



## Specification For Approval

Customer : \_\_\_\_\_  
Description : \_\_\_\_\_ EC FAN \_\_\_\_\_  
Customer Part No. : \_\_\_\_\_ Rev : \_\_\_\_\_  
Delta Model No. : \_\_\_\_\_ GTB036PCN25R-M E1 \_\_\_\_\_ Rev : 02  
Safety Model No. : \_\_\_\_\_ GTB036PCN25R \_\_\_\_\_  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : \_\_\_\_\_ 10/19/2020 \_\_\_\_\_

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,

Taoyuan City, 33341, Taiwan

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## Electronically Commutated (EC) Fan

Centrifugal Fan

φ 360 x 251 mm



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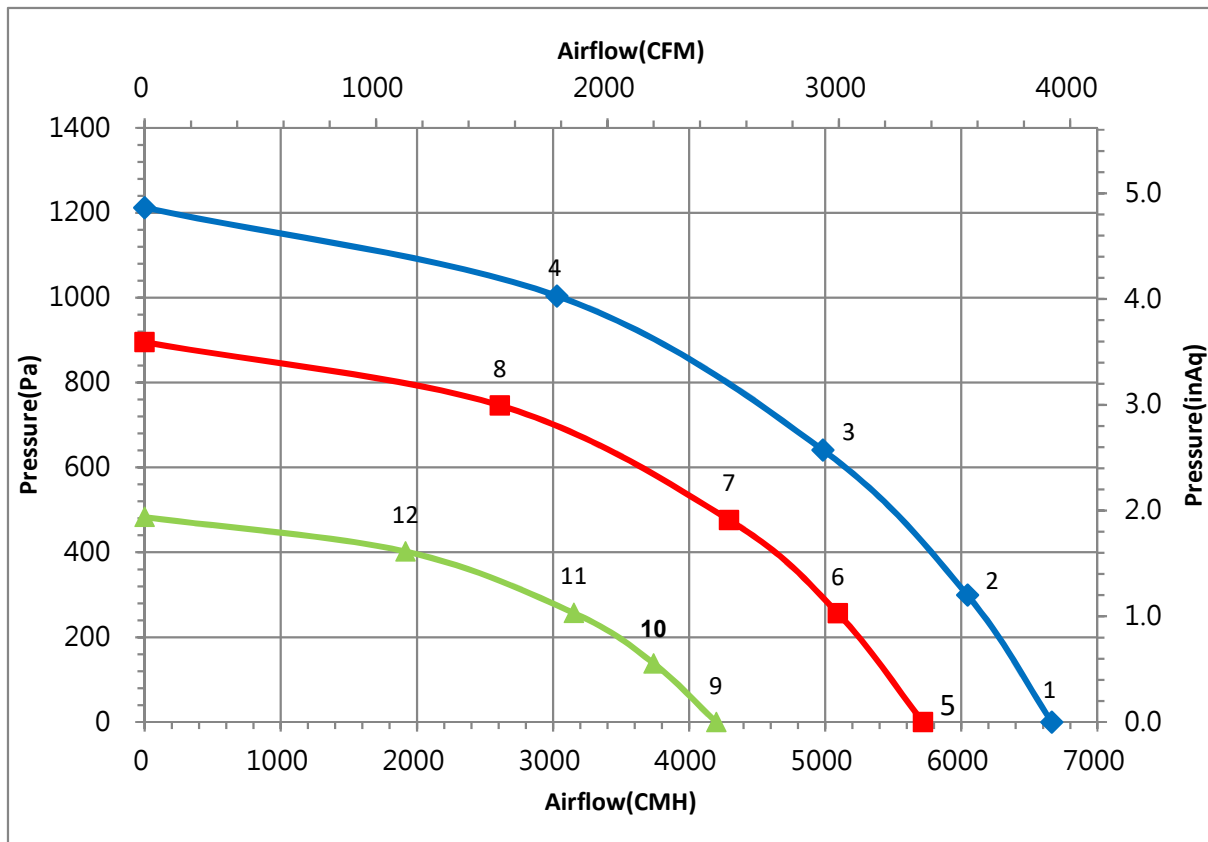
### Technical features

