Specification For Approval

Customer : _____

Description : EC FAN

Customer Part No. : _____ Rev : ____

Delta Model No. : GTW091PUU26E-M001 Rev : 02

Safety Model No. : TUV:MU150KP3FC3

Sample Issue No. : _____

Sample Issue Date : 12/11/2019

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

Approved by : _____

Date : _____

Delta Electronics, Inc.
No.252, Shangying Road, Guishan Industrial Zone, TEL : +886-3-359-1968
Taoyuan City, 33341, Taiwan FAX : +886-3-359-1991

Smarter. Greener. Together.

GTW091PUU26E-M001

Electronically Commutated (EC) Fan

Axial Fan

1070 x 1070 x 257 mm

DELTA ELECTRONICS, INC.
No.252, Shangying Road, Guishan Industrial Zone, Taoyuan City, 33341, Taiwan
TEL: +886-3-359-1968
FAX: +886-3-359-1991
www.deltaww.com

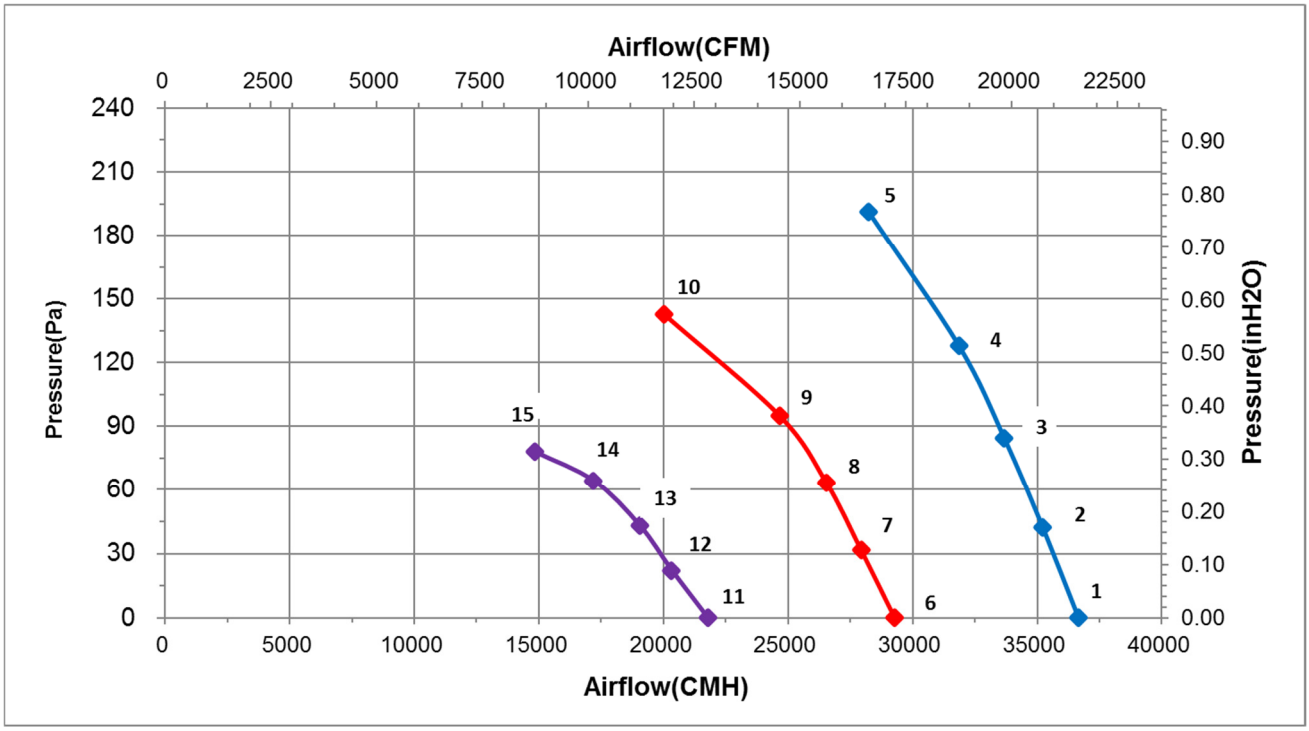
Technical features

Input Side	
Nominal Voltage	3~ 400Vac 50/60Hz
Input Source	3~ 380Vac - 480Vac
Power @ Free air	2352 W
Power @ Max. load	3100 W
Output Side	
Speed (RPM)	1100
Qmax. (CMH / CFM)	36649/21558
Pmax. (Pa / inAq)	191 / 0.77
Noise (dB-A) @ Qmax	86.0
Functions	
Passive power factor correction	
Control input 0-10VDC / PWM PATTERN / 4-20mA.	
Output +10VDC (±10%), max. 10mA.	
Control voltage output: 0-10VDC.	
RS485 control bus (MODBUS (V1.1) RTU/ 8N1)	
Alarm relay, Locked rotor protection, Soft start.	
Speed telling, Enable function.	
Voltage / Current monitoring.	

