



# CFM260S SERIES 260 WATT OPEN FRAME AC-DC MODULES

## Features

- Universal Input Range 85~264Vac
- High Efficiency up to 93.5%
- 2"x 4" Compact Size @CFM260SXXX
- Meets Class I
- No Load Input Power Consumption<0.2W
- Peak Power Operation up to 312Watt for 5s
- Approval Safety IEC/EN/UL 62368-1 Ed 3.0
- Active PFC Meets EN 61000-3-2
- Design Meets IEC/EN 60335-1
- Meets EN55032 (Class B)
- Operating Altitude 5000m
- 220W with Natural Convection
- 260W with Fan-Cooled
- Continuous Short Circuit Protection
- Over Temperature Protection
- 12V Fan Output



| MODEL<br>NUMBER    | OUTPUT<br>VOLTAGE | OUTPUT CURRENT<br>NOTE1 |             |         |         | VOLTAGE<br>ACCURACY<br>NOTE2 | RIPPLE&<br>NOISE<br>NOTE3 | VOLTAGE<br>ADJ. RANGE | LINE<br>REGULATION<br>NOTE4 | LOAD<br>REGULATION<br>NOTE5 | %EFF.<br>(Typ) |
|--------------------|-------------------|-------------------------|-------------|---------|---------|------------------------------|---------------------------|-----------------------|-----------------------------|-----------------------------|----------------|
|                    |                   | With Fan                | Without Fan |         |         |                              |                           |                       |                             |                             |                |
|                    |                   |                         | Cover       | Base    | Open    |                              |                           |                       |                             |                             |                |
| CFM260S120         | 12 V              | 21.67 A                 | 18.34 A     | 15.84 A | 11.67 A | ±1%                          | 120 mV                    | 11.4~12.6 V           | ±0.5%                       | ±1%                         | 92%            |
| CFM260S240         | 24 V              | 10.83 A                 | 9.17 A      | 7.92 A  | 5.83 A  | ±1%                          | 240 mV                    | 22.8~25.2 V           | ±0.5%                       | ±1%                         | 93.5%          |
| CFM260S360         | 36 V              | 7.22 A                  | 6.11 A      | 5.28 A  | 3.89 A  | ±1%                          | 360 mV                    | 34.2~37.8 V           | ±0.5%                       | ±1%                         | 93%            |
| CFM260S480         | 48 V              | 5.42 A                  | 4.58 A      | 3.96 A  | 2.92 A  | ±1%                          | 480 mV                    | 45.6~50.4 V           | ±0.5%                       | ±1%                         | 93.5%          |
| Fan Output Voltage |                   |                         |             |         |         |                              |                           |                       |                             |                             |                |
| All                | +12V              | 0.3A (NOTE 6)           |             |         |         | ---                          | ---                       | ---                   | ---                         | ---                         | ---            |

Note:

1. Forced air convection with fan. (Open frame with 19CFM, Base & Case with 10 CFM)
2. Voltage accuracy is set at 60% rated load.
3. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz BW.
4. Line regulation is measured from high line to low line with rated load.
5. Load regulation is measured from full to 10% rated.
6. Fan output can only operate normal when the main output is above 1A.
7. CFM260S120X DC output connector (CN2) use terminal.

## PART NUMBER

| Series | Number of Outputs | Nominal Output Voltage                                   | Type                                                 |
|--------|-------------------|----------------------------------------------------------|------------------------------------------------------|
| CFM260 | O                 | XXX                                                      | Y (Option)                                           |
| CFM260 | S : Single        | 120 : 12VDC<br>240 : 24VDC<br>360 : 36VDC<br>480 : 48VDC | None : Open Frame<br>B : With Base<br>C : With Cover |

Part Number Example:

**CFM260S120:** Open Frame, 260W, Single 12Vdc Output

**CFM260S120B:** With Base, 260W, Single 12Vdc Output

**CFM260S120C:** With Case, 260W, Single 12Vdc Output



# CFM260S Series

## TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C unless otherwise noted.)

### ABSOLUTE MAXIMUM RATINGS

| PARAMETER             | NOTES and CONDITIONS                  | Device | Min. | Typ. | Max. | Units           |
|-----------------------|---------------------------------------|--------|------|------|------|-----------------|
| Input Voltage         | Safety approvals only to the AC input | All    | 85   |      | 264  | V <sub>ac</sub> |
| Operating Temperature | See Derating Curve                    | All    | -30  |      | 80   | °C              |
| Storage Temperature   |                                       | All    | -40  |      | 85   | °C              |
| Operating Altitude    | IEC/EN/UL 62368-1                     | All    |      |      | 5000 | m               |

