Specification For Approval

Customer : _____

Description : EC FAN

Customer Part No. : _____ Rev : ____

Delta Model No. : GTM036NUQ27R-M001 Rev : 01

Safety Model No. : _____

Sample Issue No. : _____

Sample Issue Date : 05/23/2018

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

Approved by : _____

Date : _____

*** SAMPLE HISTORY ***

CUSTOMER：Hitachi

CUSTOMER P/N：

DELTA MODEL：GTM036NUQ27R-M001

REV	DESCRIPTION	DRAWN	CHECKED		APPROVED	ISSUE DATE
			ME	EE		
00	Issue spec.	鍾明翰 02/27'18	鍾明翰 02/27'18	林科亦 02/27'18	賴偉銘 02/27'18	02/27'18
01	Modify PD drawing.	鍾明翰 05/23'18	鍾明翰 05/23'18	林科亦 05/23'18	賴偉銘 05/23'18	05/23'18

Smarter. Greener. Together

GTM036NUQ27R-M001

Electronically Commutated (EC) Fan

Centrifugal Fan

450 x 450 x 294 mm

GTM036NUQ27R-M001 Delta Datasheet

sales@fansco.com
www.fansco.com
No 252, Shangying Road, Guishan Industrial Zone, Taoyuan City, 33341, Taiwan

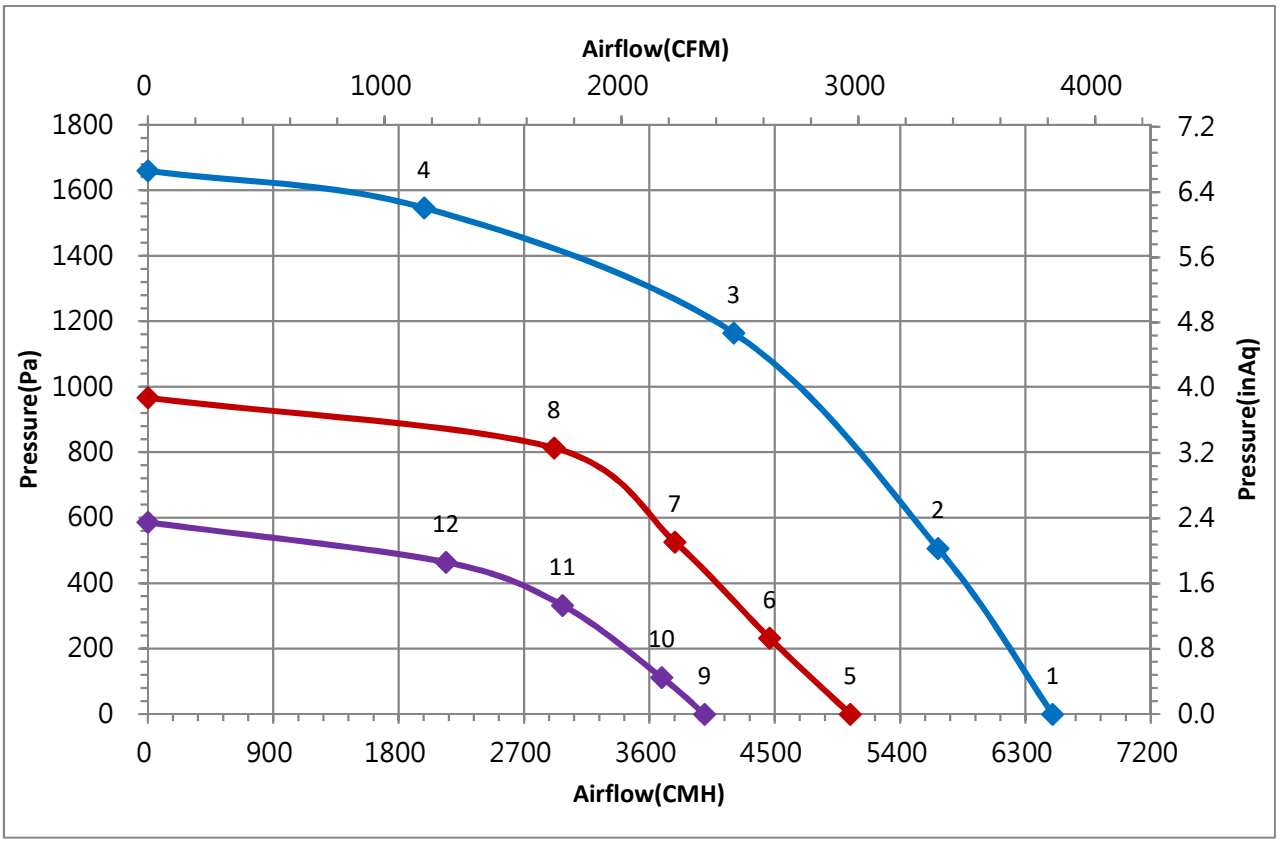
Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	1860 W
Power @ Max. load	2500 W
Output Side	
Speed (RPM)	3000
Qmax. (CMH / CFM)	6495 / 3821
Pmax. (Pa / inAq)	1660 / 6.66
Noise (dB-A) @ Qmax.	90.0
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)	24.5
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
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 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	6495	3102	1861	2.99	90.0
2	506	5672	3105	2291	3.67	
3	1165	4205	3005	2495	4.00	
4	1546	1985	3089	2197	3.52	
5	0	5042	2395	905	1.45	84.0
6	232	4464	2386	1021	1.64	
7	526	3782	2392	1225	1.96	
8	813	2918	2392	1298	2.08	
9	0	3996	1767	375	0.60	76.5
10	112	3689	1784	448	0.72	
11	332	2976	1799	544	0.87	
12	464	2140	1796	564	0.90	

