

**date** 07/27/2017

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#### **SERIES:** CFM-80 **DESCRIPTION: DC AXIAL FAN**

#### **FEATURES**

- 80 x 80 mm frame
- high fan speed for greater air flow
- dual ball bearing construction
- auto restart protection standard on all models

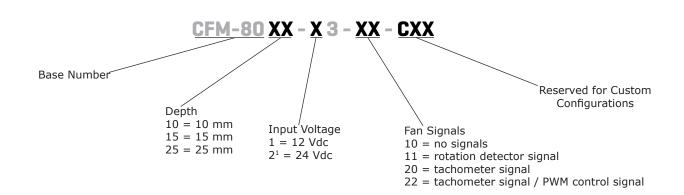




MODEL		put Itage		put rent	input power	rated speed	air flow¹	static pressure²	noise
	<b>rated</b> (Vdc)	range (Vdc)	typ (A)	max (A)	max (W)	<b>typ</b> (RPM)	(CFM)	(inch H <sub>2</sub> O)	max (dBA)
CFM-8010-13	12	6~13.8	0.16	0.24	2.88	3,300	33.61	0.11	38.2
CFM-8015-13	12	6~13.8	0.18	0.24	2.88	3,500	43.96	0.16	39.8
CFM-8025-13	12	6~13.8	0.33	0.43	5.16	5,100	69.20	0.42	47.0
CFM-8025-23	24	16~27.6	0.16	0.25	4.8	5,100	69.20	0.42	47.0

 At 0 inch H<sub>2</sub>0 static pressure.
At 0 CFM airflow. Notes:

#### **PART NUMBER KEY**



Notes: 1. 24 Vdc input voltage option only available with 25 mm depth

## **INPUT**

parameter	conditions/description	min	typ	max	units
operating input voltage	12 Vdc input models	6	12	13.8	Vdc
operating input voltage	24 Vdc input models	16	24	27.6	Vdc
	CFM-8010 models		0.16	0.24	А
a	CFM-8015 models		0.18	0.24	Α
current	CFM-8025 models		0.33	0.43	Α
	CFM-8025 models		0.16	0.25	Α
	CFM-8010 models		1.92	2.88	W
	CFM-8015 models		2.16	2.88	W
power	CFM-8025 models		3.96	5.16	W
	CFM-8025 models		3.84	4.8	W
	at 25°C				
starting voltage	12 Vdc input models		6		Vdc
3	24 Vdc input models		16		Vdc

## **PERFORMANCE**

parameter	conditions/description	min	typ	max	units
	at 25°C, after 10 minutes				
rated apood	CFM-8010 models	2,970	3,300	3,630	RPM
rated speed	CFM-8015 models	3,150	3,500	3,850	RPM
	CFM-8025 models	4,590	5,100	5,610	RPM
	at 0 inch H <sub>2</sub> O, see performance curves				
-:- fla	CFM-8010 models		33.61		CFM
air flow	CFM-8015 models		43.96		CFM
	CFM-8025 models		69.20		CFM
	at 0 CFM, see performance curves				
static procesure	CFM-8010 models		0.11		inch H <sub>2</sub> O
static pressure	CFM-8015 models		0.16		inch H50
	CFM-8025 models		0.42		inch H <sub>2</sub> O
	at 1 m				
	CFM-8010 models		36.0	38.2	dBA
noise	CFM-8015 models		38.0	39.8	dBA
	CFM-8025 models		45.5	47.0	dBA

# PROTECTIONS / SIGNALS<sup>1</sup>

parameter	conditions/description	min	typ	max	units
auto restart protection	available on all models				
rotation detector	available on "11" models				
tachometer signal	available on "20" and "22" models				
PWM control signal	available on "22" models				

Notes: 1. See application notes for details.