Physical	
Rotation Direction	CCW, seen on rotor
Material (Impeller / Frame)	Plastic / Steel
Bearing system	Ball bearings
Weight (kg)	58
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +60 ℃
Storage temperature range	-40 ~ +70 ℃
Safety	
Safety	UL, cUL(in progress),TUV
IP Level	IP54
EMC	EN61000-6-2, EN61000-6-3
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.

P & Q curves(without fanguard condition)



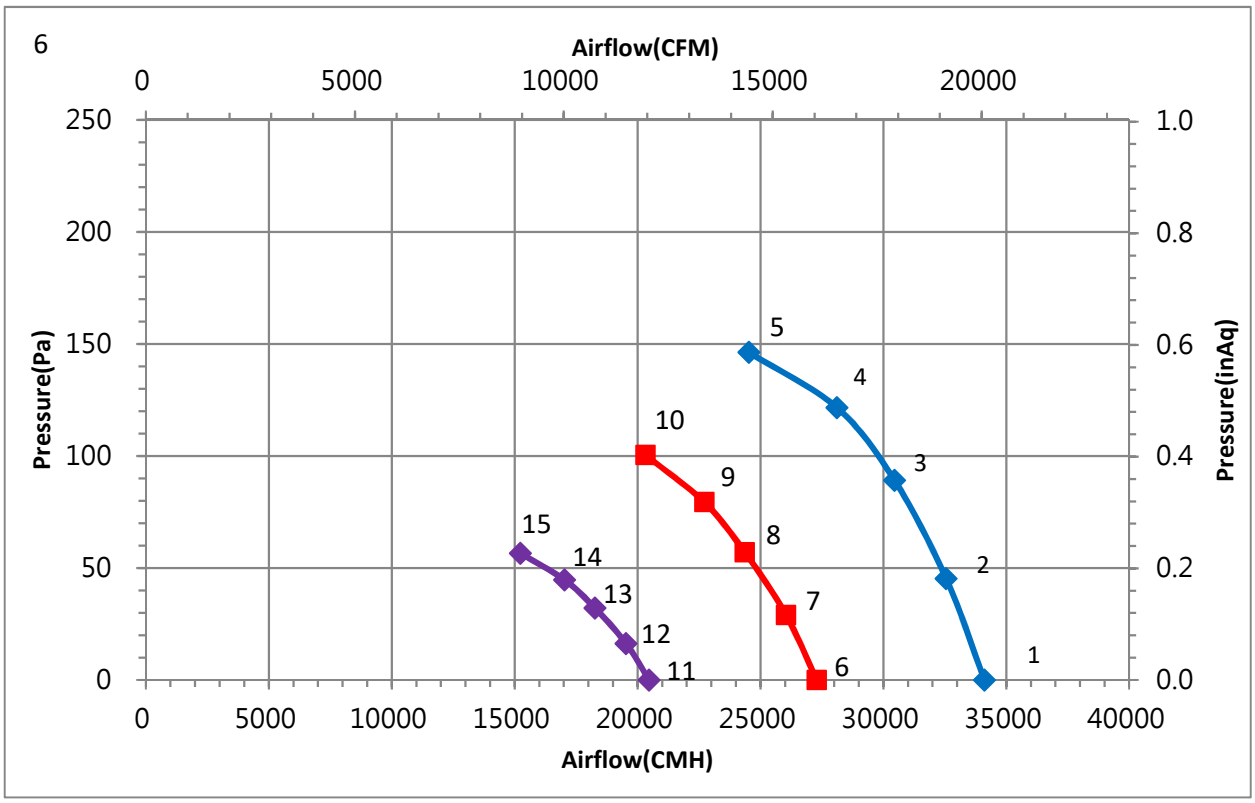
Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	36649	1100	2352	3.90	86.0
2	42	35219	1100	2540	4.15	
3	84	33680	1100	2712	4.39	
4	128	31868	1100	2876	4.64	
5	191	28244	1100	3038	4.81	
6	0	29271	880	1214	2.25	81.0
7	32	27930	880	1332	2.42	
8	63	26539	880	1429	2.55	
9	95	24668	880	1510	2.64	
10	143	20033	880	1628	2.74	
11	0	21773	660	533	1.33	74.0
12	22	20328	660	593	1.43	
13	43	19040	660	635	1.47	
14	64	17199	660	667	1.48	
15	78	14841	660	694	1.50	

