

Cofan USA
46177 Warm Springs Blvd
Fremont, CA 94539
USA

TEL: (800) 766-6097
FAX: (510) 490-7931
www.cofan-usa.com

SPECIFICATION FOR APPROVAL

Rev 04

1. SCOPE:

This specification defines the electrical and mechanical characteristics of the following DC brushless axial flow fan:

Item		Description	
1-1	Part Number	F-4010L24B	
1-2	Outline Dimensions	40 x 40 x 10 mm (see dimensions drawing #7)	
1-3	Bearing System	2 Ball Bearing	
1-4	Rated Voltage	24 VDC	
1-5	Operating Voltage	20 – 28 VDC	
1-6	Input Current	0.08A	
1-7	Input Power	1.92 W	
1-8	Speed	4000 R.P.M.	a. 25°C, 65% RH, b. Free Air c. Rated Voltage
1-9	Max. Air Flow (At zero static pressure)	5.39 CFM	a. Rated Voltage b. AMCA Standard
1-10	Max. Air Pressure (At zero airflow)	0.056 InH ₂ O	c. Rated Current
1-11	Acoustical Noise (Avg)	20.7 dBA	a. Rated Voltage b. Measured in a Non-Echo Chamber c. CNS 8753 Standard d. ISO 3744 Test Condition
1-12	Life Expectance	100,000 hours	a. Continuous operation
1-13	Insulation Type	UL: Class A	
1-14	Weight	10 Grams	
1-15	Rotation	Clockwise from label side	

2. Major Material

Materials / Parts	Specification	Remarks
Plastic Material	Frame: PBT70%: + FIBER30% Impeller: PBT85% + FIBER15%	UL: 94V-0 UL: 94V-0
Lead Wire	(+) Red; (-) Black; (Signal) Yellow; AWG#24(2 Pin), #28(3Pin) Standard wire length is 6", custom lengths are available at no extra charge.	UL: 1007-F
Connector	See Drawing	

3. Electrical Characteristics & Test Environmental:

Item	Specification / Condition
3-1	Operation Temperature -10°C ~ +70°C
3-2	Storage Temperature -40°C ~ +75°C
3-3	Operating Humidity 5 to 90% RH
3-4	Storage Humidity 5 to 95% RH
3-5	Locked Rotor Protection <ul style="list-style-type: none"> a. The current will shut down when rotation is locked b. Automatic restart after a continuous 72 hours rotation lock at rated voltage. c. Impedance of motor winding protects motor from fire after 72 hours of locked rotor condition at the rated voltage. d. Signal Alarm- Optional
3-6	Insulation Strength 10Meg Ohm min at 500VDC Between Frame and (+) terminal
3-7	Dielectric Strength Withstand 5 mA Max 500 VAC 60 Hz for one minute, (between frame and (+) terminal)
3-8	Vibration Test Vibration test in rest status, scan frequency : 5~55Hz 1OCT/Min. in the 3 directions(X.Y.Z), take 16 rotating scan for each axis.
3-9	Shock Test Test of acceleration 30G is applied in the 3 directions (X.Y.Z) and 6 faces, take 11± 1ms(Half Chord Wave), 3 times for each face.
3-10	Noise Level Measured in a semi-anechoic chamber. The fan is running in free air with Microphone at a distance of one meter from the fan intake.
3-11	Tolerance ±10% on rated power and current.
3-12	Polarity Protection Capable of withstanding reverse polarity connection

4. Safety Approvals

Safety Approvals	File No.
UL	E195760
CUL	E195760
TUV	B 04 03 52557 002
CE	EN5008-1

