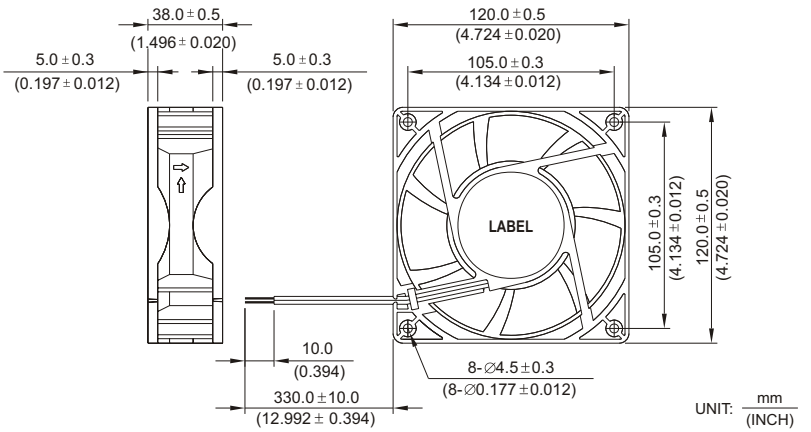
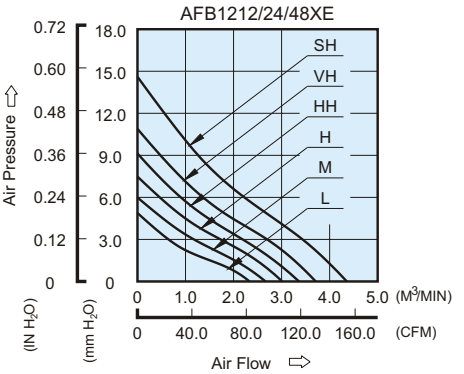
AFB 120 x 120 x 38 MM SERIES

* Bearing Type
  Ball Bearings
* Material
  Impeller & Frame : Plastic (UL 94V-0)
* Lead Wires :
  UL 1007 AWG #24 Or Equivalent
  Red Wire Positive (+)
  Black Wire Negative (-)
* Weight : 256g (9.03 oz)

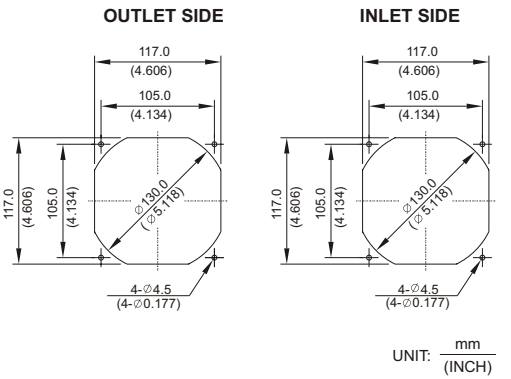
DIMENSIONS DRAWING



P & Q CURVE (AT RATED VOLTAGE)



MOUNTING PANEL CUTOUT



MODEL		Rated Voltage	Operating Voltage Range	Rated Current	Rated Input Power	Speed	Maximum Air Flow		Maximum Air Pressure		Noise
PART NO.	FUNCTION	VDC	VDC	Amp	Watt	R.P.M.	M^3 /min	CFM	mmH_2O	IN H_2O	dB-A
AFB1212LE	-R00 / -F00	12	4.0 to 13.2	0.19	2.28	2000	2.400	84.76	4.56	0.180	34.0
AFB1224LE	-R00 / -F00	24	7.0 to 27.6	0.15	3.60						
AFB1248LE	-R00 / -F00	48	28.0 to 56.0	0.06	2.88						
AFB1212ME	-R00 / -F00	12	4.0 to 13.2	0.26	3.12	2300	2.690	95.00	6.00	0.236	38.0
AFB1224ME	-R00 / -F00	24	7.0 to 27.6	0.19	4.56						
AFB1248ME	-R00 / -F00	48	28.0 to 56.0	0.08	3.84						
AFB1212HE	-R00 / -F00	12	4.0 to 13.2	0.32	3.84	2600	3.000	105.94	7.60	0.300	41.0
AFB1224HE	-R00 / -F00	24	7.0 to 27.6	0.24	5.76						
AFB1248HE	-R00 / -F00	48	28.0 to 56.0	0.12	5.76						
AFB1212HHE	-R00 / -F00	12	4.0 to 13.2	0.46	5.52	2900	3.400	120.07	9.00	0.354	44.0
AFB1224HHE	-R00 / -F00	24	7.0 to 27.6	0.30	7.20						
AFB1248HHE	-R00 / -F00	48	28.0 to 56.0	0.15	7.20						
AFB1212VHE	-R00 / -F00	12	4.0 to 13.2	0.60	7.20	3200	3.680	129.96	10.70	0.420	48.0
AFB1224VHE	-R00 / -F00	24	7.0 to 27.6	0.38	9.12						
AFB1248VHE	-R00 / -F00	48	28.0 to 56.0	0.18	8.64						
AFB1212SHE	-R00 / -F00	12	4.0 to 13.2	1.05	12.60	3700	4.300	151.85	14.50	0.571	53.0
AFB1224SHE	-R00 / -F00	24	7.0 to 27.6	0.50	12.00						

