same sky

Additional Resources: Product Page 3D Model date 09/12/2024

page 1 of 9

SERIES: CFM-80CF | DESCRIPTION: DC AXIAL FAN

FEATURES

- omniCOOL™ bearing system
- 80 x 80 mm frame
- · multiple speed options
- · PWM/tachometer wires available





MODEL		iput Itage		put rent¹		out ver¹	rated speed¹	airflow ²	static pressure³	noise4
	rated (Vdc)	range (Vdc)	typ [A]	max [A]	typ [W]	max (W)	typ (RPM±10%)	(CFM)	(inch H ₂ O)	typ (dBA)
CFM-8015CF-120-213	12	10.8~13.2	0.06	0.09	0.72	1.08	2,0005	23.23	0.04	21.3
CFM-8015CF-130-301	12	10.8~13.2	0.17	0.26	2.04	3.12	3,000⁵	34.85	0.10	30.1
CFM-8015CF-140-363	12	10.8~13.2	0.34	0.51	4.08	6.12	3,800	43.49	0.16	35.2
CFM-8015CF-220-213	24	21.6~26.4	0.04	0.06	0.96	1.44	2,000⁵	23.23	0.04	21.3
CFM-8015CF-230-301	24	21.6~26.4	0.13	0.21	3.12	5.04	3,000	34.85	0.10	30.1
CFM-8015CF-240-363	24	21.6~26.4	0.14	0.21	3.36	5.04	3,800	43.49	0.16	35.2
CFM-8020CF-125-273	12	10.8~13.2	0.05	0.08	0.60	0.96	2,500⁵	24.52	0.07	27.4
CFM-8020CF-135-346	12	10.8~13.2	0.10	0.15	1.20	1.80	3,500	34.33	0.14	34.7
CFM-8020CF-145-401	12	10.8~13.2	0.20	0.30	2.40	3.60	4,500	44.14	0.24	40.2
CFM-8020CF-225-273	24	21.6~26.4	0.03	0.05	0.72	1.20	2,500⁵	24.52	0.07	27.4
CFM-8020CF-235-346	24	21.6~26.4	0.06	0.09	1.44	2.16	3,500	34.33	0.14	34.0
CFM-8020CF-245-401	24	21.6~26.4	0.12	0.18	2.88	4.32	4,500	44.14	0.24	40.2

Notes:

- 1. At rated voltage, after 3 minutes.
- 2. At rated voltage, room temperature, 65% humidity, 0 inch $\rm H_2O$ static pressure.
- 3. At rated voltage, 0 CFM airflow.
 4. Measured in an anechoic chamber as per IS03745/GB4214-B4 at rated voltage, with background noise 20±2 dBA at 1 m from the fan intake.
- 5. Typical rated speed is measured as RPM±350 at rated voltage.
- 6. All specifications are measured at 25°C, 65% relative humidity unless otherwise specified.

PART NUMBER KEY

CFM-8015CF-120-213- XX - CXX Fan Signals Base Number Reserved for Custom "blank" = no signals Configurations 20 = tachometer signal 22 = tachometer signal / PWM control signal

INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage ⁷	12 Vdc input models 24 Vdc input models	10.8 21.6	12 24	13.2 26.4	Vdc Vdc
starting voltage	12 Vdc input models 24 Vdc input models (CFM-8020CF-225-273 & CFM-8020CF-235-346: 12 Vdc)		7 14		Vdc Vdc

Note: 7. See Model section on page 1 for specific input voltage ranges.

PERFORMANCE⁸

parameter	conditions/description	min	typ	max	units
rated speed	at rated voltage, 25°C, after 3 minutes	2,000		4,500	RPM
air flow	at O inch H ₂ O, see performance curves	23.23		44.14	CFM
static pressure	at O CFM, see performance curves	0.04		0.24	inch H ₂ O
noise	at 1 m, rated speed	21.3		40.2	dBA

Note: 8. See Model section on page 1 for specific values.

