



Specification For Approval

Customer : _____
Description : _____ EC FAN _____
Customer Part No. : _____ Rev : _____
Delta Model No. : _____ GTW091NUT24R _____ Rev : 05
Sample Issue No. : _____
Sample Issue Date : _____ 8/25/2017 _____

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

Approved by : _____

Date : _____

Delta Electronics, Inc.
No.252, Shanying Rd., Guishan Dist.,
Taoyuan City 333, Taiwan (R.O.C.)

TEL : 886-(0)3-3591968
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Electronically Commutated (EC) Fan

Axial Fan

1070 x 1070 x 240 mm



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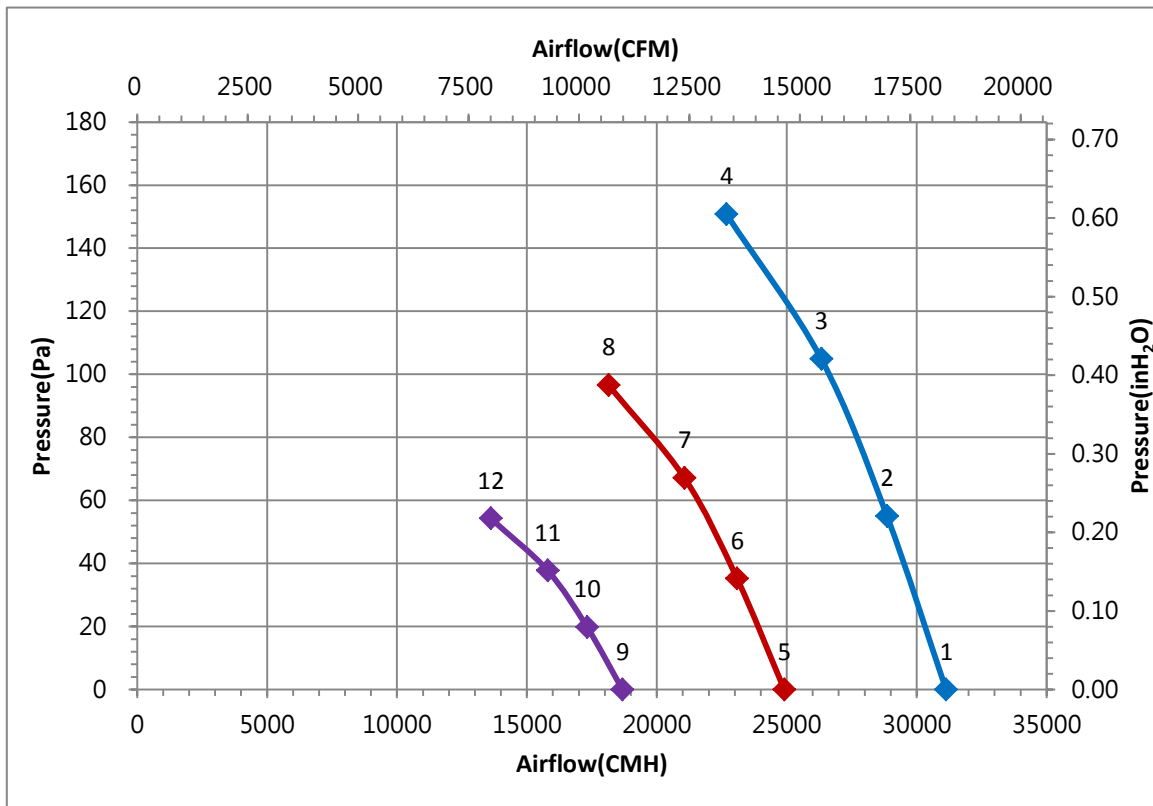
Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac 50/60Hz
Power @ Free air	1462 W
Power @ Max. load	2100 W
Output Side	
Speed (RPM)	950
Qmax. (CMH / CFM)	31130 / 18311
Pmax. (Pa / inAq)	170/ 0.65
Noise (dB-A) @ Qmax	78 dBA
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	CCW, seen on rotor
Material (Impeller / Frame)	Plastic / Steel
Bearing system	Ball bearings
Weight (kg)	57
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 °C
Storage temperature range	-40 ~ +70 °C
Safety	
Safety	UL , cUL , TUV (in progress)
IP Level	IP54
EMC	EN61000-6-2/4 , EN61000-3-2/3 (in progress)
Protection class	I
Insulation class	F
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:

