AC-DC Switching Power Module
CFM300S Series
APPLICATION NOTE

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CFM300S Series

Application Note V14 February 2026

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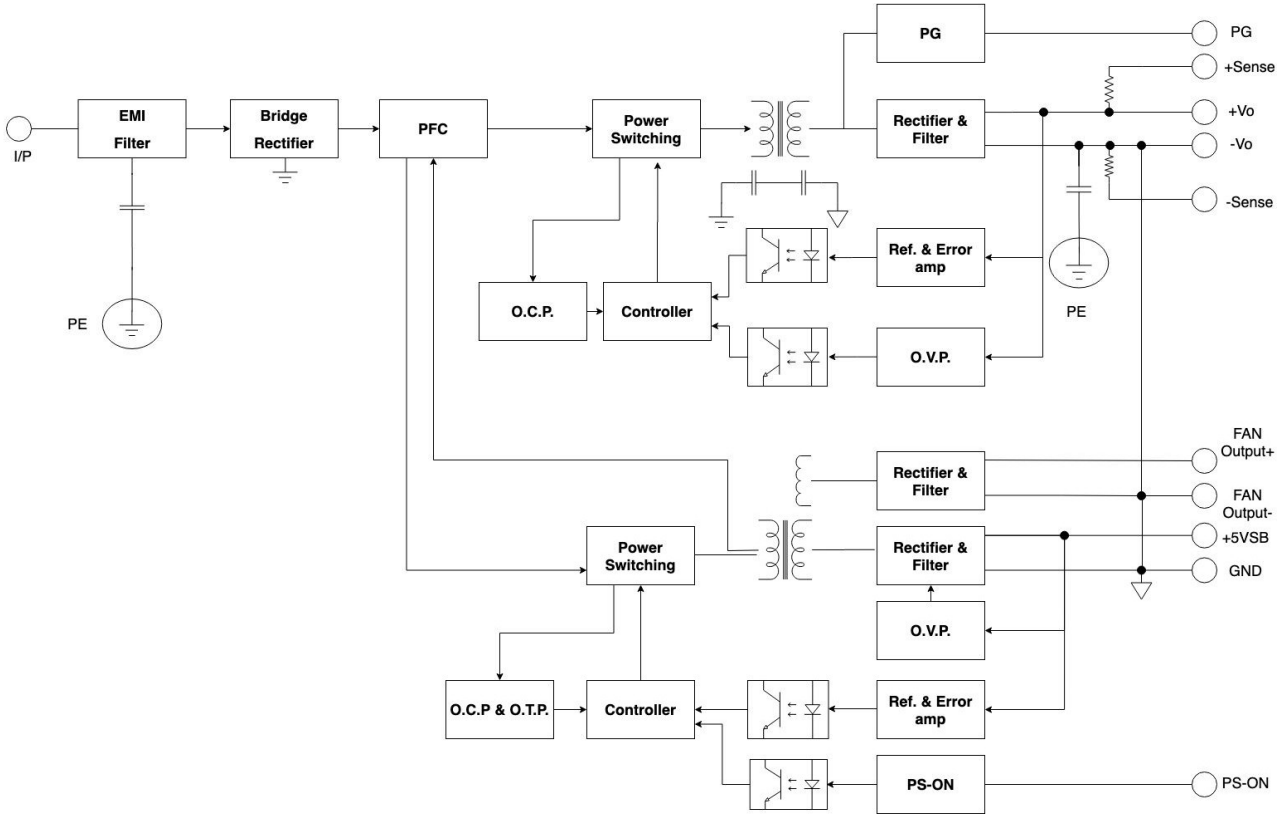
1. Introduction

This application note describes the features and functions of Cincon's CFM300S series of open frame, switching AC-DC power module. These are highly efficient, reliable, compact, high power density, single output AC/DC power modules. The module is fully protected against short circuit and over-voltage conditions. Cincon's world class automated manufacturing methods, together with an extensive testing and qualification program, ensure that the CFM300S series power module is extremely reliable.

2. Electrical Block Diagram



3. Main Features and Functions

3.1 Operating Temperature Range

The highly efficient design of Cincon's CFM300S series power modules has resulted in their ability to operate within ambient temperature environments from -40℃ to 80℃. Due consideration must be given to the de-rating curves when ascertaining the maximum power that can be drawn from the module. The maximum power which can be drawn is influenced by a number of factors, such as

- Input voltage range
- Permissible output load (per derating curve)
- Effective heat sinks

3.2 Output Protection

The power modules provide full continuous short-circuit protection. The unit will auto recover once the short circuit is removed. To provide protection in a fault condition, the unit is equipped with internal over-current protection. The unit will operate normally once the fault condition is removed. The power module will go to hiccup mode if the output current is set from 130% to 180% of rated current.

