

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

FEATURES

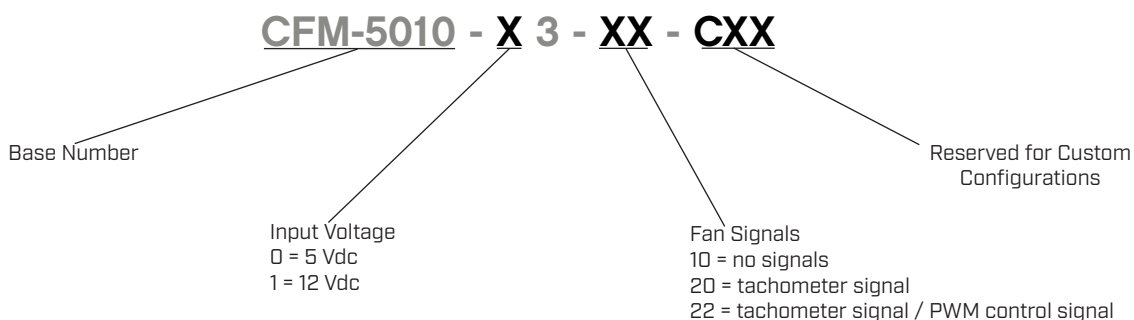
- 50 x 50 mm frame
- high fan speed for greater air flow
- dual ball bearing construction
- auto restart protection standard on all models



| 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-5010-03* | 5 | 4~5.75 | 0.21 | 0.28 | 1.4 | 6,100 | 16.07 | 0.20 | 37.2 |
| CFM-5010-13* | 12 | 6~13.8 | 0.11 | 0.14 | 1.68 | 6,100 | 16.07 | 0.20 | 37.0 |

Notes: 1. At 0 inch H₂O static pressure.
 2. At 0 CFM airflow.
 *. Discontinued CFM-5010-03-20 & CFM-5010-13-20 models.

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|------------------------|-----|------|------|-------|
| operating input voltage | 5 Vdc input models | 4 | 5 | 5.75 | Vdc |
| | 12 Vdc input models | 6 | 12 | 13.8 | Vdc |
| current | 5 Vdc input models | | 0.21 | 0.28 | A |
| | 12 Vdc input models | | 0.11 | 0.14 | A |
| power | 5 Vdc input models | | 1.05 | 1.4 | W |
| | 12 Vdc input models | | 1.32 | 1.68 | W |
| starting voltage | at 25°C | | | | |
| | 5 Vdc input models | | 4 | | Vdc |
| | 12 Vdc input models | | 6 | | Vdc |

PERFORMANCE

| parameter | conditions/description | min | typ | max | units |
|-----------------|--|-------|-------|-------|-----------------------|
| rated speed | at 25°C, after 10 minutes | 5,490 | 6,100 | 6,710 | RPM |
| air flow | at 0 inch H ₂ O, see performance curves | | 16.07 | | CFM |
| static pressure | at 0 CFM, see performance curves | | 0.20 | | inch H ₂ O |
| noise | at 1 m | | | | |
| | 5 Vdc input models | | 36.0 | 37.2 | dBA |
| | 12 Vdc input models | | 36.0 | 37.0 | dBA |

PROTECTIONS / SIGNALS¹

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

Notes: 1. See application notes for details.