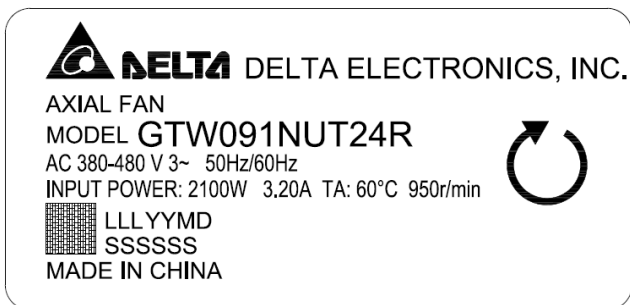
	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0.0	31130	950	1462	2.20	78.0
2	55.0	28861	950	1654	2.47	
3	104.9	26330	950	1816	2.70	
4	150.8	22681	950	1920	2.87	
5	0.0	24904	760	749	1.18	73.2
6	35.2	23088	760	847	1.32	
7	67.1	21064	760	930	1.46	
8	96.5	18145	760	983	1.52	
9	0.0	18678	570	316	0.65	66.9
10	19.8	17316	570	357	0.67	
11	37.7	15798	570	392	0.72	
12	54.3	13609	570	415	0.76	

Test Condition:

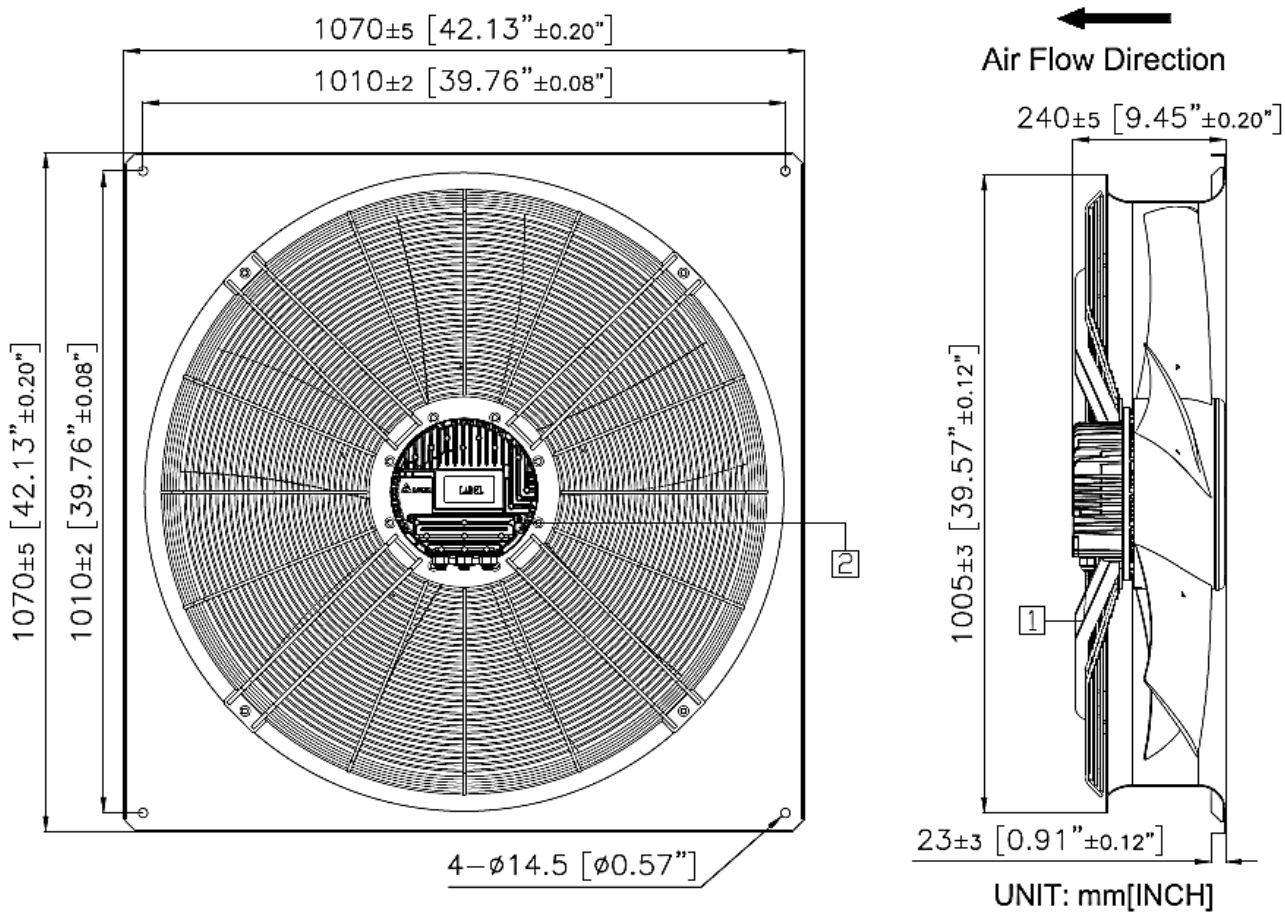
- Input Voltage: Nominal Voltage
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured without Fanguard
- Noise is measured at a distance of one meter from the fan intake with a sound level meter in anechoic chamber.