Input Side		
Nominal Voltage	3~ 230Vac 50/60Hz	3~ 400Vac 50/60Hz
Input Source	3~ 200-240Vac	3~ 380-480Vac
Power @ Free air	735W	1200 W
Power @ Max. load	1050W	1700 W
Output Side		
Speed (RPM)	2250	2750
Qmax. (CMH / CFM)	5362/3153	6665 / 3920
Pmax. (Pa / inAq)	880/3.53	1212 / 4.86
Noise (dB-A) @ Qmax.	81.0	85.5
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 (V1.1) 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)	11.1
Electrical leads	Via terminal block
Environmental	
Operating temperature range	-25 ~ +50 °C
Storage temperature range	-40 ~ +70 °C
Safety	
Safety	UL,cUL,CE
IP Level	IP54
EMC	EN61000-6-2/3
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 (3~ 400Vac)



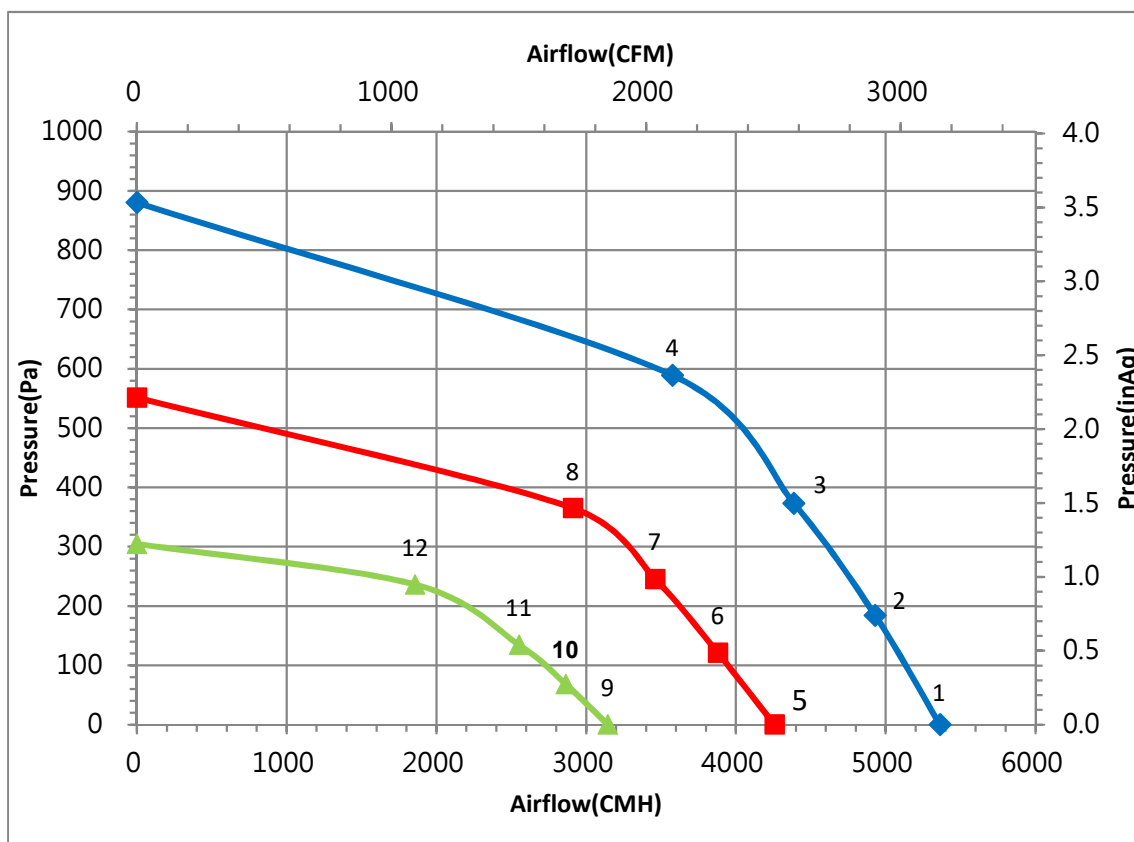
Measure data:

	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	6665	2762	1202	1.99	85.5
2	299	6045	2762	1475	2.41	
3	641	4983	2750	1676	2.74	
4	1004	3029	2750	1607	2.62	
5	0	5719	2370	759	1.73	82.5
6	256	5094	2370	963	1.81	
7	476	4294	2370	1073	1.87	
8	746	2610	2370	1029	1.86	
9	0	4199	1740	301	0.79	76.0
10	138	3740	1740	381	0.82	
11	257	3153	1740	425	0.85	
12	402	1916	1740	407	0.83	

Test Condition :

- Input Voltage: 3~ 400Vac 50/60Hz
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side.

