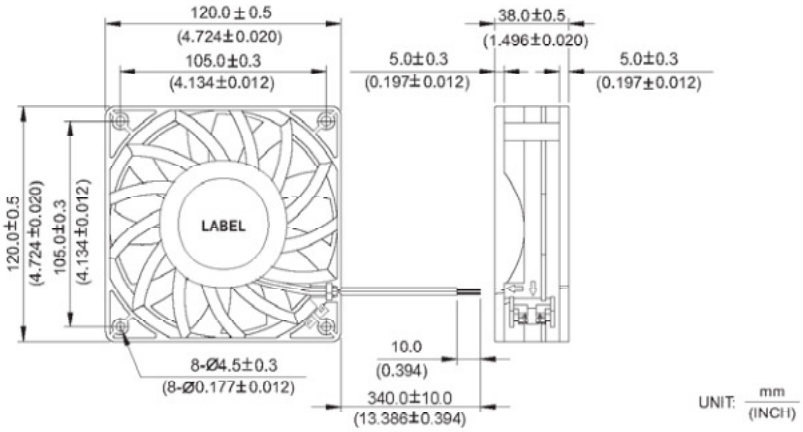
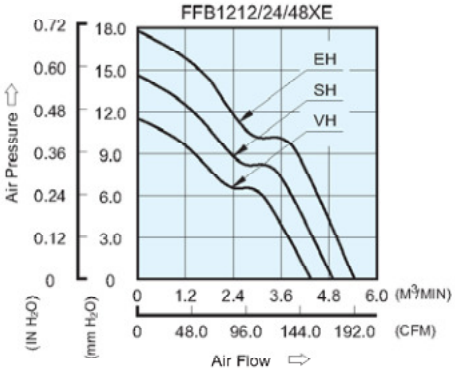
FFB 120 x 120 x 38 MM SERIES

* 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 : 370g (13.05 oz)

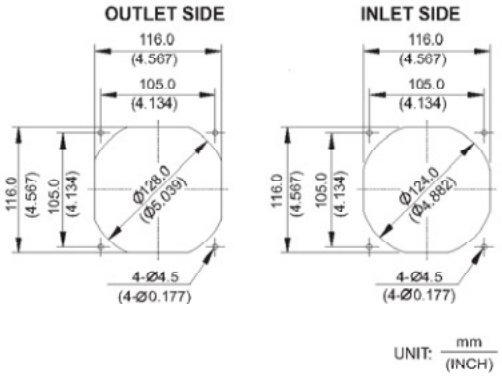
■ DIMENSIONS DRAWING



■ 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
FFB1212VHE	-R00 / -F00	12	7.0 to 13.2	1.00	12.00	3200	4.300	151.85	11.30	0.445	53.0
FFB1224VHE	-R00 / -F00	24	14.0 to 26.4	0.56	13.44						
FFB1248VHE	-R00 / -F00	48	28.0 to 56.0	0.28	13.44						
FFB1212SHE	-R00 / -F00	12	7.0 to 13.2	1.50	18.00	3600	4.840	170.92	14.30	0.563	56.5
FFB1224SHE	-R00 / -F00	24	14.0 to 26.4	0.80	19.20						
FFB1248SHE	-R00 / -F00	48	28.0 to 56.0	0.38	18.24						
FFB1212EHE	-R00 / -F00	12	7.0 to 13.2	2.00	24.00	4000	5.380	190.00	17.78	0.700	59.0
FFB1224EHE	-R00 / -F00	24	14.0 to 26.4	1.00	24.00						
FFB1248EHE	-R00 / -F00	48	28.0 to 53.0	0.50	24.00						

* 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.

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

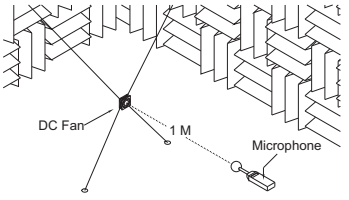
7. SIGNAL OUTPUT :
- F : FREQUENCY GENERATOR OUTPUT (SPEED SENSOR) OR TACH OUTPUT
- R : ROTATION DETECTOR OUTPUT (FAILURE DETECTOR)

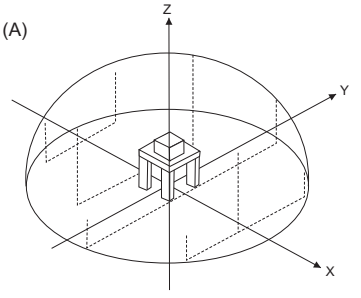
8. SIGNAL OUTPUT VOLTAGE :
- 00 : VCC (OPEN COLLECTOR)