Test Condition:

- Input Voltage: 3~400Vac
- Temperature : Room Temperature
- Humidity : 65%RH
- Noise (Lp) is measured at a distance of one meter from the inlet side.
- Testing method is compliance with ISO 3745

P & Q curves(with fanguard condition)



Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	34111	1100	2680	4.41	86.0
2	45	32556	1100	2853	4.63	
3	89	30456	1100	3001	4.83	
4	122	28115	1089	3021	4.84	
5	146	24528	1060	2955	4.77	
6	0	27288	880	1382	2.49	81.0
7	29	26045	880	1476	2.60	
8	57	24364	880	1550	2.70	
9	79	22719	880	1603	2.74	
10	100	20324	880	1686	2.89	
11	0	20466	660	604	1.44	74.0
12	16	19536	660	644	1.48	
13	32	18273	660	672	1.48	
14	45	17039	660	693	1.50	
15	56	15243	660	725	1.52	

Test Condition:

- Input Voltage: 3~400Vac
- Temperature : Room Temperature
- Humidity : 65%RH
- Noise (Lp) is measured at a distance of one meter from the inlet side.
- Testing method is compliance with ISO 3745

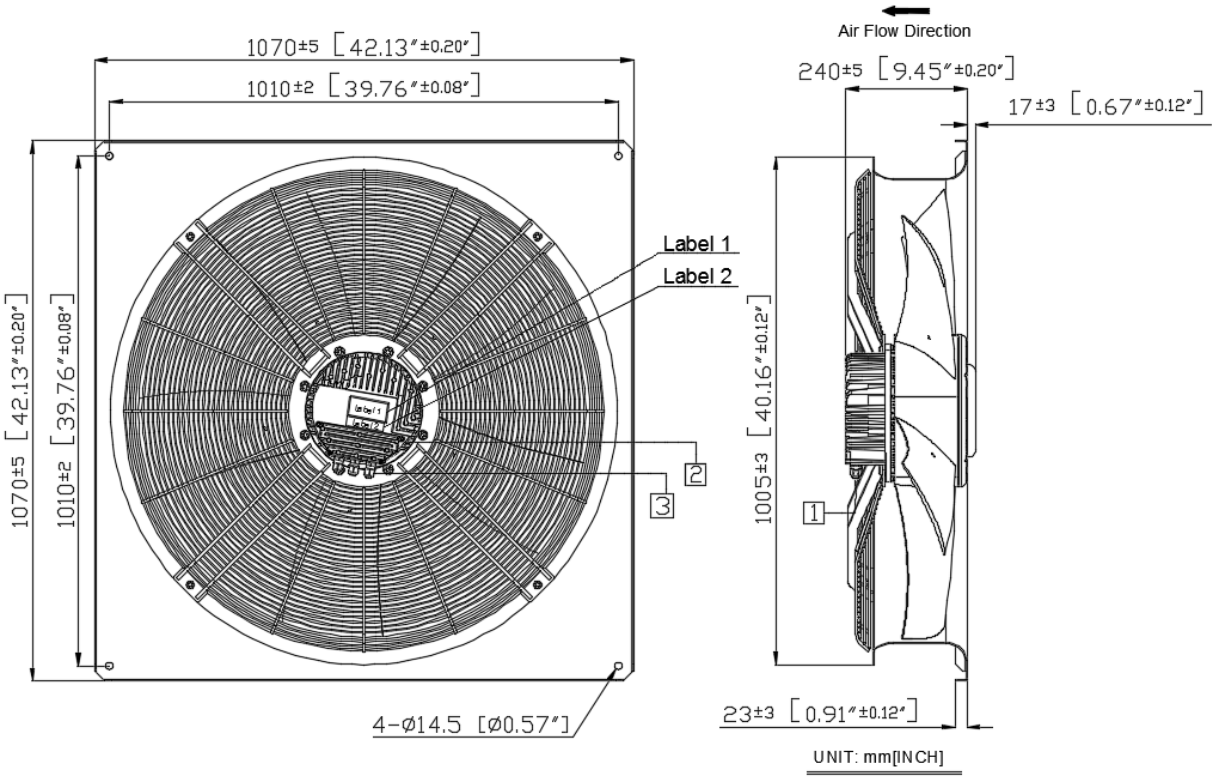
Dimension drawing

Label :