### INPUT CHARACTERISTICS

| PARAMETER               | NOTES and CONDITIONS                                     | Device | Min. | Typ. | Max. | Units           |
|-------------------------|----------------------------------------------------------|--------|------|------|------|-----------------|
| Operating Voltage Range |                                                          | All    | 100  |      | 240  | V <sub>ac</sub> |
| Input Frequency Range   |                                                          | All    | 47   |      | 63   | Hz              |
| Maximum Input Current   | 100% Load, V <sub>in</sub> =100V <sub>ac</sub>           | All    |      |      | 3.5  | A               |
| Power Factor            | V <sub>in</sub> =230V <sub>ac</sub> , Full load          | All    |      | 0.92 |      |                 |
| Leakage Current         |                                                          | All    |      |      | 3.5  | mA              |
| Inrush Current          | V <sub>in</sub> =240V <sub>ac</sub> , Cold start at 25°C | All    |      |      | 150  | A               |

### OUTPUT CHARACTERISTICS

| PARAMETER                      | NOTES and CONDITIONS                                                                                                                                                                                                            | Device     | Min.  | Typ. | Max.  | Units           |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------|------|-------|-----------------|
| Output Voltage Set Point       | V <sub>in</sub> =Nominal V <sub>in</sub> , I <sub>o</sub> =I <sub>o</sub> max., ambient temperature=25°C                                                                                                                        | CFM260S120 | 11.88 | 12   | 12.12 | V <sub>dc</sub> |
|                                |                                                                                                                                                                                                                                 | CFM260S240 | 23.76 | 24   | 24.24 |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S360 | 35.64 | 36   | 36.36 |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S480 | 47.52 | 48   | 48.48 |                 |
| Operating Output Current Range | See Derating Curve                                                                                                                                                                                                              | CFM260S120 |       |      | 21.67 | A               |
|                                |                                                                                                                                                                                                                                 | CFM260S240 |       |      | 10.83 |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S360 |       |      | 7.22  |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S480 |       |      | 5.42  |                 |
| Holdup Time                    | V <sub>in</sub> =115V <sub>ac</sub>                                                                                                                                                                                             | All        |       | 16   |       | ms              |
| Output Voltage Regulation      |                                                                                                                                                                                                                                 |            |       |      |       |                 |
| Load Regulation                | 10% Load to full load                                                                                                                                                                                                           | All        |       |      | ±1.0  | %               |
| Line Regulation                | V <sub>in</sub> =High line to low line                                                                                                                                                                                          | All        |       |      | ±0.5  | %               |
| Over Voltage Protection        | Latch off (AC recycle to reset)                                                                                                                                                                                                 | CFM260S120 |       |      | 16    | V <sub>dc</sub> |
|                                |                                                                                                                                                                                                                                 | CFM260S240 |       |      | 35    |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S360 |       |      | 50    |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S480 |       |      | 63    |                 |
| Over Current Protection        | Hiccup mode (Auto recovery)                                                                                                                                                                                                     | All        | 120   |      | 190   | %               |
| Peak Power                     | 1. V <sub>in</sub> =115V <sub>ac</sub> and 230V <sub>ac</sub><br>2. Ambient temperature=25°C<br>3. Peak power should be less than 5seconds, with a maximum 10% duty cycle, peak power function by 120% load 5S and 75% load 45S | All        |       | 120  |       | %               |
| Short Circuit Protection       | Hiccup mode (Auto recovery)                                                                                                                                                                                                     | All        |       |      |       |                 |
| Output Ripple and Noise        | 1. Add a 0.1uF ceramic capacitor and a 10uF aluminum electrolytic capacitor to output<br>2. Oscilloscope is 20MHz band width<br>3. Ambient temperature=25°C                                                                     | CFM260S120 |       |      | 120   | mV              |
|                                |                                                                                                                                                                                                                                 | CFM260S240 |       |      | 240   |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S360 |       |      | 360   |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S480 |       |      | 480   |                 |
| Load Capacitance               | 1. Input voltage is 115V <sub>ac</sub> and 230V <sub>ac</sub><br>2. Output is max. load<br>3. Ambient temperature=25°C                                                                                                          | CFM260S120 |       |      | 22000 | uF              |
|                                |                                                                                                                                                                                                                                 | CFM260S240 |       |      | 10880 |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S360 |       |      | 7220  |                 |
|                                |                                                                                                                                                                                                                                 | CFM260S480 |       |      | 3960  |                 |



