# CUI DEVICES

# SERIES: CFM-120 | DESCRIPTION: DC AXIAL FAN

#### FEATURES

- 120 x 120 mm frame
- high fan speed for greater air flow
- dual ball bearing construction
- auto restart protection standard on all models



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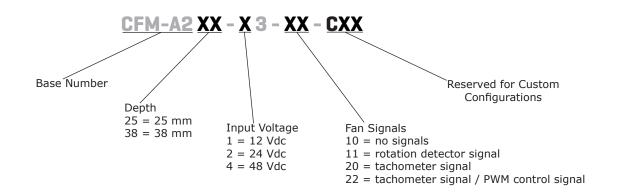


MODEL		put Itage		out rent	input power	rated speed	air flow¹	static pressure <sup>2</sup>	noise
	<b>rated</b> (Vdc)	range (Vdc)	<b>typ</b> (A)	max (A)	max (W)	typ (RPM)	(CFM)	(inch H <sub>2</sub> O)	<b>max</b> (dBA)
CFM-A225-13	12	6~13.8	0.59	0.79	9.48	4,100	126.89	0.49	53.5
CFM-A225-23	24	16~27.6	0.31	0.39	9.36	4,100	126.89	0.49	53.5
CFM-A225-43	48	30~55.2	0.17	0.23	11.04	4,100	126.89	0.49	53.5
CFM-A238-13	12	6~13.8	1.40	1.75	21	4,600	200.9	0.78	61.5
CFM-A238-23	24	16~27.6	0.77	0.88	21.12	4,600	200.9	0.78	61.5
CFM-A238-43	48	30~55.2	0.36	0.48	23.04	4,600	200.9	0.78	61.5

Notes: 1. At 0 inch H<sub>2</sub>0 static pressure. 2. At 0 CFM airflow.

## **PART NUMBER KEY**

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#### INPUT

parameter	conditions/description	min	typ	max	units
	12 Vdc input models	6	12	13.8	Vdc
operating input voltage	24 Vdc input models	16	24	27.6	Vdc
	48 Vdc input models	30	48	55.2	Vdc
	CFM-A225-13		0.59	0.79	А
	CFM-A225-23		0.31	0.39	А
aurropt	CFM-A225-43		0.17	0.23	А
current	CFM-A238-13		1.40	1.75	А
	CFM-A238-23		0.77	0.88	А
	CFM-A238-43		0.36	0.48	А
	CFM-A225-13		7.08	9.48	W
	CFM-A225-23		7.44	9.36	W
	CFM-A225-43		8.16	11.04	W
power	CFM-A238-13		16.80	21	W
	CFM-A238-23		18.48	21.12	W
	CFM-A238-43		17.28	23.04	W
	at 25°C				
starting voltage	12 Vdc input models		6		Vdc
starting voltage	24 Vdc input models		12		Vdc
	48 Vdc input models		24		Vdc

# PERFORMANCE

parameter	conditions/description	min	typ	max	units
rated speed	at 25°C, after 10 minutes CFM-A225 models CFM-A238 models	3,690 4,140	4,100 4,600	4,510 5,060	RPM RPM
air flow	at 0 inch H <sub>2</sub> O, see performance curves CFM-A225 models CFM-A238 models		126.89 200.9		CFM CFM
static pressure	at 0 CFM, see performance curves CFM-A225 models CFM-A238 models		0.49 0.78		inch $H_2O$ inch $H_2O$
noise	at 1 m CFM-A225 models CFM-A238 models		51.5 59.5	53.5 61.5	dBA dBA

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

conditions/description	min	typ	max	units
available on all models				
available on "11" models				
available on "20" and "22" models				
available on "22" models				
	available on all models available on "11" models available on "20" and "22" models	available on all models available on "11" models available on "20" and "22" models	available on all models available on "11" models available on "20" and "22" models	available on all models available on "11" models available on "20" and "22" models

Notes: 1. See application notes for details.