## **SAFETY & COMPLIANCE**

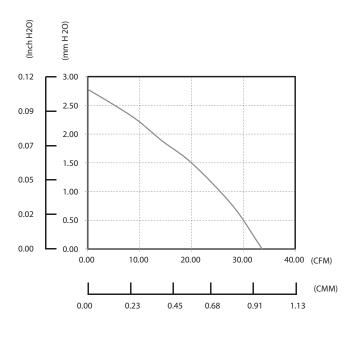
parameter	conditions/description	min	typ	max	units
insulation resistance of frame	at 500 Vdc between frame and positive terminal	10			MΩ
dielectric strength	at 500 Vac, 60 Hz, 1 minute between frame and positive terminal			5	mA
safety approvals	UL/cUL 507, TUV (EN 60950-1)				
EMI/EMC	EN 55022:2010+AC:2011 Class B, EN 61000-3- 2:2014, EN 61000-3-3:2013, EN 55024:2010				
life expectancy	at 45°C, 15~65% RH		70,000		hours
RoHS	2011/65/EU				

## **ENVIRONMENTAL**

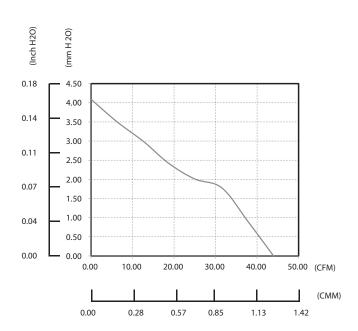
parameter	conditions/description	min	typ	max	units
operating temperature		-10		70	°C
storage temperature		-40		70	°C
operating humidity	non-condensing	5		90	%
storage humidity	non-condensing	5		95	%

## **PERFORMANCE CURVES**

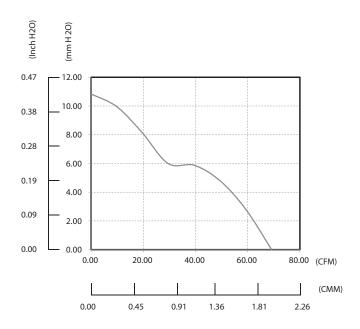
### CFM-8010



#### CFM-8015



#### CFM-8025



#### **MECHANICAL**

parameter	conditions/description	min	typ	max	units
motor	4 pole DC brushless				
bearing system	ball bearing				
direction of rotation	counter-clockwise viewed from front of fan blade				
dimensions	CFM-8010 models: 80 x 80 x 10.6 CFM-8015 models: 80 x 80 x 15.4 CFM-8025 models: 80 x 80 x 25.4				mm mm mm
material	PBT (UL94V-0)				
weight	CFM-8010-13 models CFM-8015-13 models CFM-8025-13 models CFM-8025-23 models		42.6 59.2 87.7 91.6		g g g

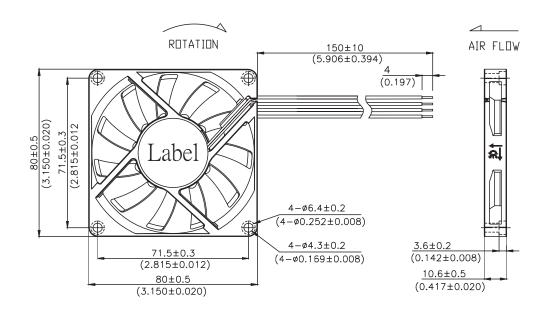
#### **MECHANICAL DRAWING**

units: mm [inch]

## CFM-8010

wire: UL 1061, 26 AWG

WIRE CONNECTIONS				
Wire Color	Function			
Red	+Vin			
Black	-Vin			
Yellow <sup>1</sup>	FG Signal			
White <sup>1</sup>	RD Signal			
Blue <sup>1</sup> PWM				
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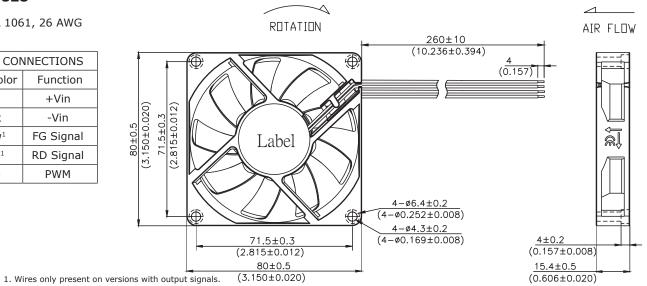