# CFM260S Series

| PARAMETER  | NOTES and CONDITIONS                                                                             | Device     | Min. | Typ. | Max. | Units |
|------------|--------------------------------------------------------------------------------------------------|------------|------|------|------|-------|
| Efficiency | 1. Input voltage is 230V <sub>ac</sub><br>2. Output is rated load<br>3. Ambient temperature=25°C | CFM260S120 |      | 92   |      | %     |
|            |                                                                                                  | CFM260S240 |      | 93.5 |      |       |
|            |                                                                                                  | CFM260S360 |      | 93   |      |       |
|            |                                                                                                  | CFM260S480 |      | 93.5 |      |       |

## ISOLATION CHARACTERISTICS

| PARAMETER            | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units           |
|----------------------|----------------------|--------|------|------|------|-----------------|
| Input to Output      | 1 minute             | All    |      |      | 3000 | V <sub>ac</sub> |
| Isolation Resistance | Input to output      | All    | 100  |      |      | MΩ              |

## FEATURE CHARACTERISTICS

| PARAMETER                 | NOTES and CONDITIONS | Device | Min. | Typ. | Max. | Units |
|---------------------------|----------------------|--------|------|------|------|-------|
| Switching Frequency       |                      | All    |      | 100  |      | kHz   |
| Output Voltage Adjustment |                      | All    | -5   |      | +5   | %     |