## **SAFETY & COMPLIANCE**

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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 62368-1)				
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	yes				

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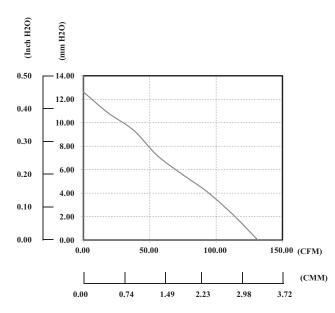
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## **ENVIRONMENTAL**

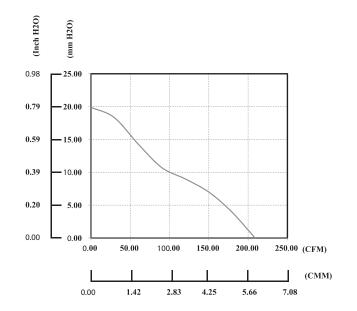
parameter	conditions/description	min	typ	max	units
operating temperature		-10		70	°C
storage temperature		-40		70	°C
operating humidity	non-condensing	5		90	%
storage humidity	non-condensing	5		95	%

## **PERFORMANCE CURVES**

#### **CFM-A225**



#### **CFM-A238**



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38.0±0.5

 $(1.496 \pm 0.0197)$ 

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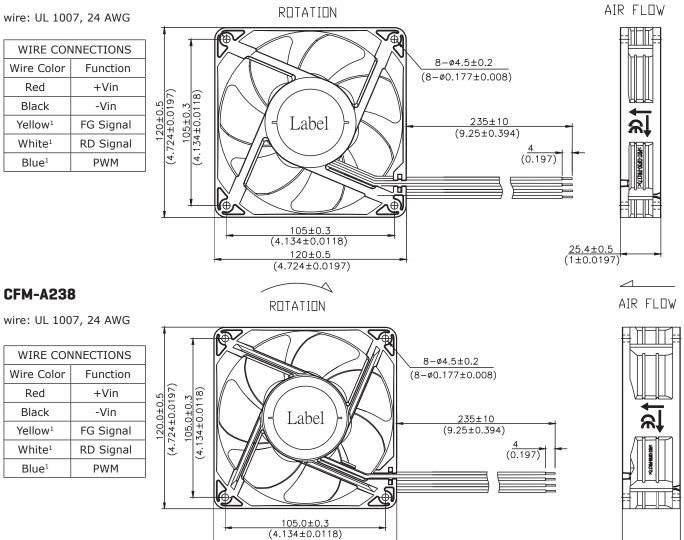
## **MECHANICAL**

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-A225 models 120 x 120 x 25.4 CFM-A238 models 120 x 120 x 38				mm mm
material	PBT (UL94V-0)				
weight	CFM-A225-13 CFM-A225-23 CFM-A225-43 CFM-A238-13 CFM-A238-23 CFM-A238-43		190.0 189.8 190.6 297.0 283.7 283.2		g g g g

## **MECHANICAL DRAWING**

units: mm [inch]

#### **CFM-A225**



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Note: 1. Wires only present on versions with output signals.

120.0±0.5

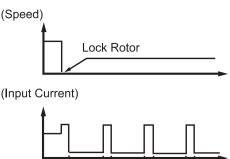
(4.724±0.0197)

## **APPLICATION NOTES**

#### Auto Restart Protection/Current Limit Protection

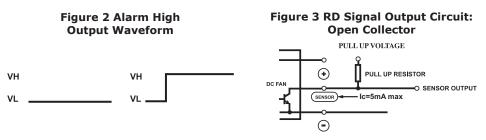
When the fan motor is locked, the device will cut off the drive current within two to six seconds and restart automatically after a few seconds. If the lock situation is continued, the device will work on a repeated cycle of cut-off and restart until the lock is released. (See Figure 1 below).

#### Figure 1 Current Limit Protection



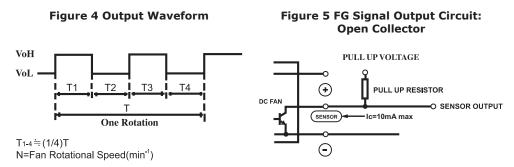
#### Lock Sensor/Rotation Detector

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).



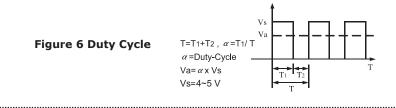
#### Pulse Sensor/Tachometer Signal/FG

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
1.02	updated to be certified to EN 62368-1 safety standard	07/09/2019
1.03	brand update	02/07/2020

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

**CUI** DEVICES

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

CUI Devices reserves the right to make changes to the product at any time without notice. Information provided by CUI Devices is believed to be accurate and reliable. However, no responsibility is assumed by CUI Devices 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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