Additional Resources: Product Page | 3D Model

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SERIES: CFM-50S | DESCRIPTION: DC AXIAL FAN

FEATURES

- sleeve bearing system
- 50 x 50 mm frame
- multiple speed options
- PWM/tachometer wires available

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MODEL		put Itage		put rent¹	in; pov		rated speed ¹	airflow ²	static pressure ³	noise⁴
	rated (Vdc)	range (Vdc)	typ [A]	max [A]	typ (W)	max (W)	typ (RPM±10%)	(CFM)	(inch H ₂ O)	typ (dBA)
CFM-5020S-130-235	12	10.8~13.2	0.05	0.08	0.60	0.96	3,0005	8.09	0.06	23.5
CFM-5020S-145-323	12	10.8~13.2	0.09	0.14	1.08	1.68	4,5005	12.14	0.13	32.3
CFM-5020S-160-385	12	10.8~13.2	0.15	0.23	1.80	2.76	6,000	16.18	0.24	38.5

Notes: 1. At rated voltage, after 3 minutes.

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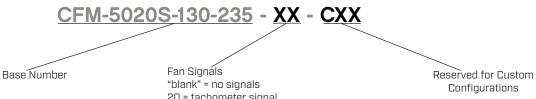
At rated voltage, room temperature, 65% humidity, 0 inch H₂0 static pressure.
At rated voltage, 0 CFM airflow.

4. Measured in an anechoic chamber as per ISO3745/GB4214-84 at rated voltage, with background noise 20±2 dBA at 1 m from the fan intake.

5. Typical rated speed is measured as RPM±600 at rated voltage.

6. All specifications are measured at 25°C, 65% relative humidity unless otherwise specified.

PART NUMBER KEY



20 = tachometer signal 22 = tachometer signal / PWM control signal Configurations

sameskydevices.com

INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage ⁷		10.8	12	13.2	Vdc
starting voltage			7.0		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	3,000		6,000	RPM
air flow	at 0 inch H ₂ 0, see performance curves	8.09		16.18	CFM
static pressure	at O CFM, see performance curves	0.06		0.24	inch H ₂ O
noise	at 1 m, rated speed	23.5		38.5	dBA

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

PROTECTIONS / FEATURES⁹

parameter conditions/description		min	typ	max	units
auto restart only available on CFM-5020S-160-385 models					
polarity protection only available on CFM-5020S-130-235 & CFM-5020S-145-323 models					
tachometer signal available on "20" and "22" models					
PWM control signal	available on "22" models				
Notes: 9. See Application Notes for det	tails.				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
insulation resistance	at 500 Vdc between frame and positive terminal	10			MΩ
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 25°C, 65% RH, 90% confidence level		30,000		hours
RoHS	yes				

ENVIRONMENTAL

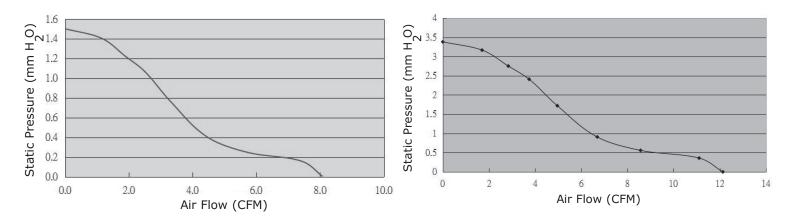
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parameter	conditions/description	min	typ	max	units
operating temperature		-10		70	°C
storage temperature		-40		75	°C
operating humidity	non-condensing	35		85	%
storage humidity	non-condensing	35		85	%

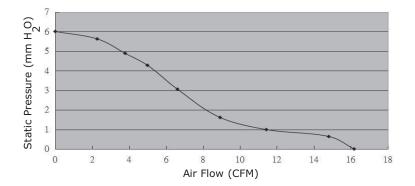
PERFORMANCE CURVES

CFM-5020S-130-235

CFM-5020S-145-323



CFM-5020S-160-385



MECHANICAL

parameter	conditions/description	min	typ	max	units
motor	4 pole DC brushless				
bearing system	sleeve bearing system				
direction of rotation	counter-clockwise viewed from front of fan blade				
dimensions	50 x 50 x 20				mm
material	PBT (UL94V-0)				
weight	CFM-5020S-130-235 CFM-5020S-145-323 CFM-5020S-160-385		32.0 27.7 28.8		g g g

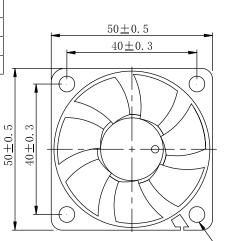
MECHANICAL DRAWING

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 1061, 26 AWG

MOUNTING SCREW (Pan Head)					
Screw Type	Size	Standard	Torque		
Machine Screw	M4	JIS B1111-1974	7.5 kgf-cm		
Self-tapping Screw	M5	JIS B1122 Type 2	7.5 kgf-cm		

WIRE CONNECTIONS				
Wire Color	Function			
Red	+Vin			
Black	-Vin			
Yellow ¹⁰	Tach Signal			
Blue ¹⁰	PWM			



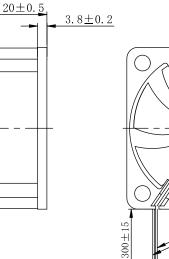
ROTATION

 $-4-\phi 4.5\pm 0.3$

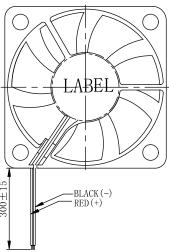


ROTATION

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APPLICATION NOTES

Auto Restart Protection

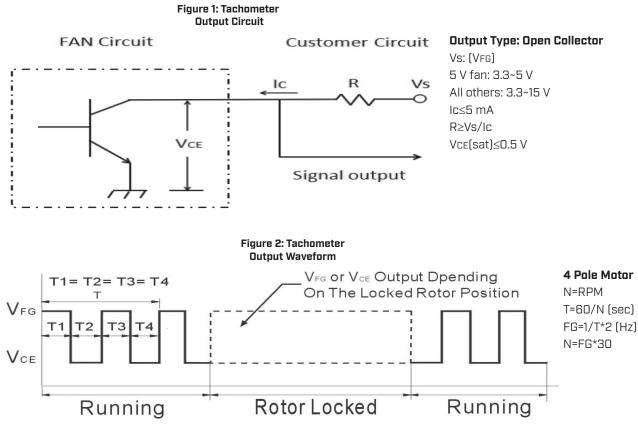
When the fan motor is locked by an external force, the device will temporarily turn off electrical power to the motor and restart automatically when the locked rotor condition is released.

Polarity Protection

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

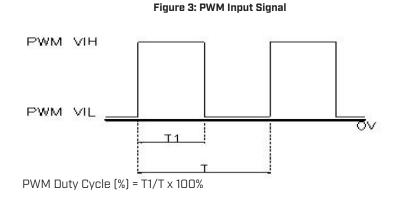
Tachometer Signal (Yellow Wire)

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).



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).



PWM Frequency	PWM VIH	PWM VIL
Range (kHz)	(V)	(V)
0.3~45	1.7~6	

REVISION HISTORY

rev.	description	date
1.0	initial release	10/18/2021
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.

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Same Sky products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.