Label 1

Label 2

Fan :



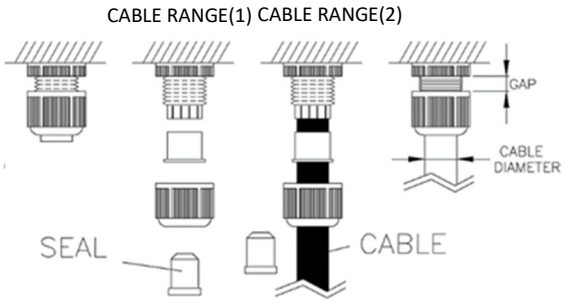


Fig1

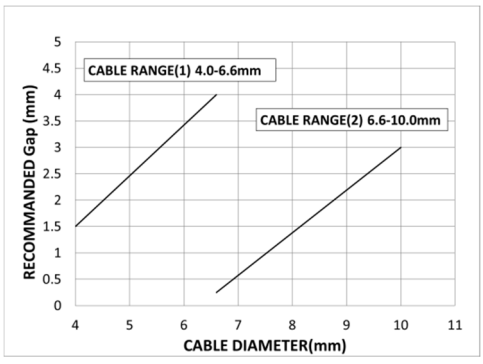
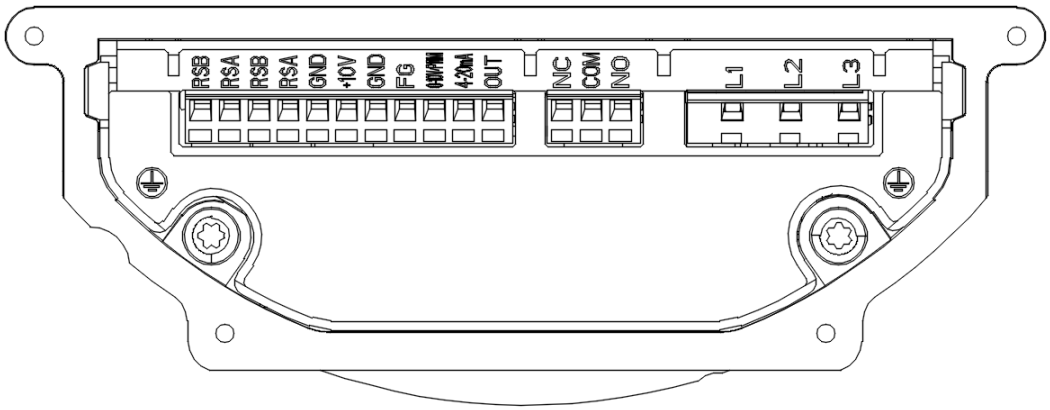


Fig2

Note :