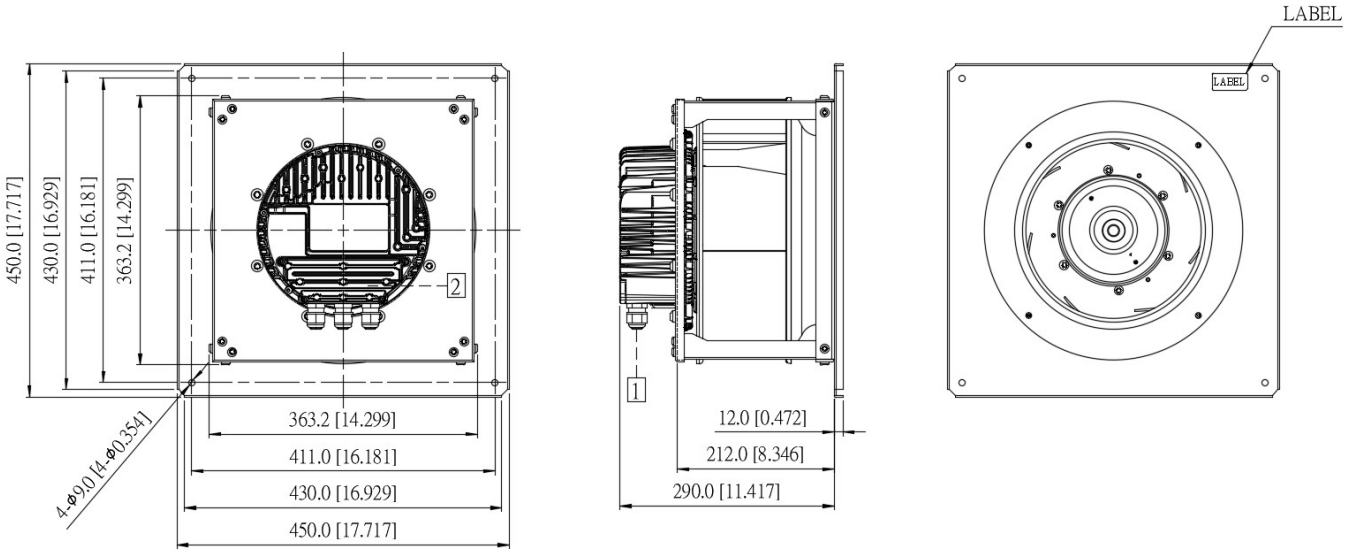
Test Condition :