PROTECTIONS / FEATURES9

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

Notes: 9. See Application Notes for details.

SAFETY & COMPLIANCE

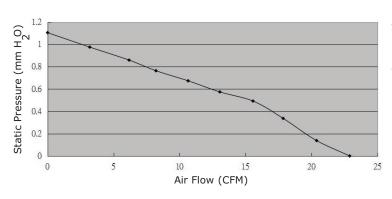
parameter	conditions/description	min	typ	max	units
insulation resistance	at 500 Vdc between frame and positive terminal	10			МΩ
dielectric strength	at 500 Vac, 60 Hz, 1 minute between housing and positive terminal			5	mA
safety approvals	UL/cUL 507, TUV (EN/IEC 62368-1:2020+A11)				
EMI/EMC	EN 55032:2015, EN 55035:2017				
life expectancy	at 40°C, 65% RH, 90% confidence level		40,000		hours
RoHS	VES				

ENVIRONMENTAL

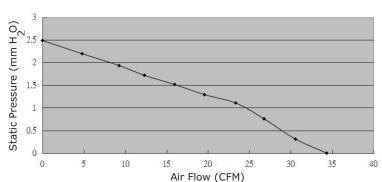
parameter	conditions/description	min	typ	max	units
operating temperature		-10		70	°C
storage temperature		-40		75	°C
operating humidity	non-condensing	35		85	%
storage humidity	non-condensing	35		85	%

PERFORMANCE CURVES

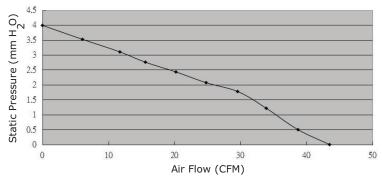
CFM-8015CF-120-213



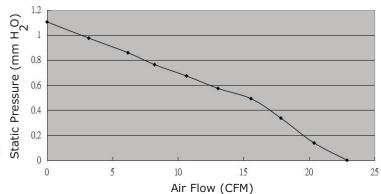
CFM-8015CF-130-301



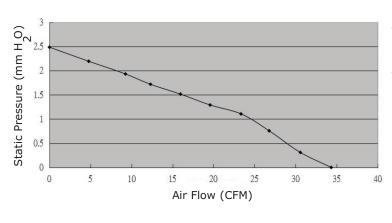
CFM-8015CF-140-363



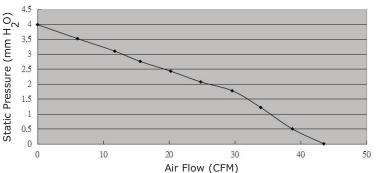
CFM-8015CF-220-213



CFM-8015CF-230-301



CFM-8015CF-240-363

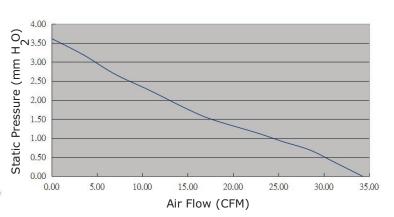


PERFORMANCE CURVES (CONTINUED)