* Function type is optional.
* The max. air flow and the speed are measured in free air ; max. air pressure is measured at zero air flow.
* Noise is measured in anechoic chamber in free air, one meter from intake side.
* All readings are typical values at rated voltage.
* Specifications are subject to change without notice.

Table of Contents

DC Fan With Minimum Noise

Introductions

- Every model undergoes rigorous aerodynamic analysis and anechoic chamber test to achieve minimum noise under high airflow and air pressure conditions.
- High precision maintenance-free ball bearing system provides superb reliability.
- Frame and fan blade meet UL 94V-0 flammability rating.
- Every model features locked rotor protection and polarity protection, and offers optional frequency generator or rotation detector function.
- All DC fans are 100% balanced to guarantee low vibration and excellent durability.
- Automatic multi-axes winding, surface-mount machine and highly automated assembly lines enable mass production and consistent quality.
- UL, CSA, VDE approved.

Part Number Definition

AFB	12	12	H	E	-	B	F	00
1	2	3	4	5		6	7	8

1. SERIES CODE :
AFB,AHB,EFB,EHB,FFB,FHB,GFB,
LFB,NFB,TFB,BFB, KFB,KHB,SFB,

2. FRAME DIMENSION:
- 02 : 125 x 38 x 45 mm
- 03 : 30 mm SQUARE or 180 x 38 x 45 mm
- 032 : ∅32 x 9 mm
- 035 : 35 mm SQUARE
- 04 : 40 mm SQUARE or 42 x 45 x 19 mm
- 045 : 45 mm SQUARE
- 05 : 50 mm SQUARE or 51 x 51 x 15 mm
- 06 : 60 mm SQUARE
- 07 : 70 mm SQUARE or 75 x 75 x 30 mm
- 08 : 80 mm SQUARE
- 09 : 92 mm SQUARE
- 10 : 97 x 94 x 33 or ∅100 x 46.8 mm
- 12 : 120 mm SQUARE or 125 x 126 x 34 mm or 120 x 120 x 32 mm
- 13 : 127 mm SQUARE or ∅133 x 61.5 mm
- 14 : 140 mm SQUARE
- 15 : 172 x 150 mm
- 16 : 159 x 165 x 40 mm
- 17 : ∅172 mm or ∅175 x 69.0 mm

3. OPERATION VOLTAGE :
- 05 : DC 5V
- 12 : DC 12V
- 24 : DC 24V
- 48 : DC 48V

4. SPEED (RPM) :
- L : LOW
- M : MEDIUM
- H : HIGH
- HH : EXTRA HIGH
- VH : VERY HIGH
- SH : SUPER HIGH
- EH : EXTERNAL HIGH
- GH : GRAND HIGH SPEED
- UH : ULTRA HIGH SPEED
- DH : DRASTIC HIGH SPEED
- XH : EXTREME HIGH SPEED

5. FRAME THICKNESS:
- A : 10 mm
- C : 13 mm
- B : 15 mm
- D : 20 mm
- (BLANK) : 25.4 mm
- N : 28 mm
- F : 32 mm
- E : 38 mm or RIGHT SIDE EXHAUST (INTAKE VIEW FOR BFB SERIES)
- G : 50.8 mm OR 48mm
- S : 55 mm
- T : 61.0-71.0 mm
- W : 72.0-85.0 mm
- U : 86.0-105.0 mm
- V : 106.0-125.0 mm

6. FRAME TYPE:
- (BLANK) : FLANGE TYPE
- B : RIB TYPE (10mm, 13mm, 15mm, 20mm THICKNESS)
- M : METAL FRAME

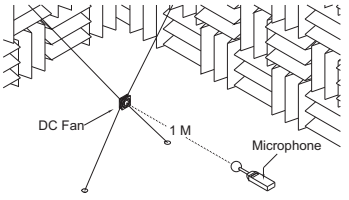
7. SIGNAL OUTPUT :
- F : FREQUENCY GENERATOR OUTPUT (SPEED SENSOR) OR TACH OUTPUT
- R : ROTATION DETECTOR OUTPUT (FAILURE DETECTOR)