P & Q curves (3~ 230Vac)



Measure data:

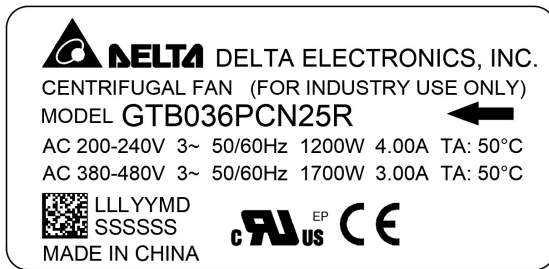
	P [Pa]	Q [CMH]	N [R.P.M.]	P1 [W]	I [A]	Lp [dB(A)]
1	0	5362	2250	735	2.07	81
2	184	4929	2250	850	2.31	
3	373	4386	2250	950	2.63	
4	589	3576	2240	1020	2.71	
5	0	4257	1800	375	1.07	75
6	121	3879	1800	435	1.25	
7	245	3459	1800	490	1.4	
8	365	2912	1800	520	1.46	
9	0	3145	1350	160	0.51	70
10	68	2864	1350	185	0.56	
11	134	2552	1350	212	0.64	
12	236	1858	1350	225	0.66	

Test Condition :

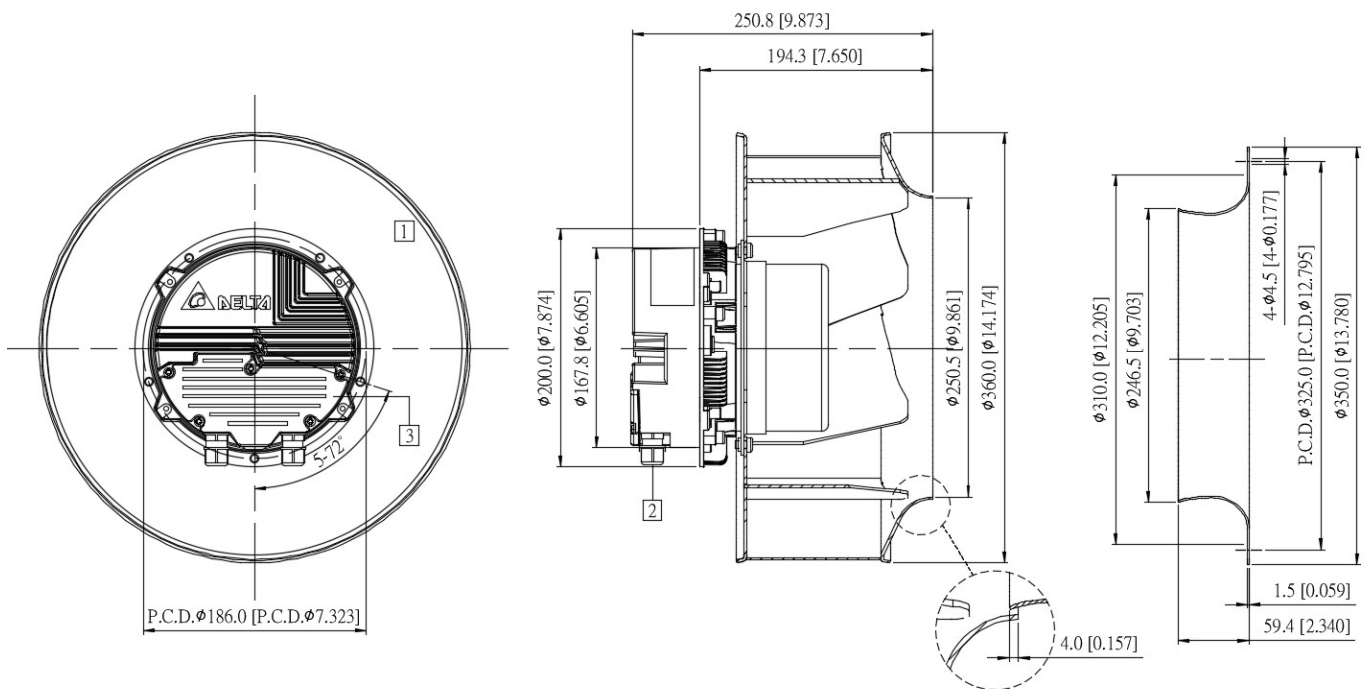
- Input Voltage: 3~ 230Vac 50/60Hz
- Temperature : Room Temperature
- Humidity : 65%RH
- Measured with inlet cone.
- Noise (Lp) is measured at a distance of one meter from the inlet side.