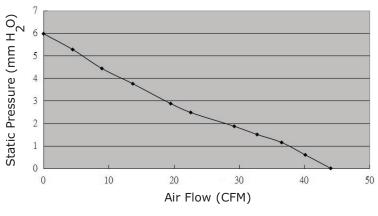
CFM-8020CF-125-273

2 Static Pressure (mm $\frac{10}{2}$) 1.8 1.6 1.4 1.2 1 0.8 0.4 0 0 10 15 20 25 30 Air Flow (CFM)

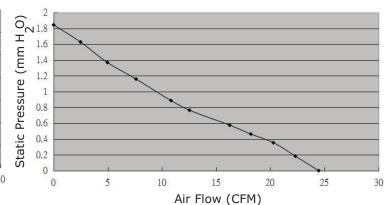
CFM-8020CF-135-346



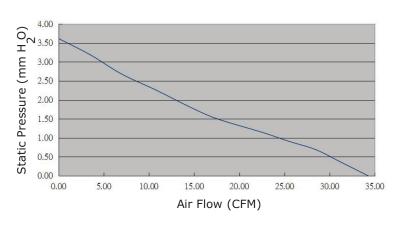
CFM-8020CF-145-401



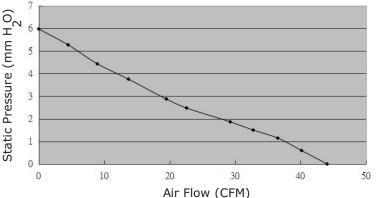
CFM-8020CF-225-273



CFM-8020CF-235-346



CFM-8020CF-245-401



MECHANICAL

parameter	conditions/description	min	typ	max	units
motor	4 pole DC brushless				
bearing system	omniCOOL™ bearing system				
direction of rotation	counter-clockwise viewed from front of fan blade				
dimensions	CFM-8015CF models: 80 x 80 x 15.4 CFM-8020CF models: 80 x 80 x 20.0				mm mm
material	PBT (UL94V-0)				
weight	CFM-8015CF models: weight varies by model CFM-8020CF models: weight varies by model	50.5 55.1		55.1 61.0	g g

MECHANICAL DRAWING

units: mm

2 wire versions (+Vin & -Vin): UL 1007, 26 AWG 3 wire versions (+Vin, -Vin, & tach): UL 1007, 26 AWG

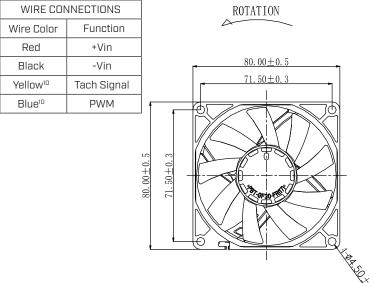
4 wire versions (+Vin, -Vin, tach, & PWM): UL 1007, 26 AWG

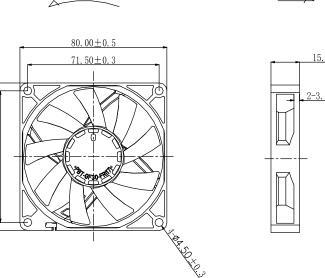
MOUNTING SCREW (Pan Head) Size Standard Screw Type Torque Machine Screw M4 JIS B1111-1974 7.5 kgf-cm М5 JIS B1122 Type 2 7.5 kgf-cm Self-tapping Screw

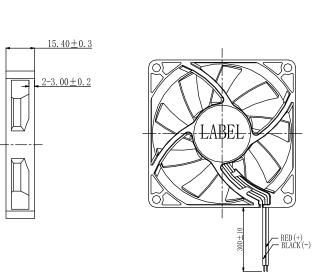
ROTATION

AIR FLOW

CFM-8015CF







MECHANICAL DRAWING (CONTINUED)

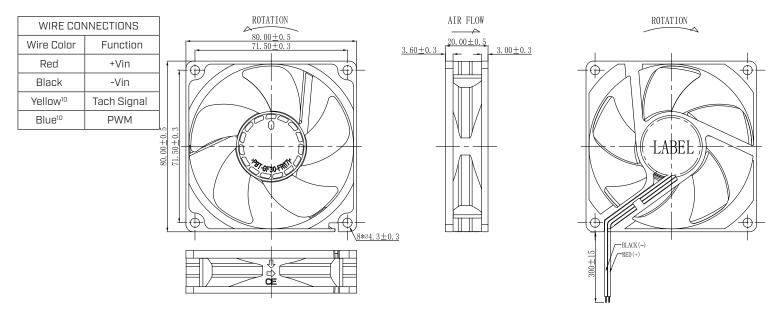
units: mm

2 wire versions (+Vin & -Vin): UL 1007, 24 AWG 3 wire versions (+Vin, -Vin, & tach): UL 1007, 24 AWG

