



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

FEATURES

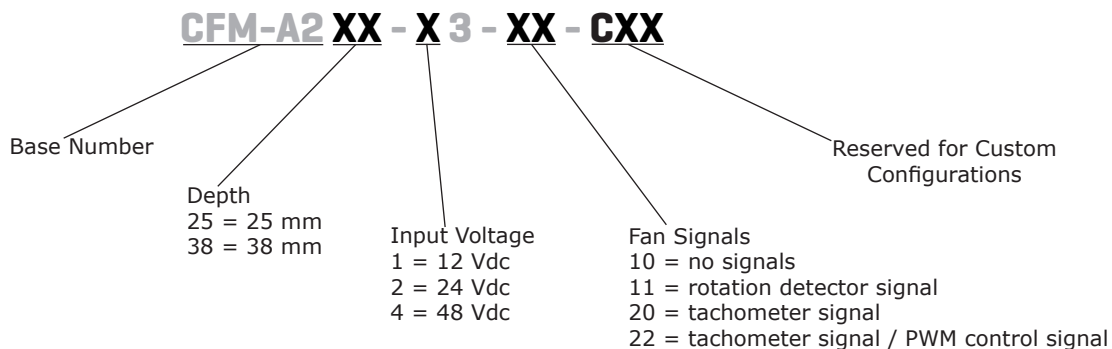
- 120 x 120 mm frame
- high fan speed for greater air flow
- dual ball bearing construction
- auto restart protection standard on all models



| MODEL | input voltage | | input current | | input power | rated speed | air flow ¹ | static pressure ² | noise |
|-------------|---------------|-------------|---------------|---------|-------------|-------------|-----------------------|------------------------------|-----------|
| | rated (Vdc) | range (Vdc) | typ (A) | max (A) | max (W) | typ (RPM) | (CFM) | (inch H ₂ O) | max (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 H₂O static pressure.
2. At 0 CFM airflow.

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|------------------------|-----|-------|-------|-------|
| operating input voltage | 12 Vdc input models | 6 | 12 | 13.8 | Vdc |
| | 24 Vdc input models | 16 | 24 | 27.6 | Vdc |
| | 48 Vdc input models | 30 | 48 | 55.2 | Vdc |
| current | CFM-A225-13 | | 0.59 | 0.79 | A |
| | CFM-A225-23 | | 0.31 | 0.39 | A |
| | CFM-A225-43 | | 0.17 | 0.23 | A |
| | CFM-A238-13 | | 1.40 | 1.75 | A |
| | CFM-A238-23 | | 0.77 | 0.88 | A |
| | CFM-A238-43 | | 0.36 | 0.48 | A |
| power | CFM-A225-13 | | 7.08 | 9.48 | W |
| | CFM-A225-23 | | 7.44 | 9.36 | W |
| | CFM-A225-43 | | 8.16 | 11.04 | W |
| | CFM-A238-13 | | 16.80 | 21 | W |
| | CFM-A238-23 | | 18.48 | 21.12 | W |
| | CFM-A238-43 | | 17.28 | 23.04 | W |
| starting voltage | at 25°C | | | | |
| | 12 Vdc input models | | 6 | | Vdc |
| | 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 | 3,690 | 4,100 | 4,510 | RPM |
| | CFM-A238 models | 4,140 | 4,600 | 5,060 | RPM |
| air flow | at 0 inch H ₂ O, see performance curves | | | | |
| | CFM-A225 models | | 126.89 | | CFM |
| | CFM-A238 models | | 200.9 | | CFM |
| static pressure | at 0 CFM, see performance curves | | | | |
| | CFM-A225 models | | 0.49 | | inch H ₂ O |
| | CFM-A238 models | | 0.78 | | inch H ₂ O |
| noise | at 1 m | | | | |
| | CFM-A225 models | | 51.5 | 53.5 | dBA |
| | CFM-A238 models | | 59.5 | 61.5 | dBA |

PROTECTIONS / SIGNALS¹

| 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

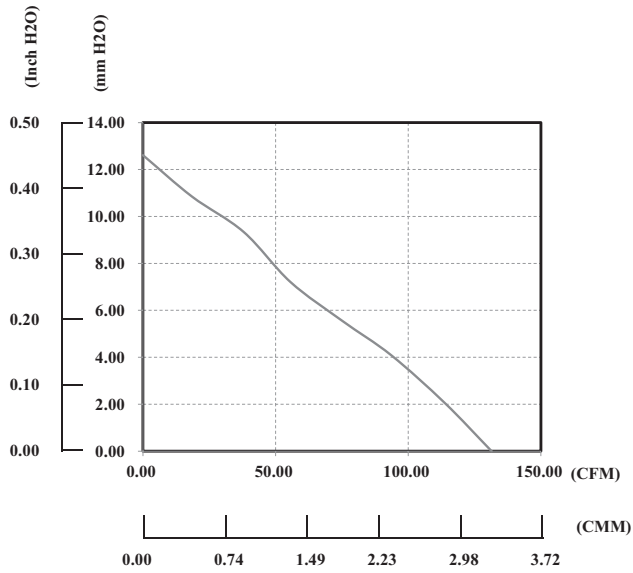
| parameter | conditions/description | min | typ | max | units |
|--------------------------------|--|-----|--------|-----|-------|
| insulation resistance of frame | at 500 Vdc between frame and positive terminal | 10 | | | MΩ |
| dielectric strength | at 500 Vac, 60 Hz, 1 minute between frame and positive terminal | | | 5 | mA |
| safety approvals | UL/cUL 507, TUV (EN 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 | | | | |