## GENERAL SPECIFICATIONS

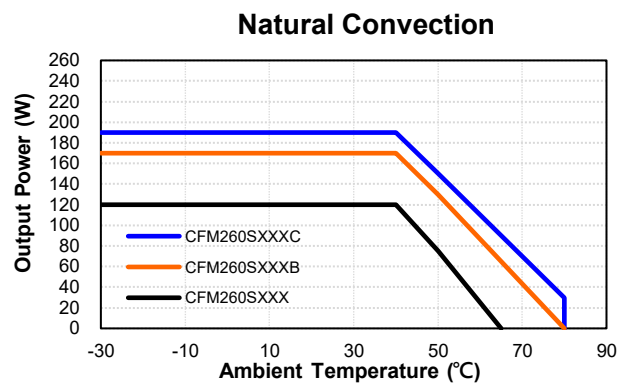
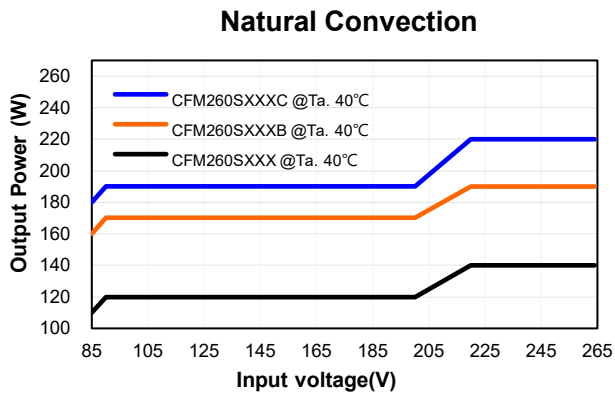
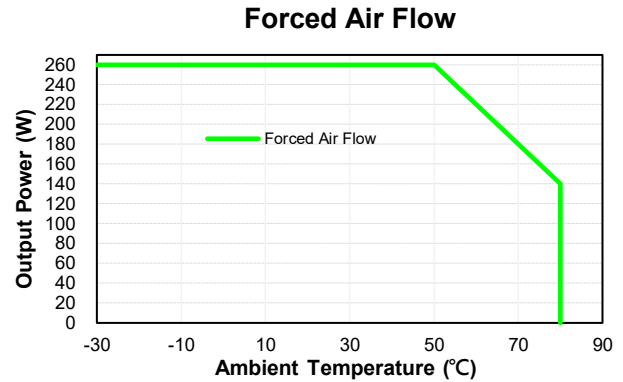
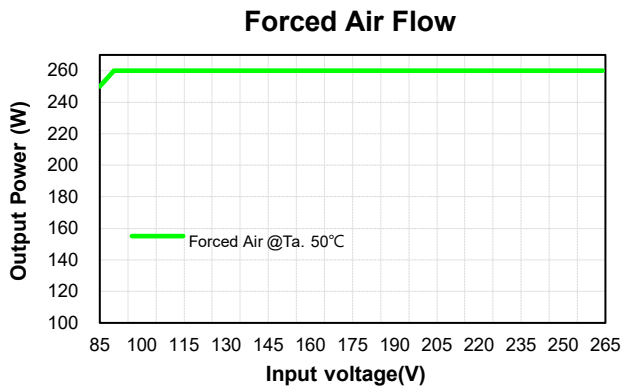
| PARAMETER                                        | NOTES and CONDITIONS                                                                                                                                                            | Device | Min.                                            | Typ. | Max. | Units       |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------------------------------|------|------|-------------|
| MTBF                                             | I <sub>o</sub> =100%; T <sub>a</sub> =25°C per MIL-HDBK-217F<br>I <sub>o</sub> =100%; T <sub>a</sub> =25°C per Telcordia SR332                                                  | All    | 270<br>2000                                     |      |      | k<br>hours  |
| Humidity                                         | Non-condensing                                                                                                                                                                  | All    |                                                 |      | 93   | % RH        |
| Shock                                            | Meets MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X ∙ ±Y ∙ ±Z axis)                                                                                         | All    |                                                 | 75   |      | g           |
| Vibration                                        | Meets MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X ∙ Y ∙ Z axis, 1 hour (each axis),. Total 3 hrs.                                                                               | All    |                                                 | 4    |      | g           |
| Weight                                           | Open frame versions                                                                                                                                                             | All    |                                                 | 245  |      | grams       |
|                                                  | Baseplate versions                                                                                                                                                              |        |                                                 | 280  |      |             |
|                                                  | Covered versions                                                                                                                                                                |        |                                                 | 332  |      |             |
| Dimensions                                       | Open frame                                                                                                                                                                      | All    | 4.000x2.000x1.441 Inches (101.60x50.8x36.60mm)  |      |      |             |
|                                                  | B (with Base)                                                                                                                                                                   | All    | 4.598x2.000x1.520 Inches (116.80x50.8x38.60mm)  |      |      |             |
|                                                  | C (with Cover)                                                                                                                                                                  | All    | 4.598x2.520x1.594 Inches (116.80x64.00x40.50mm) |      |      |             |
| Safety                                           | Class I, IEC/EN/UL 62368-1                                                                                                                                                      |        |                                                 |      |      | Ed 3.0      |
| EMC Emission                                     | EN 55032 Class B, 47 CFR FCC Part 15 Subpart B, Oct.2014<br>EN 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-4:2019, EN 61204-3:2000 |        |                                                 |      |      | Class B     |
| Conducted Disturbance                            | EN 55032,EN 61204-3:2000,EN 61000-6-3:2007+A1:2011+AC:2012,EN 61000-6-4:2019, Class B, 47 CFR FCC Part 15 Subpart B                                                             |        |                                                 |      |      | Class B     |
| Radiated Disturbance                             | EN 55032, EN 61204-3:2000, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-4: 2019, Class B, 47 CFR FCC Part 15 Subpart B                                                         |        |                                                 |      |      | Class B     |
| Harmonic Current Emissions                       | EN 61000-3-2:2019                                                                                                                                                               |        |                                                 |      |      |             |
| Voltage Fluctuations & Flicker                   | EN 61000-3-3:2013+A1:2019                                                                                                                                                       |        |                                                 |      |      |             |
| EMC Immunity                                     | EN 55035, EN 61204-3:2000, EN 61000-6-1:2019+CRGD:2019, EN 61000-6-2:2019                                                                                                       |        |                                                 |      |      |             |
| Electrostatic Discharge (ESD)                    | IEC 61000-4-2:2008, Air Discharge: ±8kV, Contact Discharge: ±4kV                                                                                                                |        |                                                 |      |      | Criterion A |
| Radio-Frequency, Continuous Radiated Disturbance | IEC 61000-4-3:2020                                                                                                                                                              |        |                                                 |      |      | Criterion A |
| Electrical Fast Transient (EFT)                  | IEC 61000-4-4:2012, ±1kV, ±2kV                                                                                                                                                  |        |                                                 |      |      | Criterion A |
| Surge                                            | IEC 61000-4-5:2014+A1:2017, L-N: ±0.5kV, ±1kV, L-E(Ground): ±0.5kV, ±1kV, ±2kV                                                                                                  |        |                                                 |      |      | Criterion A |
| Conducted Disturbances, Induced by RF Fields     | IEC 61000-4-6:2013+COR1:2015                                                                                                                                                    |        |                                                 |      |      | Criterion A |
| Power Frequency Magnetic Field                   | IEC 61000-4-8:2009                                                                                                                                                              |        |                                                 |      |      | Criterion A |
| Voltage Dips                                     | IEC 61000-4-11:2020, Dip: 30% Reduction, Dip >95% Reduction                                                                                                                     |        |                                                 |      |      | Criterion A |
| Voltage Interruptions                            | IEC 61000-4-11:2020, >95% Reduction                                                                                                                                             |        |                                                 |      |      | Criterion B |
| Application Note Link                            |                                                                                                                                                                                 |        | CFM260S Series App Notes                        |      |      |             |