Dimension drawing

Label :



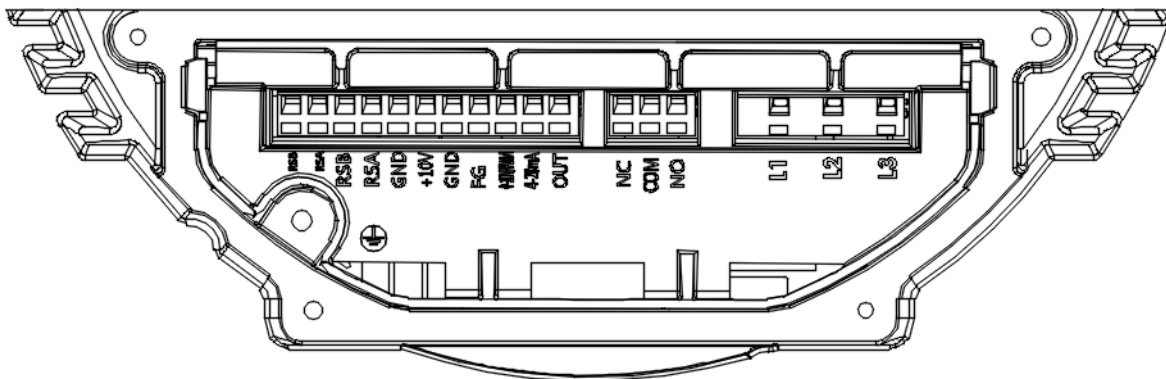
Fan :



Note:

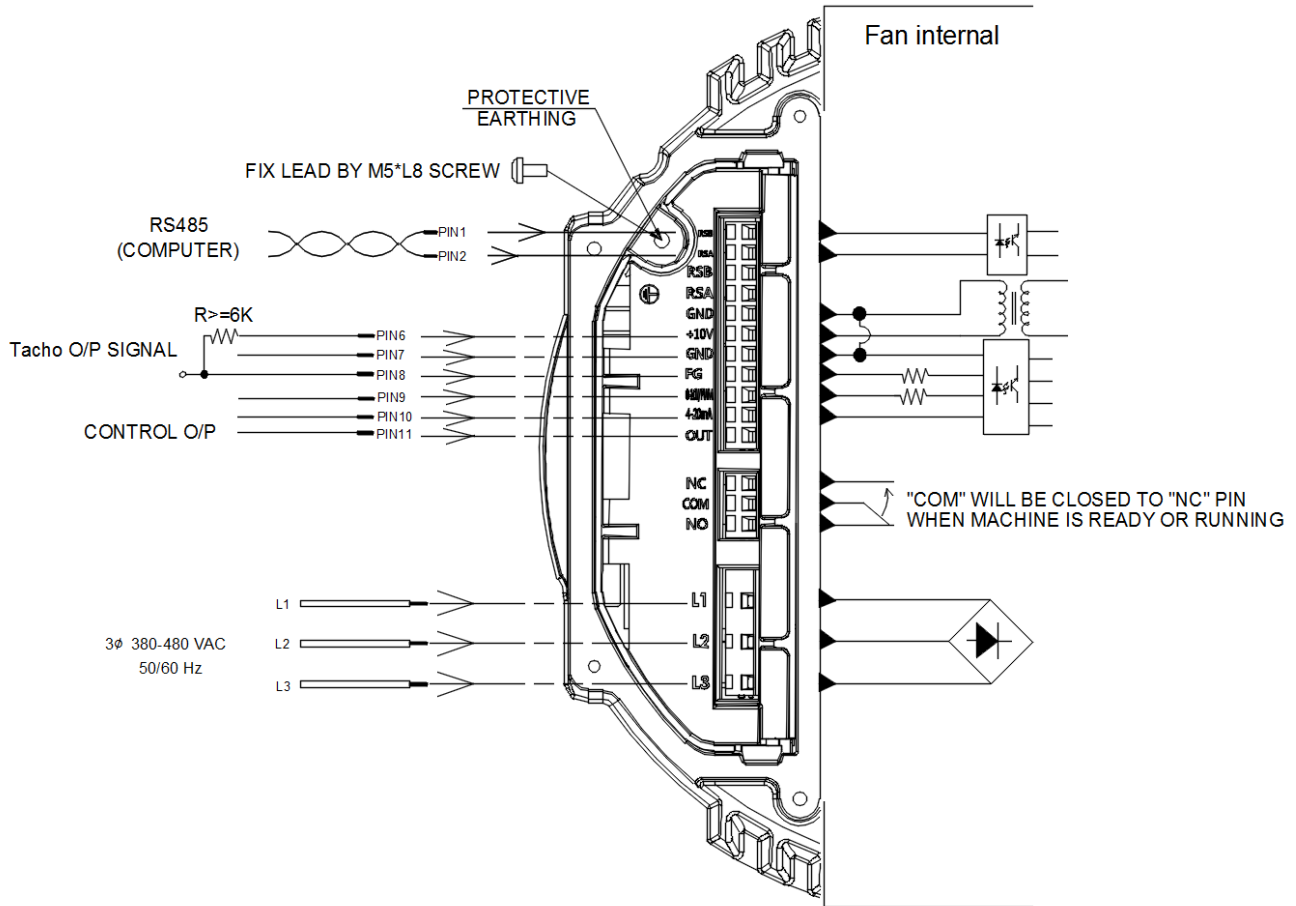
1. Cable Diameter : ϕ 7.0~ ϕ 12.7 mm
2. Open the cover and refer to definition of terminal block.

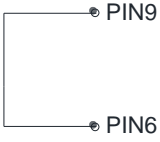
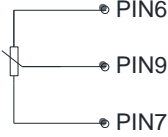
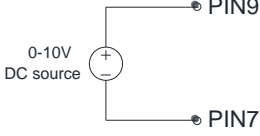
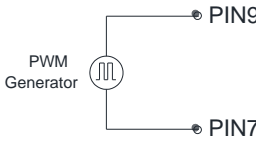
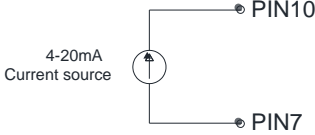
Definition of terminal block

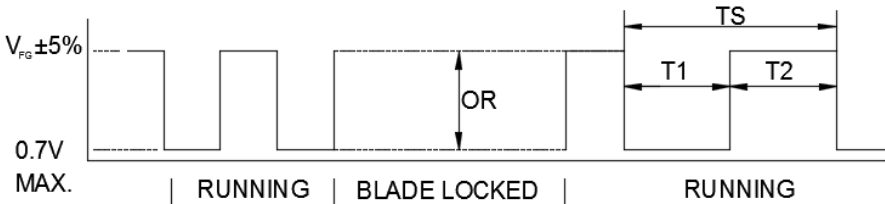


	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NC	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NO	Alarm relay, close by failure
Signal	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	GND	Ground
	+10V	+10V output, 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 output0-10VDC (For external potentiometer)	