ENVIRONMENTAL

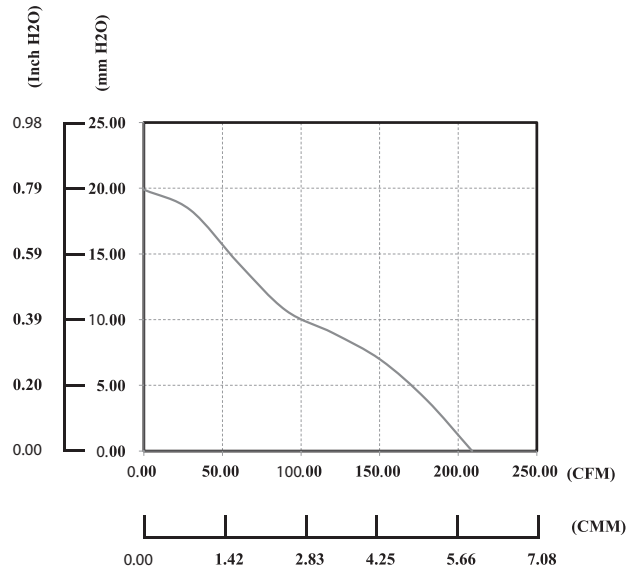
| parameter | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | | -10 | | 70 | °C |
| storage temperature | | -40 | | 70 | °C |
| operating humidity | non-condensing | 5 | | 90 | % |
| storage humidity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

PERFORMANCE CURVES

CFM-A225



CFM-A238



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 | | 190.0 | | g |
| | CFM-A225-23 | | 189.8 | | g |
| | CFM-A225-43 | | 190.6 | | g |
| | CFM-A238-13 | | 297.0 | | g |
| | CFM-A238-23 | | 283.7 | | g |
| | CFM-A238-43 | | 283.2 | | g |

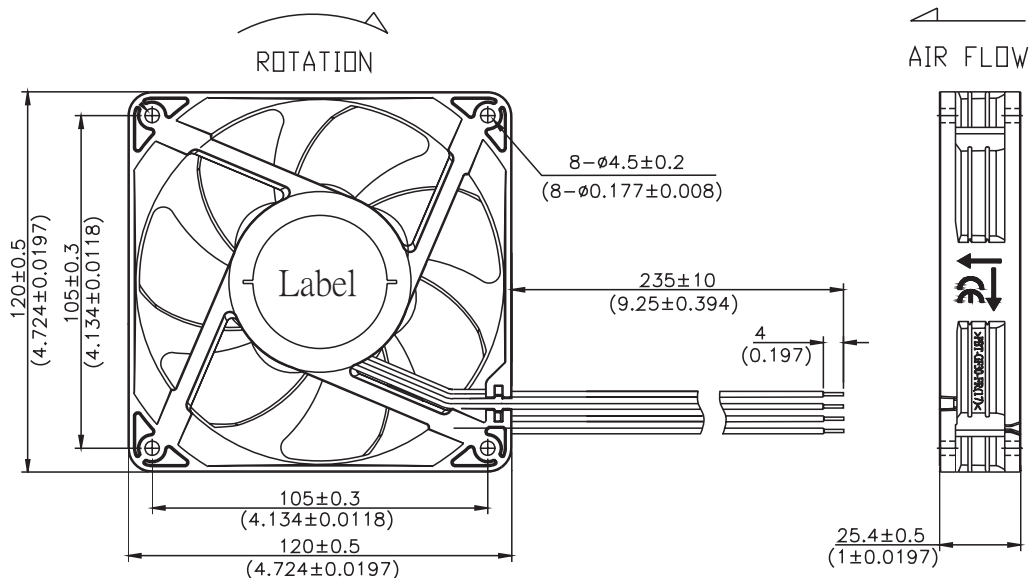
MECHANICAL DRAWING

units: mm [inch]