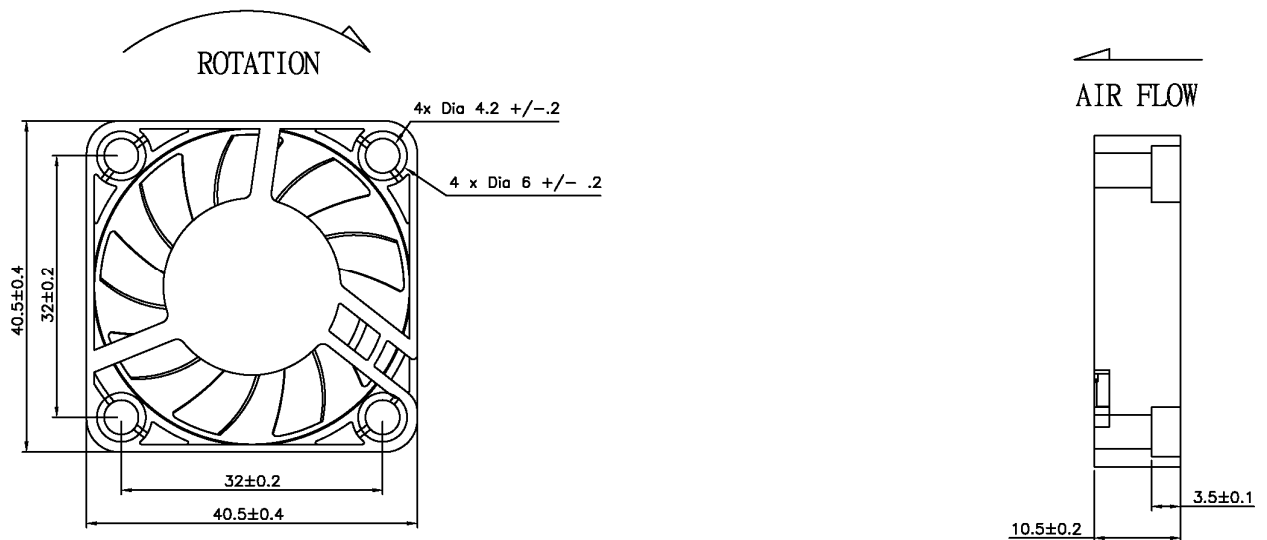
5. Ozone Depleting Substances

5-1. None of our products or manufacturing processes contain or require the use of ozone-depleting chemicals such as PBB's, PBBO's, CFC's, PBBE's, PBDPE's or HCFC's.

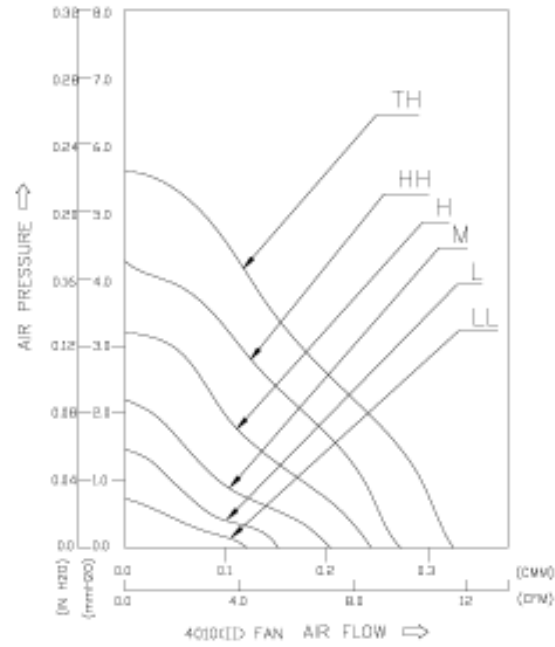
6. Production Location

6-1. Products will be produced in China and Taiwan

7. Dimensional Drawing



8. Performance Curve



9. Sensor Description

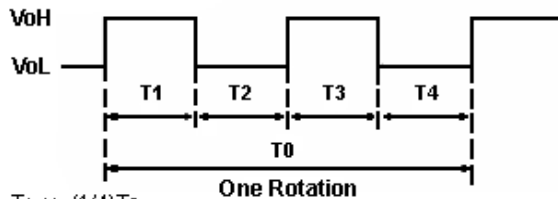
- A. Tachometer Pulse Sensor
- B. 2 Pulses Per Revolution
- C. Drives Pin Between Nominal 0 and 12V

Pulse Sensor

(2 Pulse per revolution signal)

Pulse sensors are used for detecting the rotational speed of the fan motor

Output Waveform



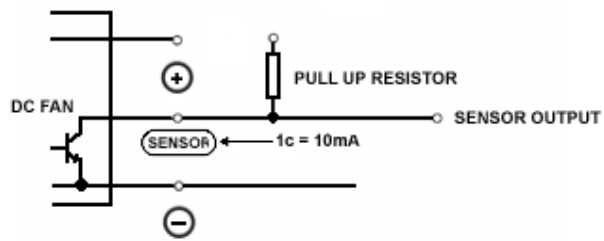
$$T_{1-4} \approx (1/4)T_0$$

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$$N = \text{Fan Rotational Speed (min}^{-1}\text{)}$$

Output Circuit

Open Collector



If fan locked on VH, signal stays locked. If fan locked on VL, signal stays at VL for a few hundreds MS, then moves to VH.