4. Applications

4.1 Test Set-Up

The basic test set-up to measure parameters such as efficiency and load regulation is shown in Figure 1. When testing the Cincon's CFM300S series under any transient conditions, please ensure that the transient response of the source is sufficient to power the equipment under test. We can calculate the

- Efficiency
- Load regulation and line regulation

The value of efficiency is defined as:

$$\eta = \frac{Vo \times Io}{Pin} \times 100\%$$

Where:

V_o is output voltage
I_o is output current
Pin is input power

The value of load regulation is defined as:

$$Load\ reg. = \frac{V_{FL} - V_{NL}}{V_{NL}} \times 100\%$$

Where:

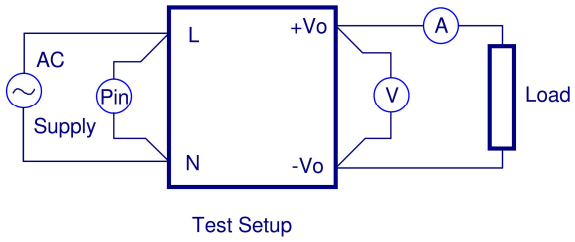
V_{FL} is the output voltage at 100% full load
V_{NL} is the output voltage at 10% load

The value of line regulation is defined as:

$$Line\ reg. = \frac{V_{HL} - V_{LL}}{V_{LL}} \times 100\%$$

Where:

V_{HL} is the output voltage of maximum input voltage at 100% full load
V_{LL} is the output voltage of minimum input voltage at 100% full load



Test Setup

Figure 1. CFM300S Series Test Setup

4.2 Output Ripple and Noise Measurement

The test set-up for noise and ripple measurements is shown in Figure 2 Measured method:

Add a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor to output at 20 MHz Band Width.

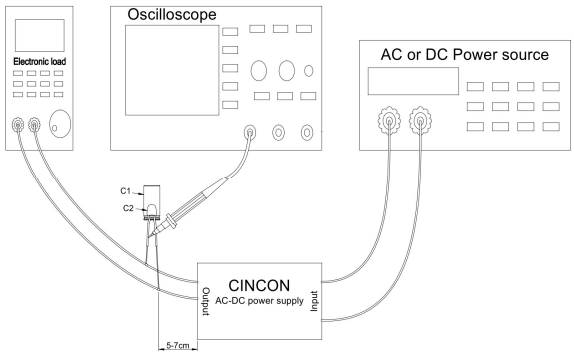
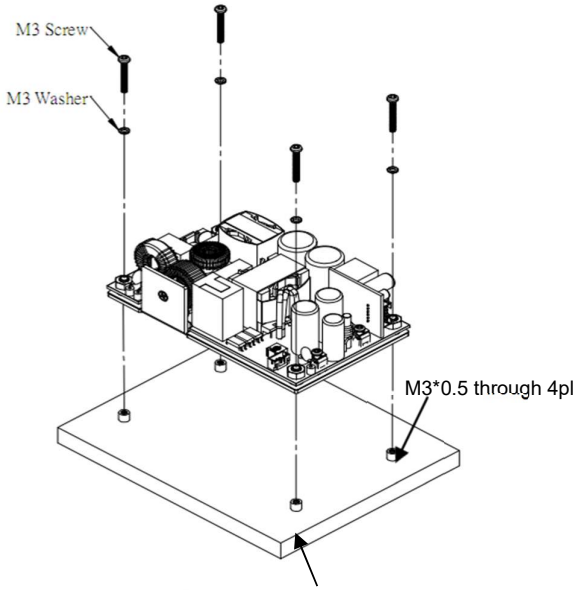


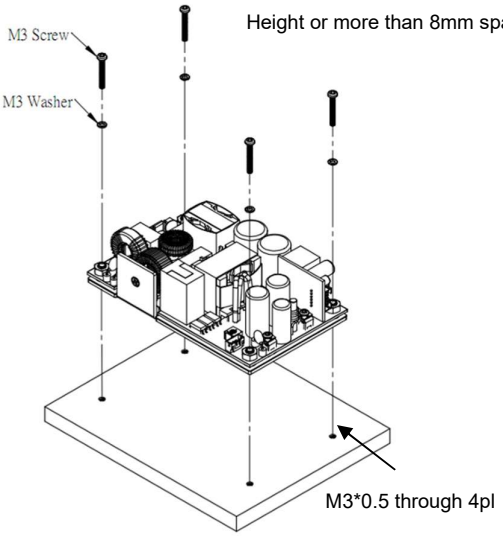
Figure 2. Output Voltage Ripple and Noise Measurement Set-Up