## Dimension drawing

Label :



Fan :

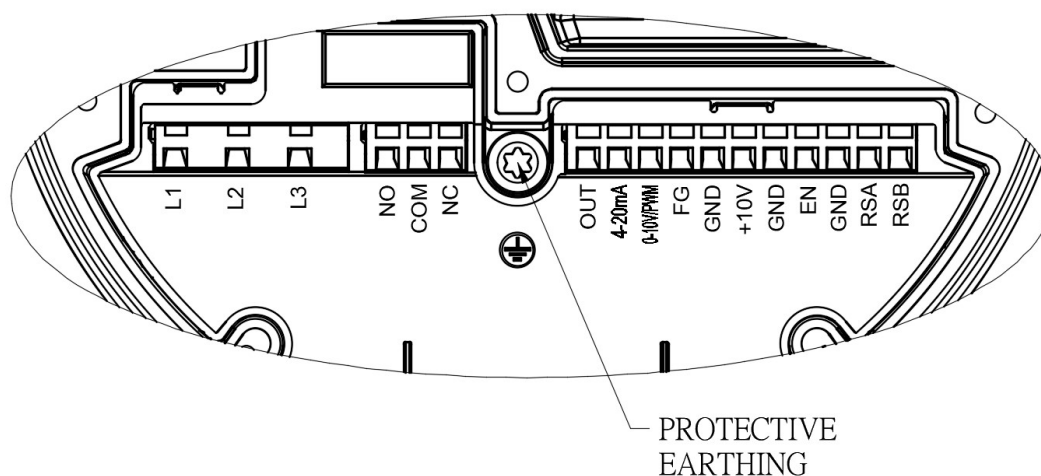


Note :

1. Depth of screw : 12 ~16 mm.
2. Cable Diameter :  $\phi$  6.0 ~  $\phi$  10.0 mm
3. Open the cover and refer to definition of terminal block.

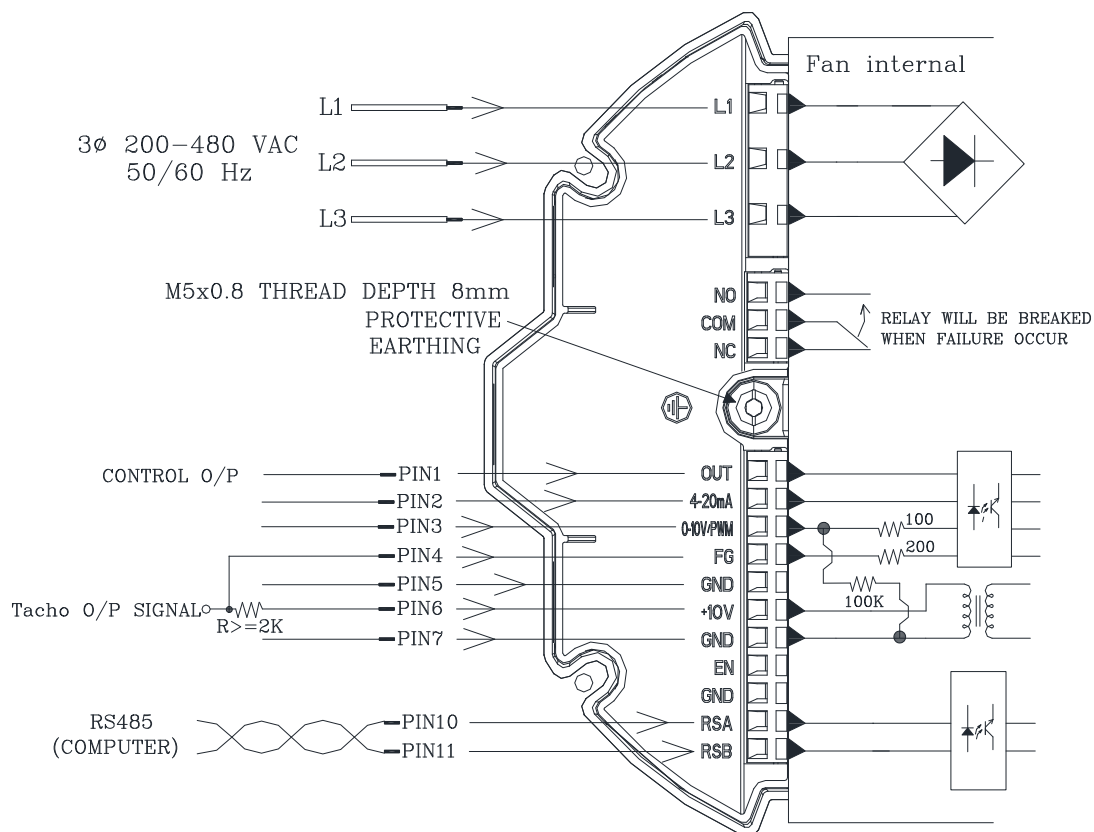
UNIT : mm[INCH]