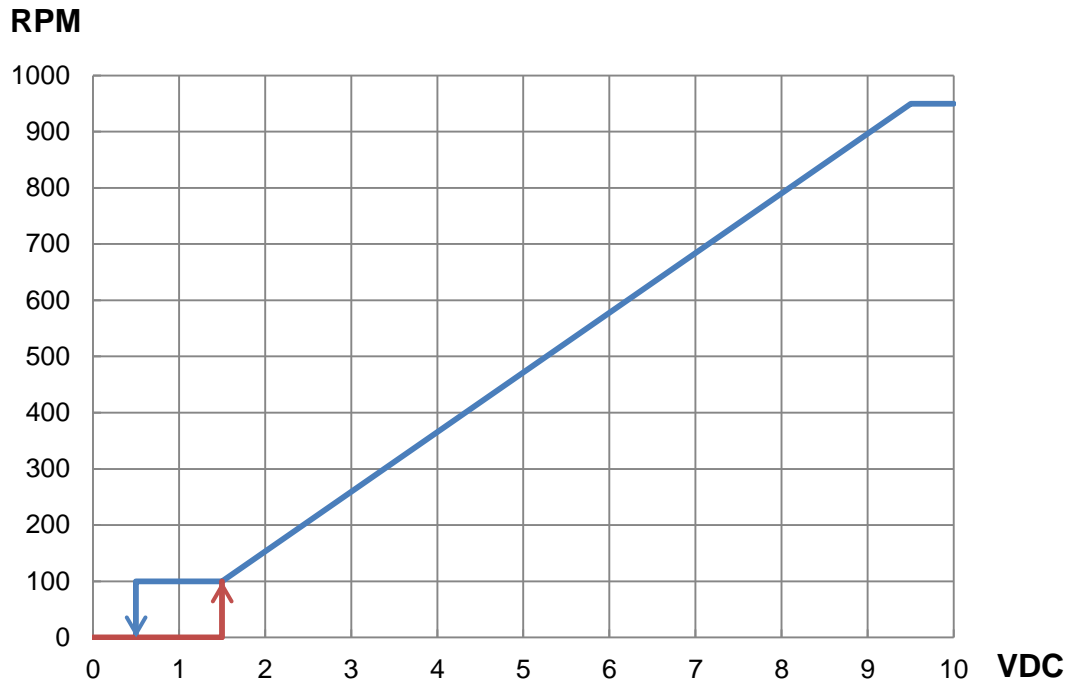
Lead wire connection:



Speed setting	
<p>Full Speed</p> 	<p>Short PIN6& PIN9 Fan will run full speed.</p>
<p>Voltage Control A</p> 	<p>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).</p>
<p>Voltage Control B</p> 	<p>Use voltage source support 0~10VDC voltage DC+ : connector PIN9(+) DC- : connector PIN7(-)</p>
<p>PWM Control</p> 	<p>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 °</p>
<p>Current Control</p> 	<p>4~20mA Current Control Open 0-10V/PWM PIN - Lower than 4.3 mA → Fan Stop - Higher than 6 mA → Fan Start up - Higher than 19.5 mA → Maximum Speed</p>

Signal function													
RS485 control function	<p>RS485 control function</p> <ul style="list-style-type: none"> -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	<p>The analog signal level is the derivative of current control level.</p> <table border="1"> <thead> <tr> <th>Current (mA)</th> <th>Control O/P (VDC) (REF)</th> </tr> </thead> <tbody> <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>6.10</td> </tr> <tr> <td>19.5</td> <td>9.38</td> </tr> </tbody> </table>	Current (mA)	Control O/P (VDC) (REF)	4.0	0	6.3	1.50	14.0	6.10	19.5	9.38		
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Alarm state	NC and COM will OPEN; NO and COM will CLOSE.												
FG	<p> $V_{CE(sat)} = 0.7V \text{ MAX.}$ $V_{FG} = 30.0V \text{ MAX.}$ $I_C = 5mA \text{ MAX.}$ $R \geq V_{FG} / I_C$ </p> <p>Frequency generator waveform</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>N=R.P.M</td> <td>1 PULSE PER REVOLUTION</td> </tr> <tr> <td>TS=60/N(SEC)</td> <td>T1=T2=1/2 TS</td> </tr> </tbody> </table>	N=R.P.M	1 PULSE PER REVOLUTION	TS=60/N(SEC)	T1=T2=1/2 TS								
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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	1	15	20	30	40	50	60	70	80	90	100	%
4~20 mA	4	4.3	5.2	6	6.9	8.5	10.2	11.9	13.6	15.2	16.9	18.6	20	mA