- 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 :

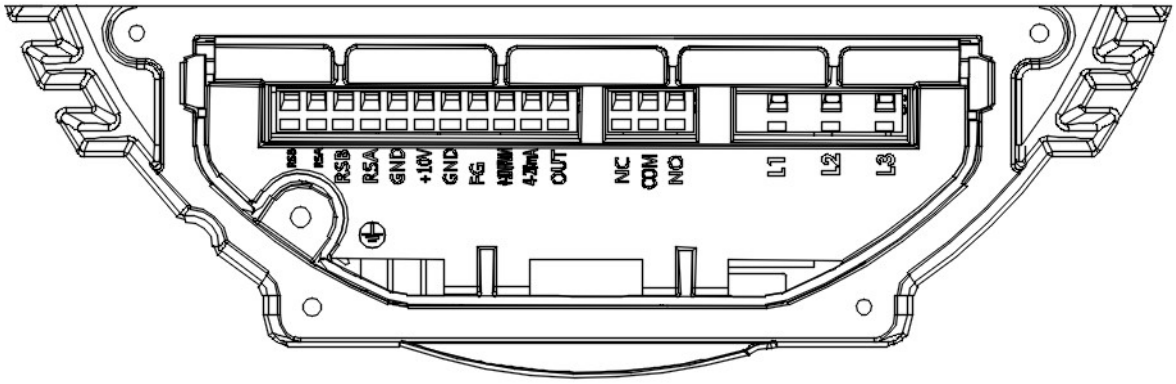


UNIT : mm[INCH]

Note :

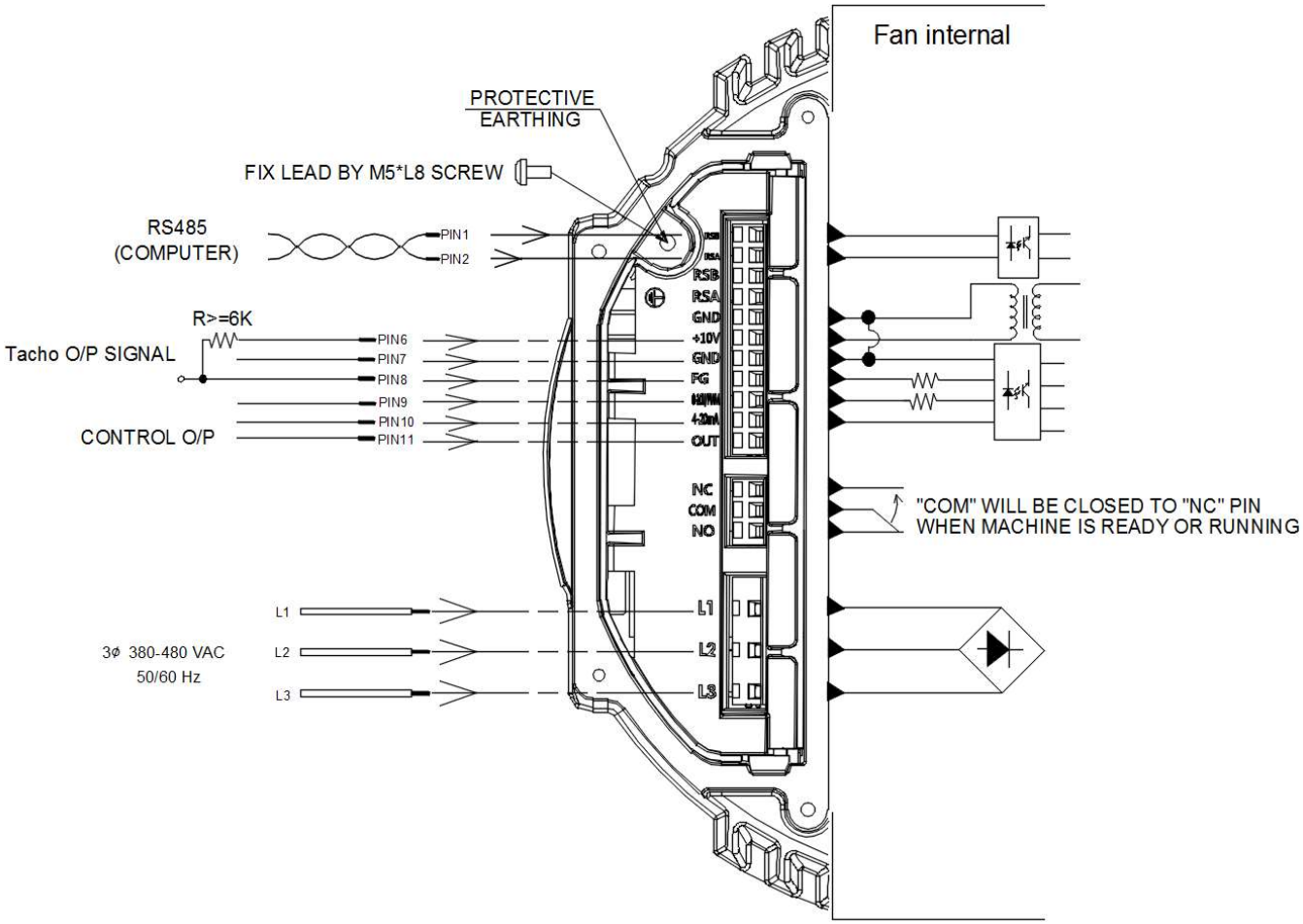
1. Cable diameter : ϕ7.0 ~ ϕ12.7mm.
2. Open the cover and refer to definition of terminal block.