Note

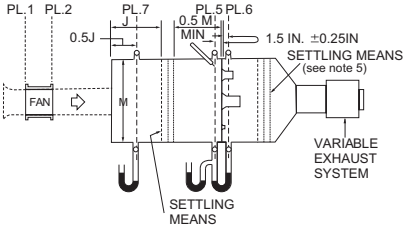
1. NOISE IS MEASURED AT RATED VOLTAGE IN ANECHOIC CHAMBER IN FREE AIR WITH LARSON DAVIS AND WITH MICROPHONE AT A DISTANCE OF ONE METER FROM THE FAN INTAKE. REFER TO ANSI-S12.10 AS SHOWN BELOW:

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



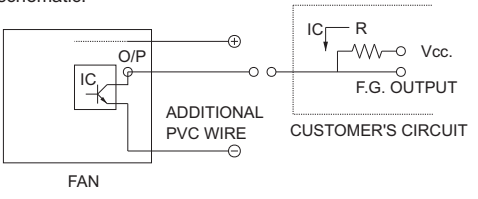


2. THE PERFORMANCE INCLUDING AIR FLOW AND AIR PRESSURE MEASURED AT RATED VOLTAGE IN DOUBLE CHAMBER IS MEASURED ACCORDING TO AMCA 210 STANDARD AS SHOWN BELOW:



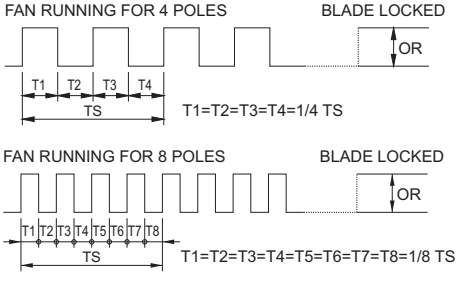
3. FREQUENCY GENERATOR O/P: (F00)

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)

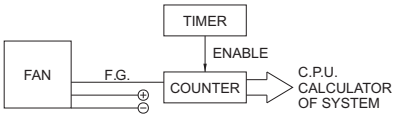
■ **SUPPLY A WAVEFORM:**



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.

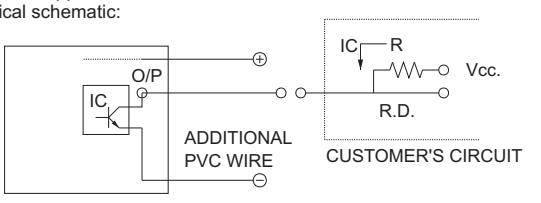
■ **APPLICATION:**



■ **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:

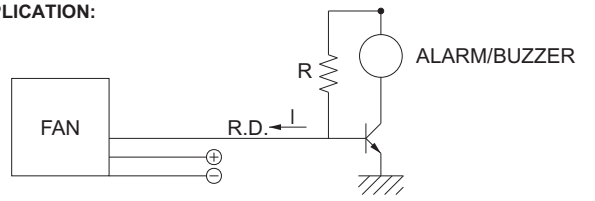


CUSTOMER'S CIRCUIT
Vcc = From +5 To +28 VDC (Generally use +12 or +24 VDC)
Ic = 5 mA max.
R = V/I (Output "R" value calculation)

■ **SUPPLY A WAVEFORM:**

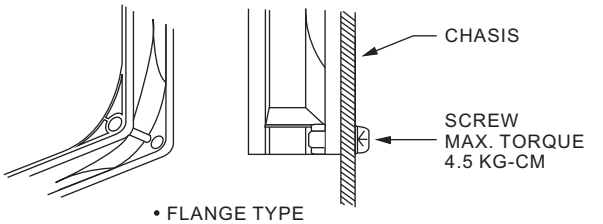
■ **OUTPUT LEVEL:**
High = Vcc±10%
Low = 0~0.5V
Ic = 5 mA max.

■ **APPLICATION:**

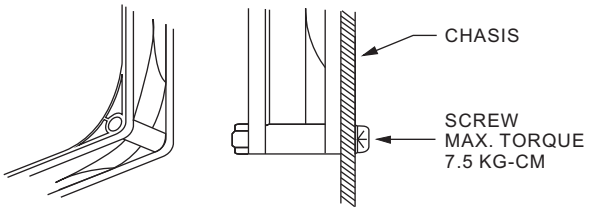


■ **FUNCTION:**
By means of waveform & customer's design, schematic can reach alarm function: either in the form of buzzing or LED flashing.

5. FRAME TYPE:



• FLANGE TYPE



• RIB TYPE