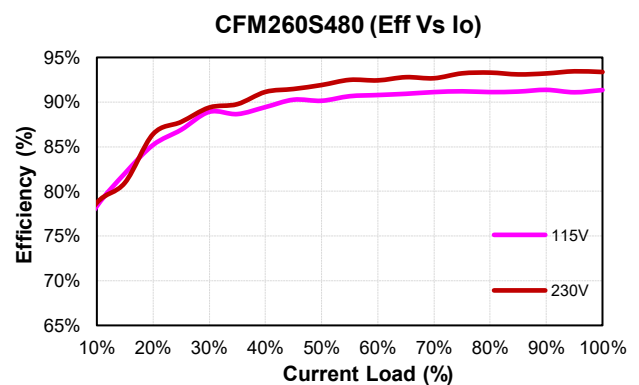
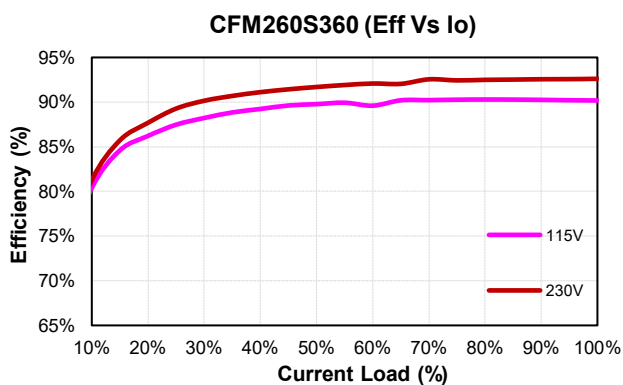
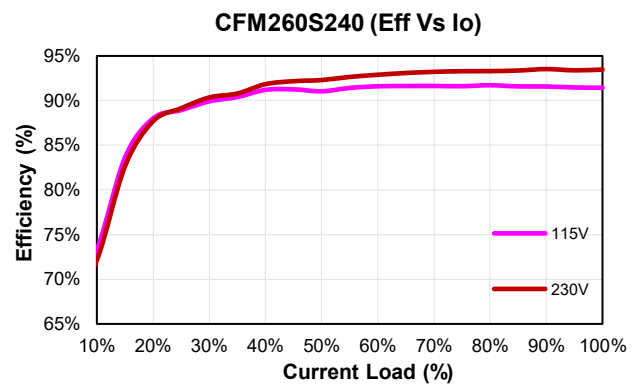
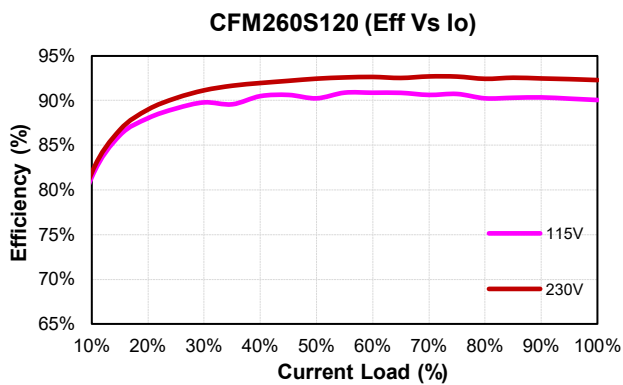
# CFM260S Series