4 wire versions [+Vin, -Vin, tach, & PWM]: UL 1007, 28 AWG

MOUNTING SCREW (Pan Head)						
Screw Type	Size	Standard	Torque			
Machine Screw	M4	JIS B1111-1974	4.5 kgf-cm			
Self-tapping Screw	M4.8	JIS B1122 Type 2	5.5 kgf-cm			

CFM-8020CF



APPLICATION NOTES

Auto Restart Protection

When the fan motor is locked by an external force, the device will temporarily turn off electrical power to the motor and restart automatically when the locked rotor condition is released.

Polarity Protection

 V_{FG}

VcE

Running

Able to withstand 10 minutes of reverse polarity connection between the positive and negative wires without causing damage.

Tachometer Signal (Yellow Wire)

The tachometer signal is for detecting the rotational speed of the fan motor. The output will be a square wave when fan is operating and VFG or VCE depending on the locked rotor position when fan motor is locked (See Figures 1~2 below).

Figure 1: Tachometer Output Circuit

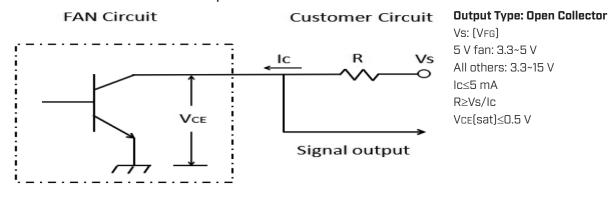
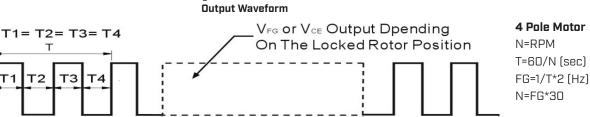


Figure 2: Tachometer



Running

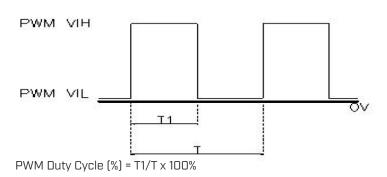
Rotor Locked

APPLICATION NOTES (CONTINUED)

PWM Signal (Blue Wire)

This wire is for speed control of the fan motor using a PWM input signal from the customer circuit (See Figure 3 below).

Figure 3: PWM Input Signal



Model	PWM Frequency Range (kHz)	PWM VIH (V)	PWM VIL (V)
CFM-8015CF-120-213-22	0.3~45	2~6	0~0.6
CFM-8015CF-130-301-22	0.3~45	2~6	0~0.6
CFM-8015CF-140-363-22	0.3~45	2~6	0~0.6
CFM-8015CF-220-213-22	0.6~55	2.3~10	0~0.7
CFM-8015CF-230-301-22	0.6~55	2.3~10	0~0.7
CFM-8015CF-240-363-22	0.6~55	2.3~10	0~0.7
CFM-8020CF-125-273-22	0.3~45	2~6	0~0.6
CFM-8020CF-135-346-22	0.3~45	2~6	0~0.6
CFM-8020CF-145-401-22	0.3~45	2~6	0~0.6
CFM-8020CF-225-273-22	0.6~55	2.3~10	0~0.7
CFM-8020CF-235-346-22	0.6~55	2.3~10	0~0.7
CFM-8020CF-245-401-22	0.6~55	2.3~10	0~0.7

REVISION HISTORY

rev.	description	date
1.0	initial release	10/15/2021
1.01	added PWM signal versions	05/19/2022
1.02	logo, datasheet style update	08/12/2022
1.03	updated PWM details	03/19/2024
1.04	CUI Devices rebranded to Same Sky	09/12/2024

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



Same Sky offers a one (1) year limited warranty. Complete warranty information is listed on our website.

Same Sky reserves the right to make changes to the product at any time without notice. Information provided by Same Sky is believed to be accurate and reliable. However, no responsibility is assumed by Same Sky for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

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