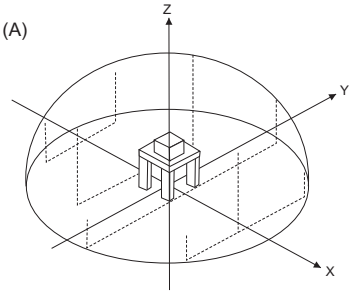
8. SIGNAL OUTPUT VOLTAGE :
- 00 : VCC (OPEN COLLECTOR)

Note

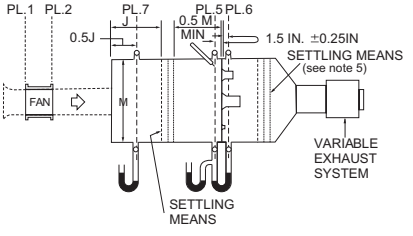
1. NOISE IS MEASURED AT RATED VOLTAGE IN ANECHOIC CHAMBER IN FREE AIR WITH LARSON DAVIS AND WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE. REFER TO ANSI-S12.10 AS SHOWN BELOW:

SEMI ANECHOIC CHAMBER LEVEL
Semi Anechoic Chamber for ISO 7779
Residual Background Noise Level: 15.0 dB (A)
Lowest Cutoff Frequency (Fco): 100 Hz



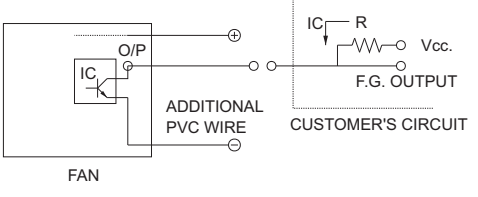


2. THE PERFORMANCE INCLUDING AIR FLOW AND AIR PRESSURE MEASURED AT RATED VOLTAGE IN DOUBLE CHAMBER IS MEASURED ACCORDING TO AMCA 210 STANDARD AS SHOWN BELOW:



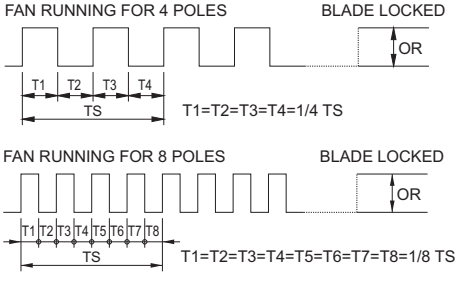
3. FREQUENCY GENERATOR O/P: (F00)

Frequency generator function is activated by an internal IC for customer's application.
Electrical schematic:



CUSTOMER'S CIRCUIT
Vcc = From +5 To +28 VDC (Generally using +12 or +24 VDC)
Ic = 5 mA max.
R = V/I (Output "R" value calculation)

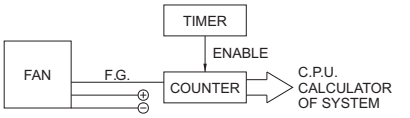
■ **SUPPLY A WAVEFORM:**



N=R.P.M. (Rotation speed will be different for various models L/M/H/HH/VH/SH)
TS=60/N (Sec)
* Voltage level after blade locked
* 4 POLES OR 8 POLES

■ **OUTPUT LEVEL:**
High = Vcc±10%
Low = 0~0.5V
Ic = 5 mA max.

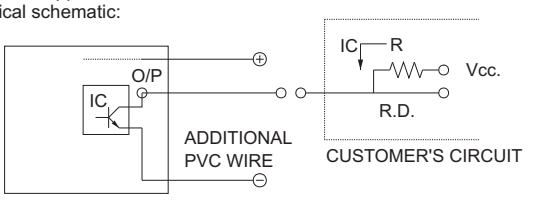
■ **APPLICATION:**



■ **FUNCTIONS:**
- By means of waveform & customer's design, schematic can reach alarm function, either in the form of buzzing or LED flashing. Adjust rotation speed.
- When power supply output voltage level decreases, it will result in the lowering of fan rotation speed. The irregular situation will be controlled by using F.G. O/P through P/S circuit to increase the output voltage and result in a stable rotation speed.