#### CFM-8015

Note:

wire: UL 1061, 26 AWG

WIRE CONNECTIONS				
Wire Color	Function			
Red	+Vin			
Black	-Vin			
Yellow <sup>1</sup>	FG Signal			
White <sup>1</sup>	RD Signal			
Blue <sup>1</sup>	PWM			



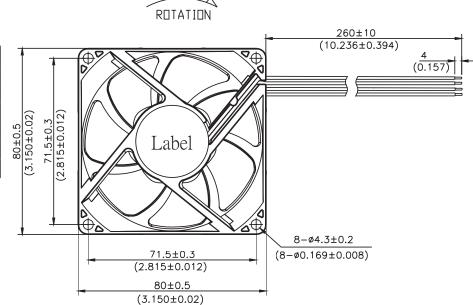
# **MECHANICAL DRAWING (CONTINUED)**

units: mm [inch]

### CFM-8025

wire: UL 1007, 24 AWG

WIRE CONNECTIONS				
Wire Color	Function			
Red	+Vin			
Black	-Vin			
Yellow <sup>1</sup>	FG Signal			
White <sup>1</sup>	RD Signal			
Blue <sup>1</sup>	PWM			



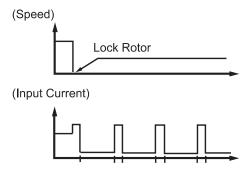


### **APPLICATION NOTES**

#### **Auto Restart Protection/Current Limit Protection**

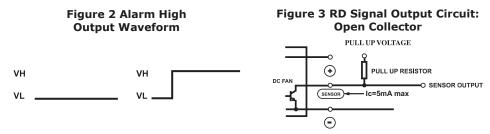
When the fan motor is locked, the device will cut off the drive current within two to six seconds and restart automatically after a few seconds. If the lock situation is continued, the device will work on a repeated cycle of cut-off and restart until the lock is released. (See Figure 1 below).

**Figure 1 Current Limit Protection** 



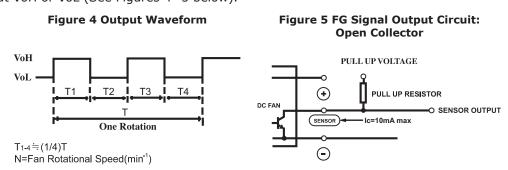
#### **Lock Sensor/Rotation Detector**

Lock Sensor is used to detect if the fan motor is operating or stopped. Alarm High: the output will be logical low when fan is operating and be logical high when fan motor is locked. (See Figures 2~3 below).



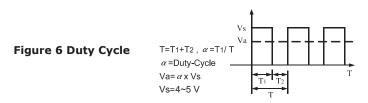
#### Pulse Sensor/Tachometer Signal/FG

Pulse Sensor is for detecting the rotational speed of the fan motor. At locked rotor condition, the signal stops cycling and the output is fixed at VoH or VoL (See Figures 4~5 below).



#### **PMW Control Signal**

A speed control lead can be provided that will accept a PWM signal from the customer circuit to vary the speed of the fan. The change in speed is linear by changing the Duty-Cycle of the PWM. Open collector type and pull-up voltage is changed by maximum operating voltage and sink current by consuming current. (See Figure 6 below).



### **REVISION HISTORY**

rev.	description	date
1.0	initial release	08/15/2016
1.01	updated datasheet	07/27/2017

The revision history provided is for informational purposes only and is believed to be accurate.



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