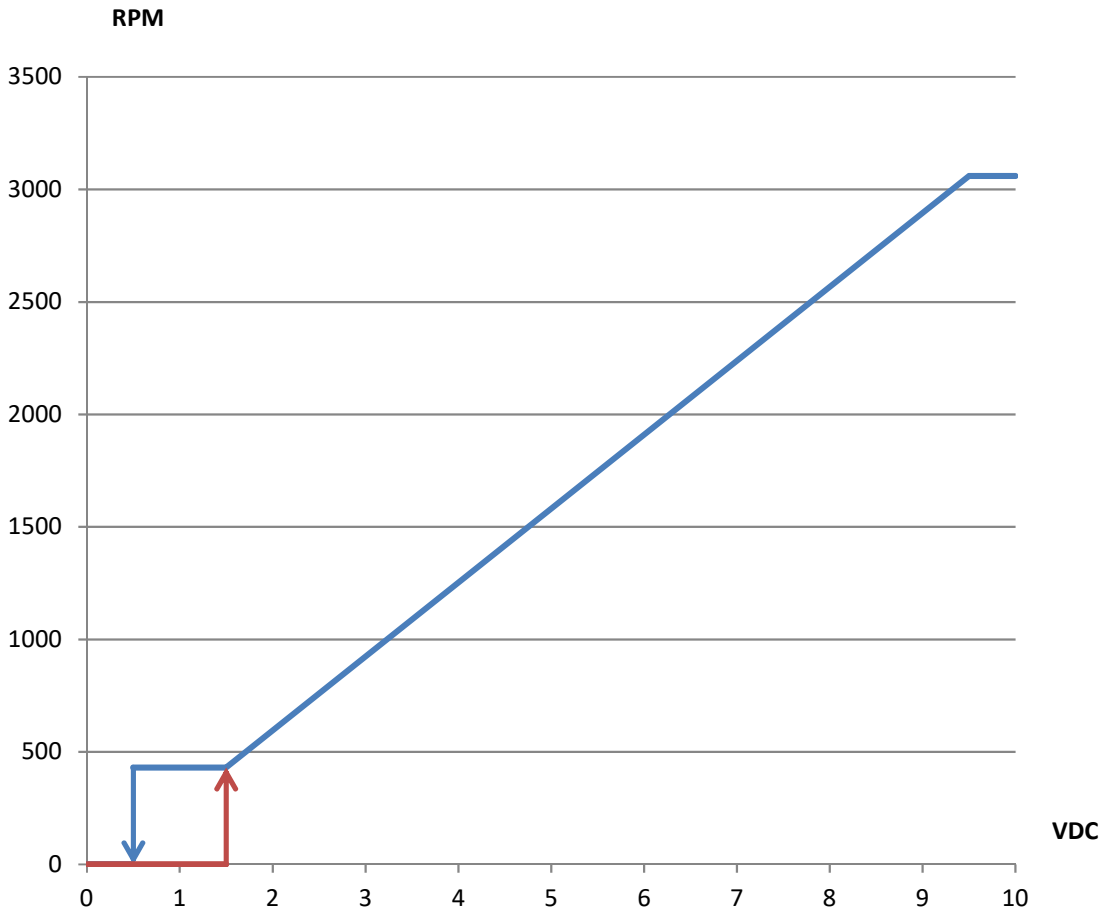
Control Voltage VS. RPM Curve



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