4. ROTATION DETECTOR O/P (R00)

Rotation detector function is activated by an internal IC for customer's application.
Electrical schematic:

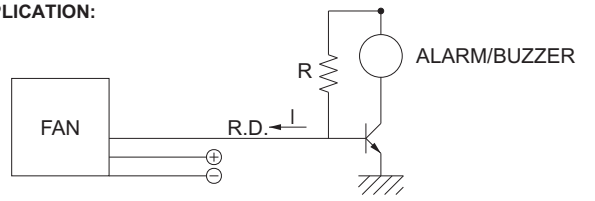


CUSTOMER'S CIRCUIT
Vcc = From +5 To +28 VDC (Generally use +12 or +24 VDC)
Ic = 5 mA max.
R = V/I (Output "R" value calculation)

■ **SUPPLY A WAVEFORM:**

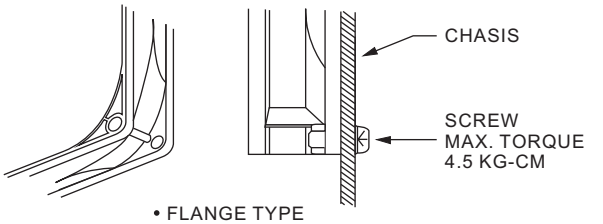
■ **OUTPUT LEVEL:**
High = Vcc±10%
Low = 0~0.5V
Ic = 5 mA max.

■ **APPLICATION:**

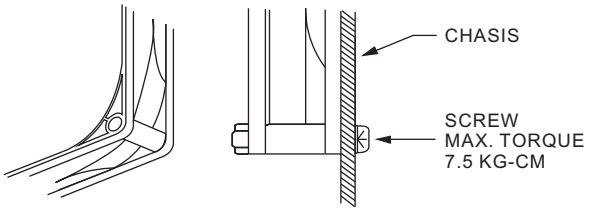


■ **FUNCTION:**
By means of waveform & customer's design, schematic can reach alarm function: either in the form of buzzing or LED flashing.

5. FRAME TYPE:



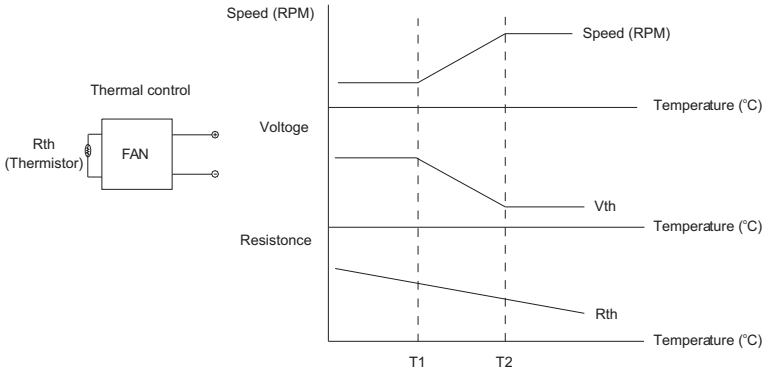
• FLANGE TYPE



• RIB TYPE

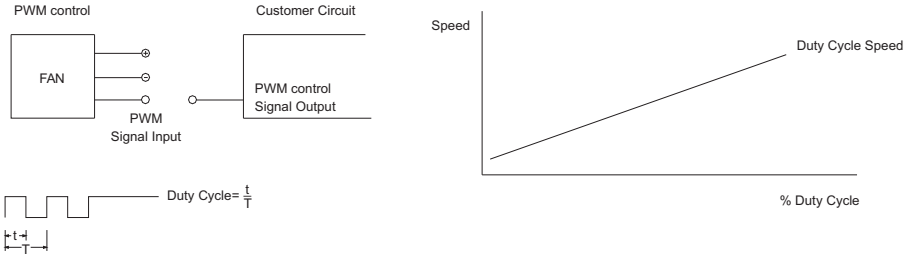
6. TEMPERATURE CONTROL : "SENSFLOW"

With temperature controlled fan, the RPM can be controlled by on board or off board thermistor. The RPM and temperature range is subject to custom request.



7. PWM CONTROL

In PWM speed control, a fixed frequency square wave is applied to the speed control lead wire of the fan. The ratio of the on time vs. the PWM period is proportional to the RPM.



■ **PWM INPUT VOLTAGE RANGE:**
High level= 2.8 to 20 VDC
Low level= 0 to 0.4 VDC

■ **PWM INPUT CURRENT (IPWM) RANGE:**
40uA to 20mA

To control signal line of the fan shall be able to accept a 30Hz to 30kHz.
The preferred operating point for the fan is 0%~100% of duty cycle.