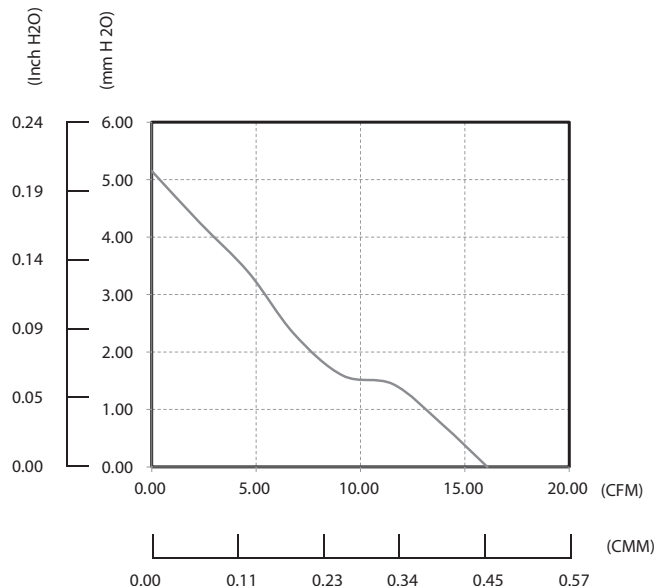
SAFETY & COMPLIANCE

| 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



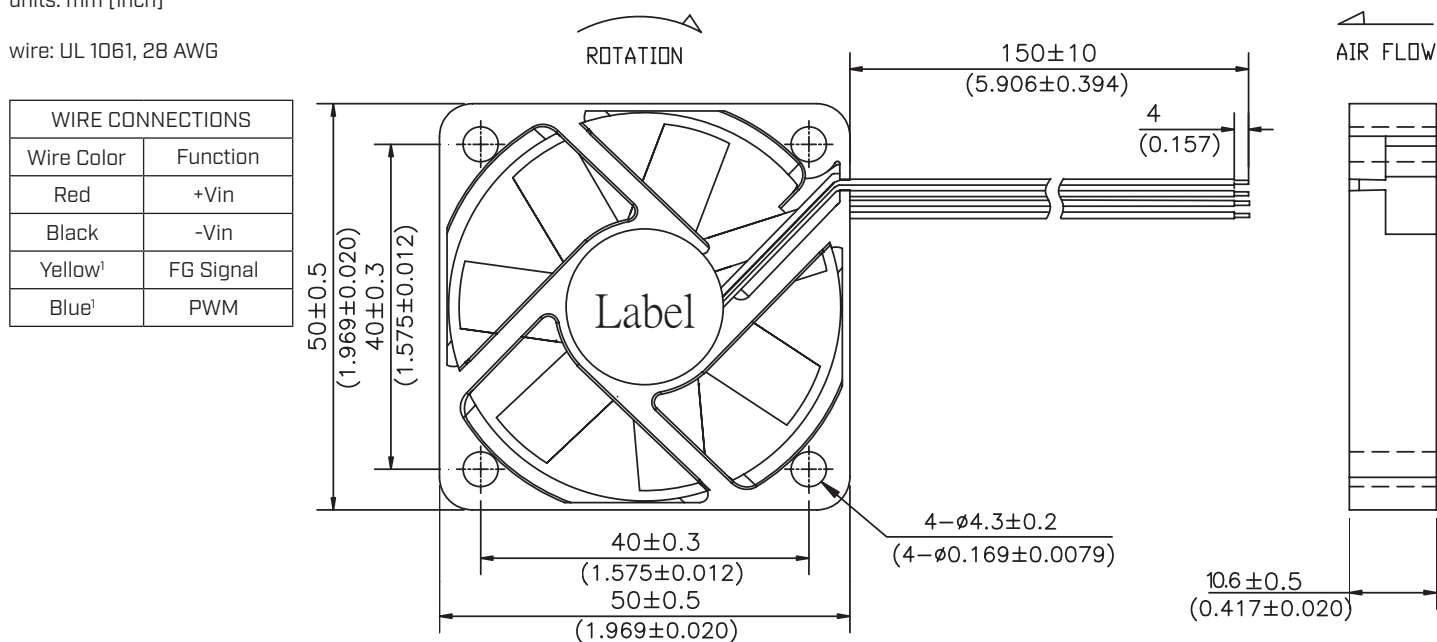
MECHANICAL

| 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 | 50 x 50 x 10.6 | | | | mm |
| material | PBT (UL94V-0) | | | | |
| weight | 5 Vdc input models | | 20.7 | | g |
| | 12 Vdc input models | | 20.3 | | g |

MECHANICAL DRAWING

units: mm [inch]

wire: UL 1061, 28 AWG



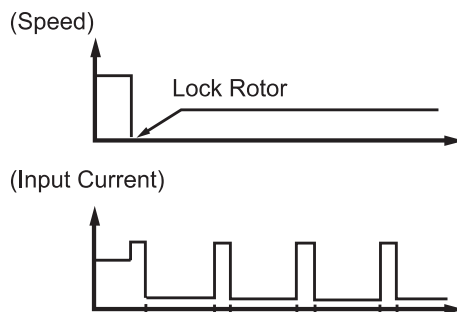
Note: 1. Wires only present on versions with output signals.

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].

Figure 1 Current Limit Protection



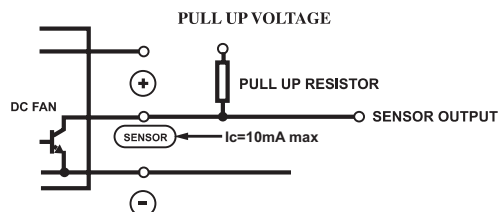
Pulse Sensor/Tachometer Signal/FG

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 2~3 below].

Figure 2 Output Waveform



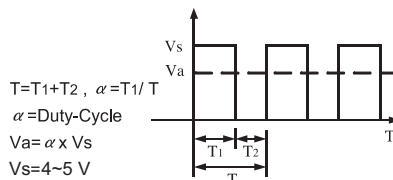
Figure 3 FG Signal Output Circuit: Open Collector



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 4 below].

Figure 4 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 |
| 1.03 | brand update | 02/07/2020 |
| 1.04 | discontinued CFM-5010-03-20 & CFM-5010-13-20 models | 04/26/2022 |
| 1.05 | logo, datasheet style update | 08/12/2022 |

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



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