CFM-A225

wire: UL 1007, 24 AWG

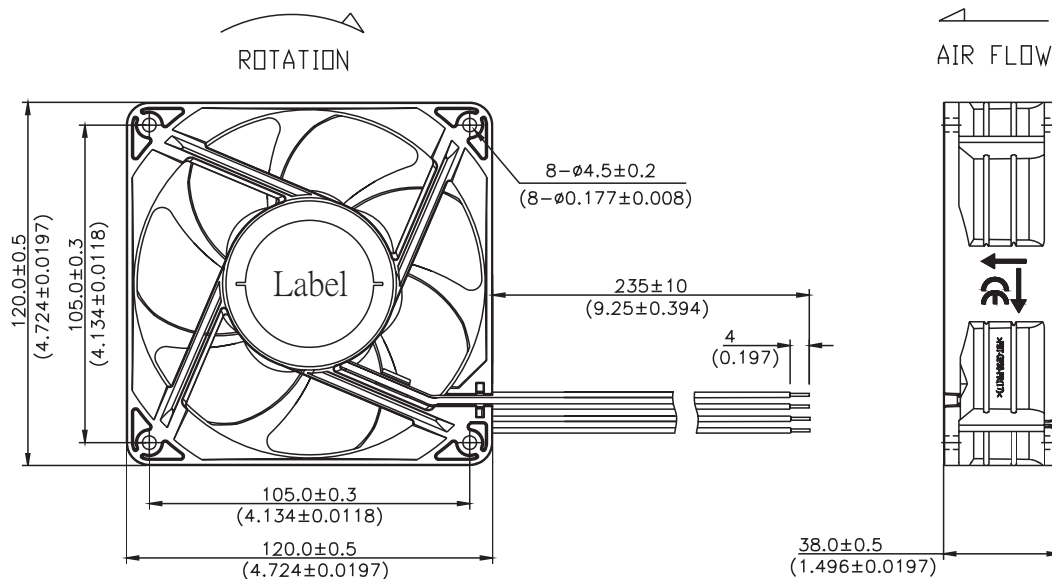
| WIRE CONNECTIONS | |
|---------------------|-----------|
| Wire Color | Function |
| Red | +Vin |
| Black | -Vin |
| Yellow ¹ | FG Signal |
| White ¹ | RD Signal |
| Blue ¹ | PWM |



CFM-A238

wire: UL 1007, 24 AWG

| WIRE CONNECTIONS | |
|---------------------|-----------|
| Wire Color | Function |
| Red | +Vin |
| Black | -Vin |
| Yellow ¹ | FG Signal |
| White ¹ | RD Signal |
| Blue ¹ | PWM |

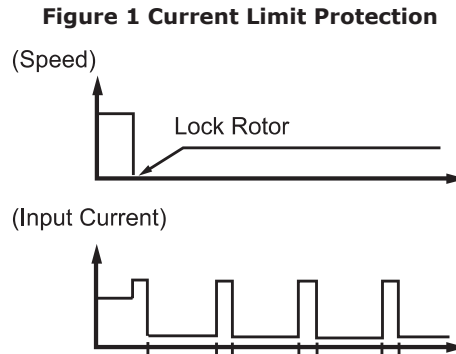


Note: 1. Wires only present on versions with output signals.

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).



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).

Figure 2 Alarm High Output Waveform

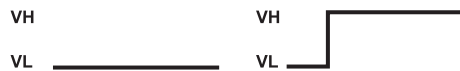
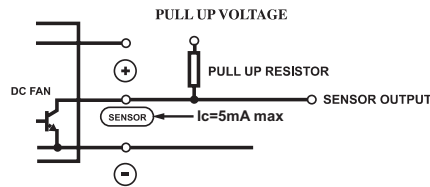


Figure 3 RD Signal Output Circuit: Open Collector



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).

Figure 4 Output Waveform

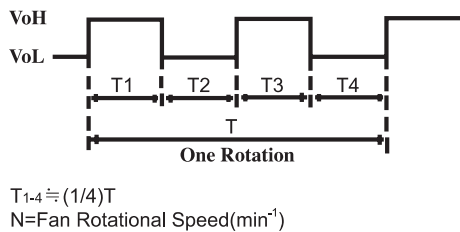
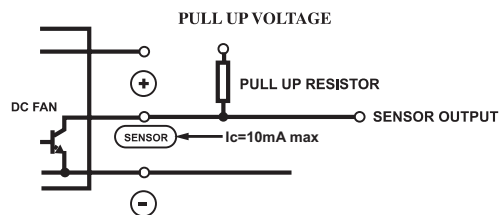


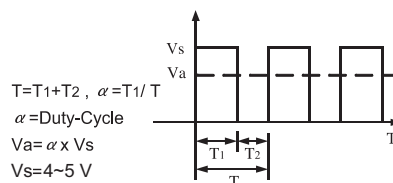
Figure 5 FG Signal Output Circuit: Open Collector



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).

Figure 6 Duty Cycle



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 |

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

**CUI INC**[®]

Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

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

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

CUI 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.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.