## CHARACTERISTIC CURVE

### Power Derating Curve



### Performance Data

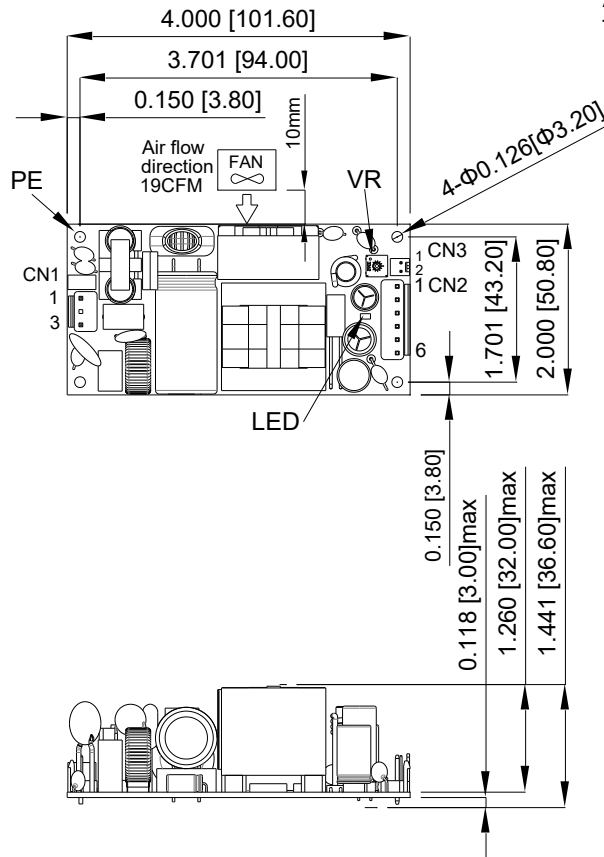




# CFM260S Series

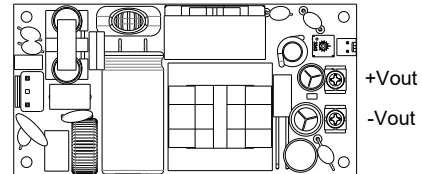
## MECHANICAL SPECIFICATION

### CFM260S240~480



All Dimensions In Inches[mm]  
Tolerance Inches:x.xxx=  $\pm 0.02$   
Millimeters:x.xx =  $\pm 0.5$

### CFM260S120



AC Input Connector(CN1):TKP PVHI-03N2 or equivalent

| Pin | Function | Mating Housing           | Terminal                       |
|-----|----------|--------------------------|--------------------------------|
| 1   | ACL      | JST VHR-3N or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2   | -        |                          |                                |
| 3   | ACN      |                          |                                |

DC Output Connector(CN2):TKP PVHI-06 or equivalent

| Pin | Function | Mating Housing           | Terminal                       |
|-----|----------|--------------------------|--------------------------------|
| 1   | +Vout    | JST VHR-6N or equivalent | JST SVH-21T-P1.1 or equivalent |
| 2   | +Vout    |                          |                                |
| 3   | +Vout    |                          |                                |
| 4   | -Vout    |                          |                                |
| 5   | -Vout    |                          |                                |
| 6   | -Vout    |                          |                                |