Definition of terminal block



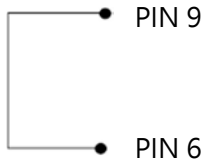
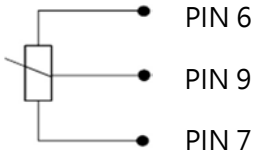
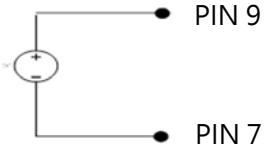
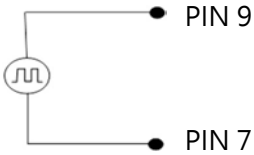
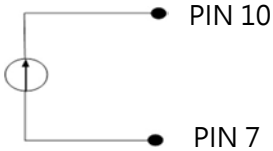
	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NC	Alarm relay, open by failure
	COM	Alarm relay, common (2A/250VAC)
	NO	Alarm relay, close by failure
Signal	RSB	RS485-B
	RSA	RS485-A
	RSB	RS485-B
	RSA	RS485-A
	GND	Ground
	+10V	+10V output,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

1. 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 (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 - 4.5 mA → Fan Stop - 6.0 mA → Fan Start up - 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>1.4</td></tr>
<tr><td>14.0</td><td>6.2</td></tr>
<tr><td>19.5</td><td>9.2</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>400 ± 50 RPM</td></tr>
<tr><td>6.0</td><td>60</td><td>1900 ± 8%</td></tr>
<tr><td>9.5</td><td>95</td><td>3000 ± 5%</td></tr>
</table></td></tr>
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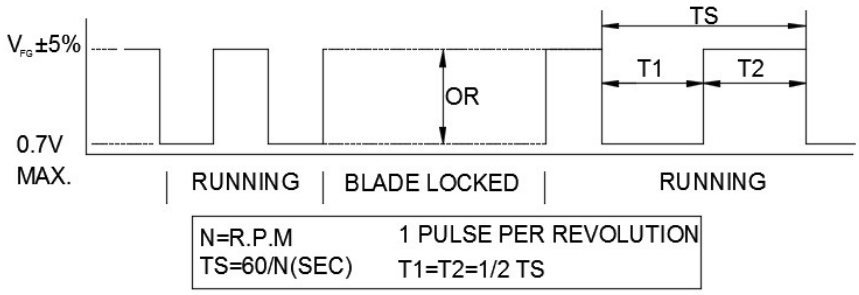
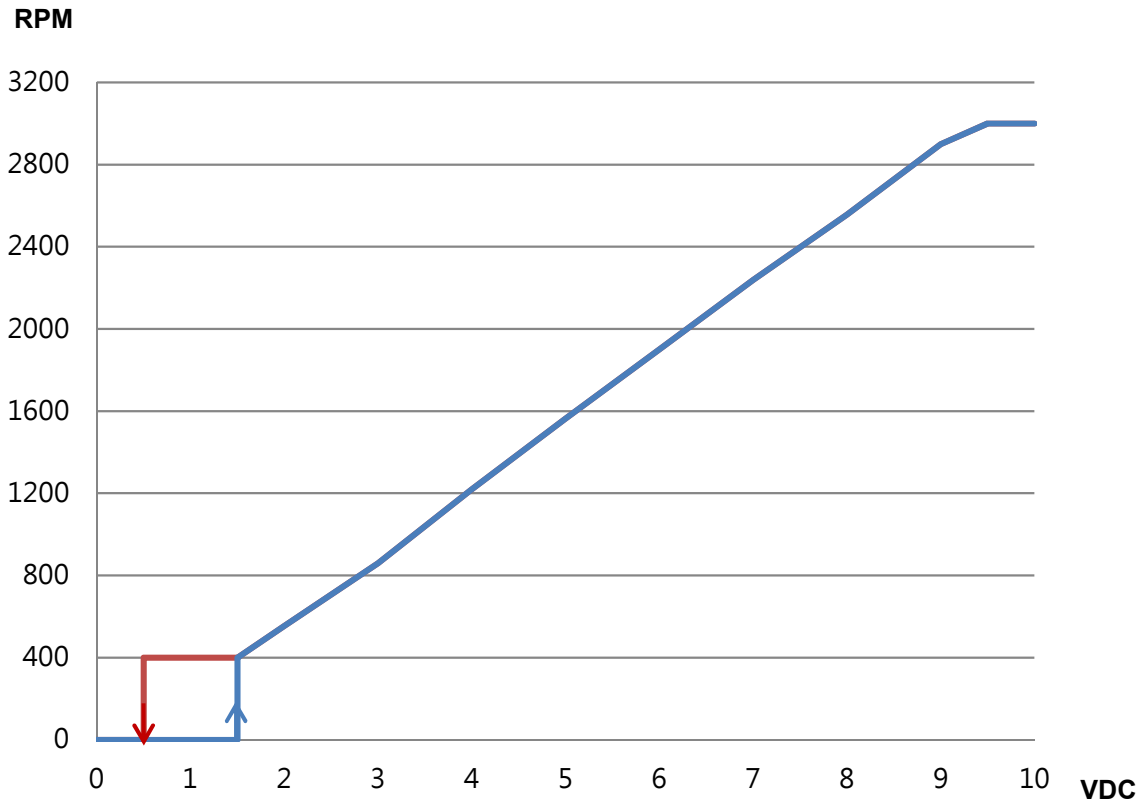
<tr><td>14.0</td><td>1970 ± 8%</td></tr>
<tr><td>19.5</td><td>3000 ± 5%</td></tr>
</table></td></tr>
<tr><td>Alarm state</td><td>NC and COM will OPEN; NO and COM will CLOSE.</td></tr>
<tr><td>FG</td><td>V_{CE}(sat) = 0.7V MAX. V_{FG} = 30.0V MAX.
I_C = 5mA MAX. $R \geq V_{FG} / I_C$
Frequency generator waveform
 
</td></tr>
</table>

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