## Definition of terminal block



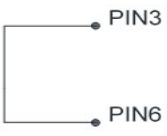

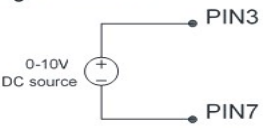
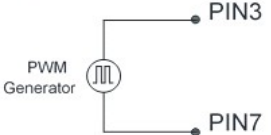
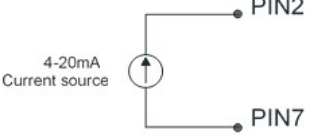
	Text	Functions
Power	L1	AC main (3~ 380-480VAC)
	L2	AC main (3~ 380-480VAC)
	L3	AC main (3~ 380-480VAC)
Status	NO	Alarm relay, close by failure
	COM	Alarm relay, common (2A/250VAC)
	NC	Alarm relay, open by failure
Signal	OUT	Control voltage output 0-10VDC (For external potentiometer)
	4-20mA	Speed control ,input 4-20mA
	0-10V/PWM	Speed control ,input 0-10VDC
	FG	Frequency generator (FG) signal
	GND	Ground
	+10V	+10V output, MAX 10mA (For external potentiometer)
	GND	Ground
	EN	N/A
	GND	Ground
	RSA	RS485-A
	RSB	RS485-B

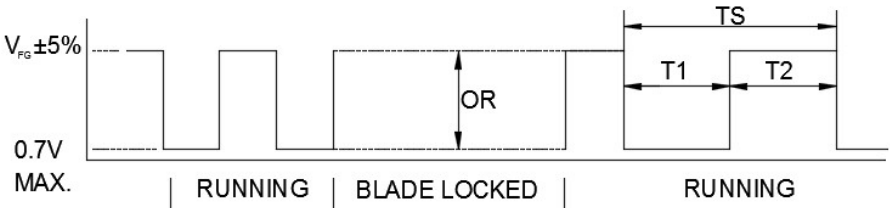
Lead wire connection:



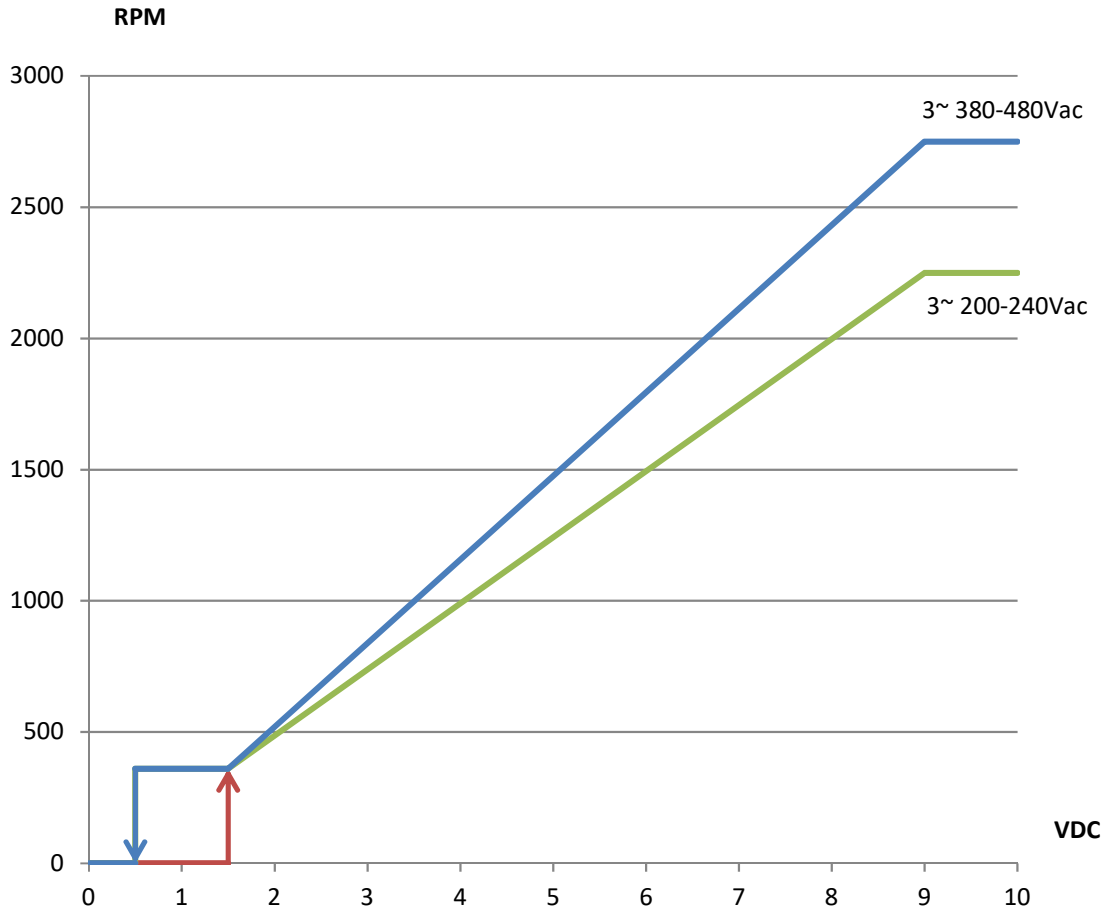
Note:

1. A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.
2. It needs 2 second to judge the operation voltage after power on, please make sure the input voltage is the stable voltage in the time.
3. If want to change the input voltage range from 3~200-240Vac to 3~380-480Vac or from 3~380-480Vac to 3~200-240Vac, Please power off AC input source and wait 20sec to reboot.

Speed setting	
<p>Full Speed</p> 	<p><b>Short PIN3 &amp; PIN6</b> Fan will run full speed.</p>
<p>Voltage Control A</p> 	<p><b>Connector 1-10kΩ variable resistor</b> 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><b>Use voltage source support 0~10VDC voltage</b> DC+ : connector PIN9(+) DC - : connector PIN7(-)</p>
<p>PWM Control</p> 	<p><b>PWM duty control</b> 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><b>4~20mA Current Control</b> 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><b>RS485 control function</b></p> <ul style="list-style-type: none"> <li>-Select the control mode of speed, fixed speed or fixed PWM duty</li> <li>-Speed and power consumption feedback.</li> <li>-Allow multiple FANs control and status patrol.</li> </ul> <p>Cable : A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.</p>			
Control O/P	The analog signal level is the derivative of current control level.			
	Current (mA)	Control O/P (VDC)		
	4.0	0		
19.5	9.46			
Voltage/PWM control	The speed comparison will control level			
	Voltage (V)	PWM (%)	3~ 200-240Vac	3~ 380-480Vac
			Speed (RPM)	Speed (RPM)
	0	0	0	0
9.5	95	2250 ±5%	2750 ±5%	
Current control	The speed comparison will control level			
	Current (mA)	3~ 200-240Vac	3~ 380-480Vac	
		Speed (RPM)	Speed (RPM)	
	4.0	0	0	
19.5	2250 ±5%	2750 ±5%		
Alarm state	NO and COM will OPEN ; NC and COM will CLOSE.			
FG	$V_{CE(sat)} = 0.7V \text{ MAX.}$ $V_{FG} = 30.0V \text{ MAX.}$ $I_C = 5mA \text{ MAX.}$ $R \geq V_{FG} / I_C$			
	<p><b>Frequency generator waveform</b></p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <math>N=R.P.M</math>      1 PULSE PER REVOLUTION  <math>TS=60/N(SEC)</math>      <math>T1=T2=1/2 TS</math> </div>			

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