DC Output Connector(CN3):CHYAO SHIUNN JS-6001-02 or equivalent

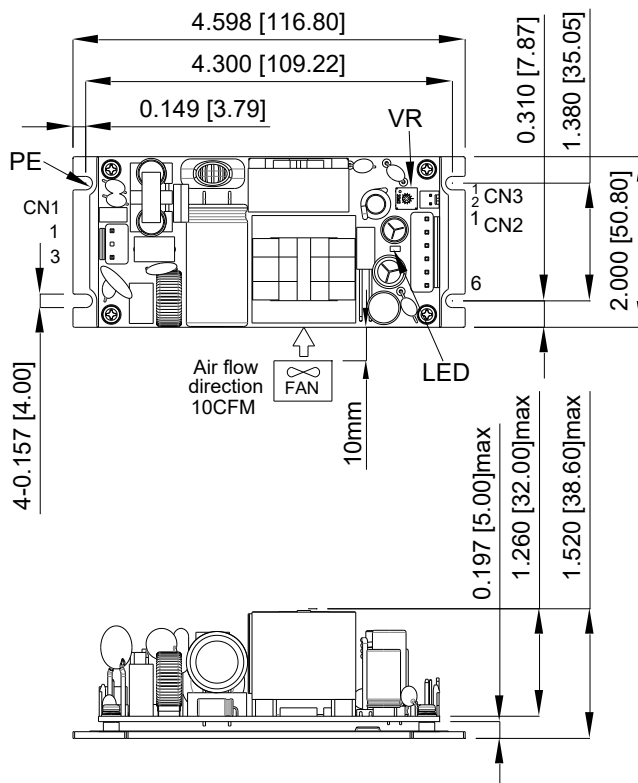
| Pin | Function    | Mating Housing                 | Terminal                       |
|-----|-------------|--------------------------------|--------------------------------|
| 1   | +Fan output | MOLEX 22-01-3027 or equivalent | MOLEX 39-00-0380 or equivalent |
| 2   | -Fan output |                                |                                |

CFM260S120/-B/-C

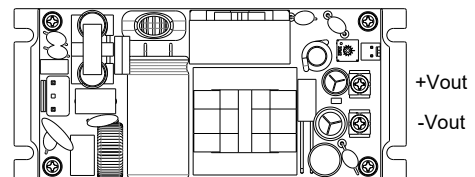
DC Output Connector:KANG YANG PCB-17AB-1

| Function | The screw locked torque |
|----------|-------------------------|
| +Vout    | M3 6kgf-cm              |
| -Vout    |                         |

### CFM260S240~480B



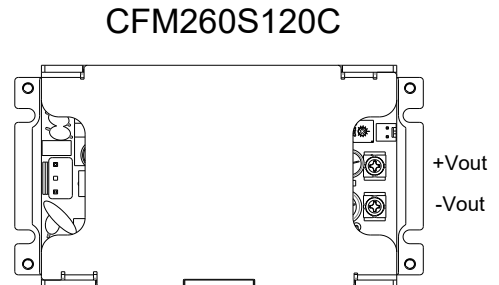
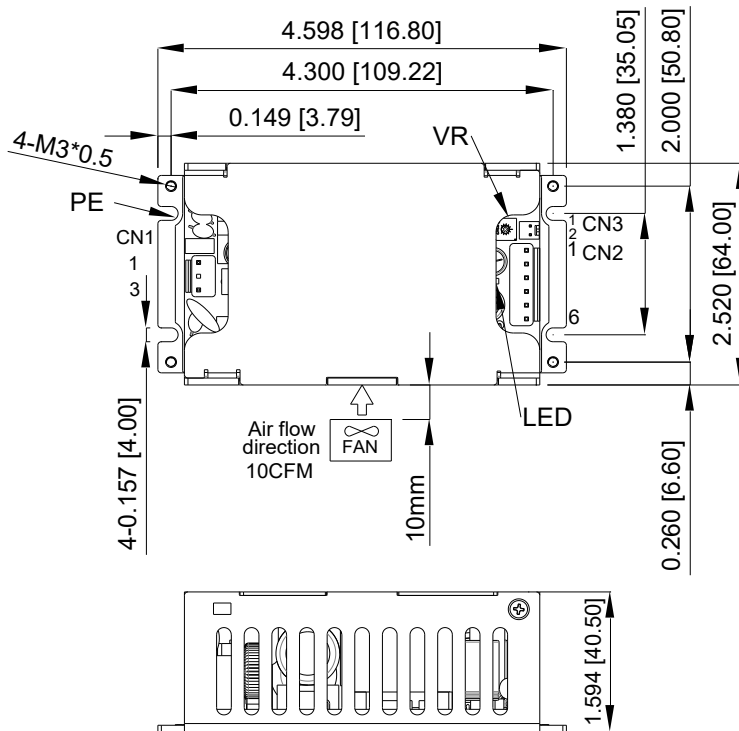
### CFM260S120B





# CFM260S Series

## MECHANICAL SPECIFICATION



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