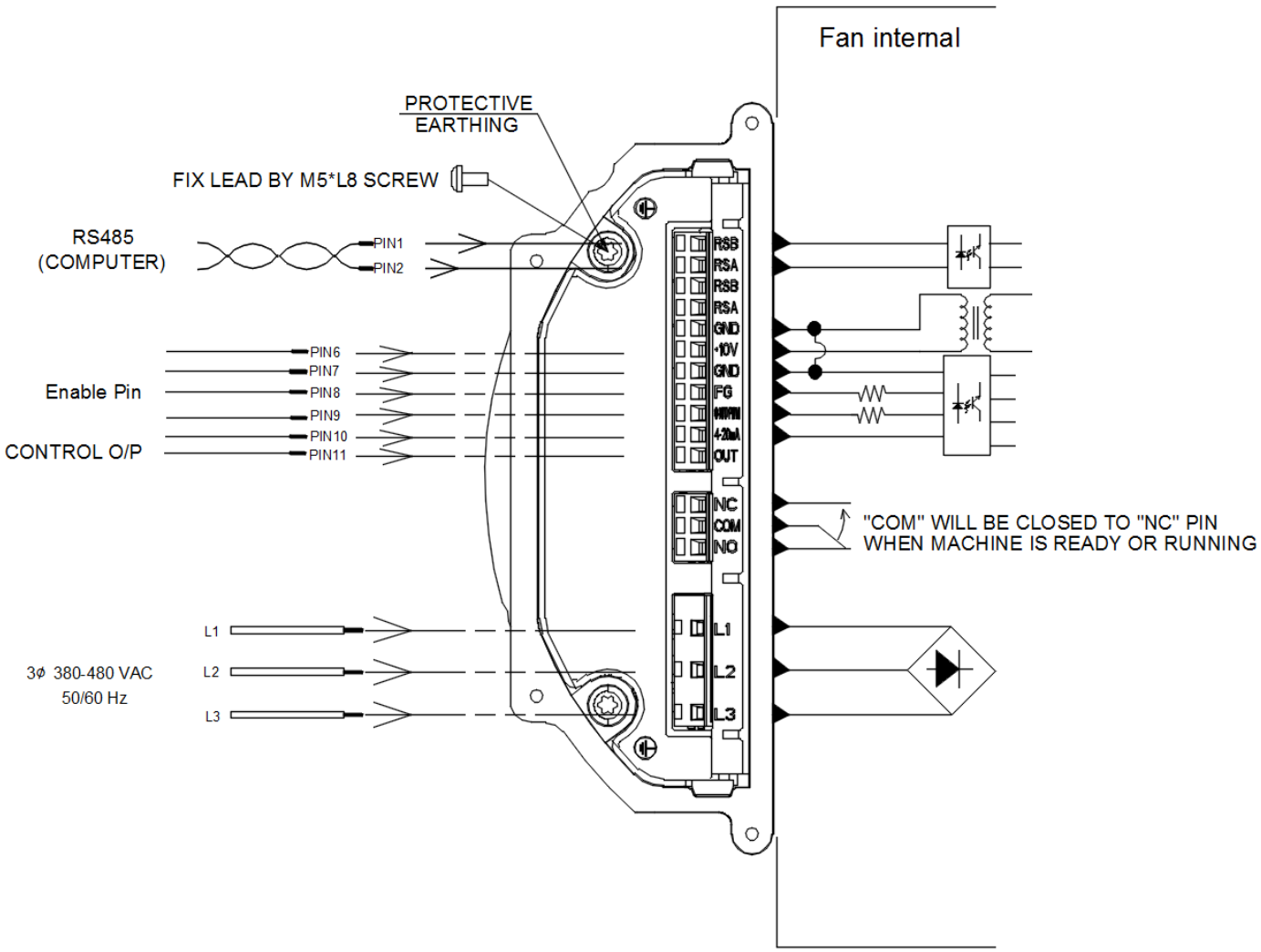
1. Cable diameter : Ø4.0 ~ Ø10mm.
2. Open the cover and refer to definition of terminal block.
   Screws tighten torque 20±2 Kgf-cm ,when close the cover.
3. Cable sealing nut's gap refer Fig 1 & 2.

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	Enable function
	0-10V/PWM	Speed control ,input 0-10VDC
	4-20mA	Speed control ,input 4-20mA
	OUT	Control voltage output0-10VDC (For external potentiometer)

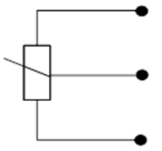
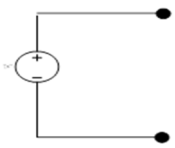
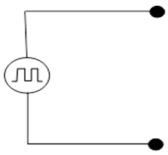
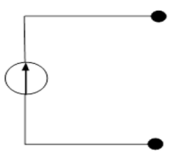
Lead wire connection:



Note:

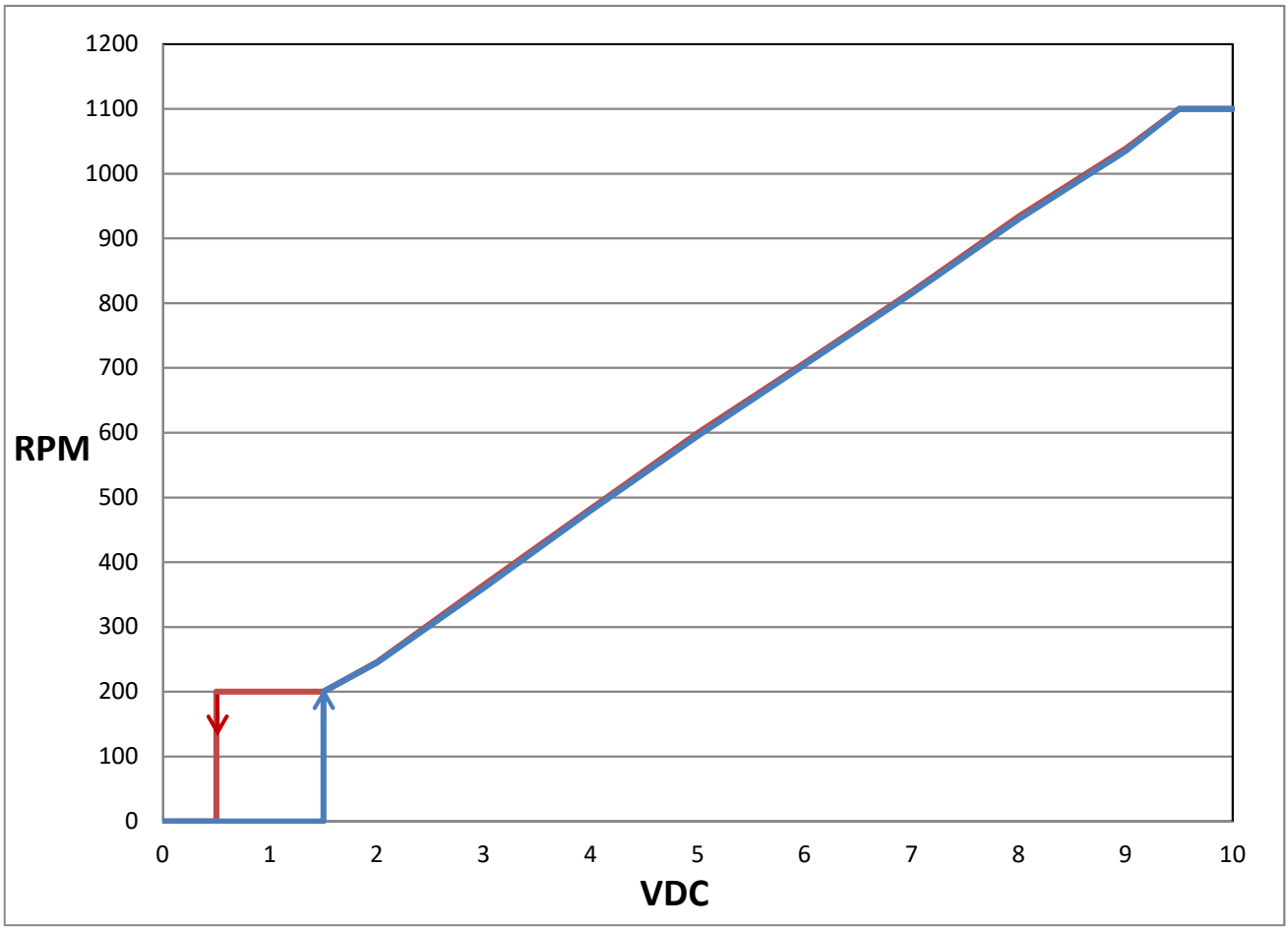
1. A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.

.

Speed setting	
Full Speed  	**Short PIN6 & PIN9** Fan will run full speed.
Voltage Control A (NOTE-1/P7)  	**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.
Cable: A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.</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>1.65</td></tr>
<tr><td>14.0</td><td>6.30</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>200 ± 50 RPM</td></tr>
<tr><td>6.0</td><td>60</td><td>705 ± 10%</td></tr>
<tr><td>9.5</td><td>95</td><td>1100± 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>6.1</td><td>200 ± 50 RPM</td></tr>
<tr><td>13.5</td><td>705 ± 10%</td></tr>
<tr><td>19.5</td><td>1100± 5%</td></tr>
</table></td></tr>
<tr><td>Alarm state</td><td>1. NC and COM will OPEN
2. NO and COM will CLOSE.</td></tr>
<tr><td>FG</td><td>Enable function.
1. FG is H or Blank, the fan is enable
2. FG is L, the fan is disable
※ H : 9.5 ~ 10V
L : 0 ~ 0.7V</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	6.1	6.9	8.4	10	11.9	13.5	15.1	16.7	18.6	20	mA