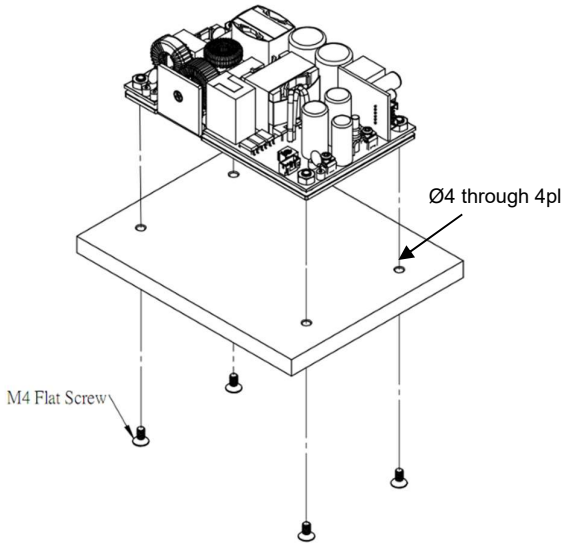
4.3 Installation Instruction

The CFM300S & CFM300SXXXC series has four 4mm diameter mounting holes. There are three type installations for CFM300S & CFM300SXXXC. Please use the mounting holes as follows:

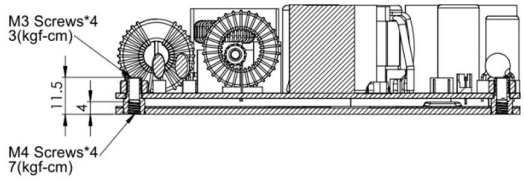
Insert the spacer (4mm diameter max.) of 8mm height or more to mount the unit. The vibration specification applies when the unit is mounted on 8mm spacers

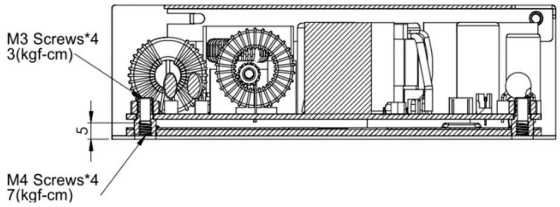




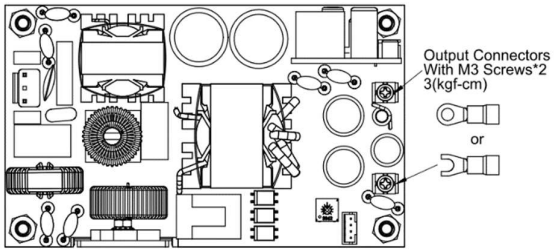


The torque of CFM300S & CFM300S-C as follows:

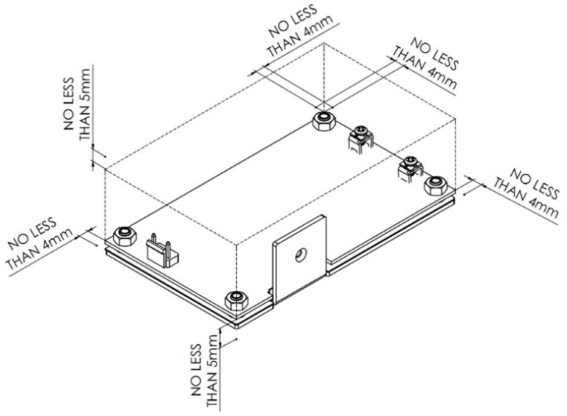




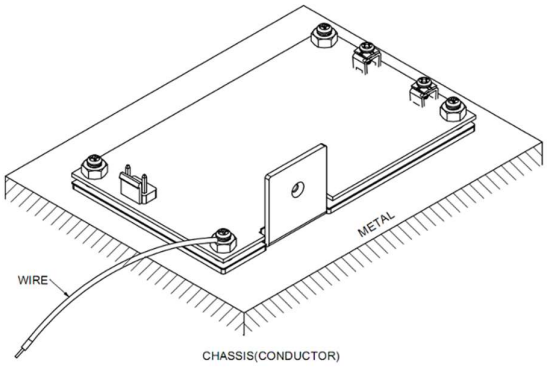
The torque of output connectors are 3kgf-cm and the connectors mate with round or Y terminal. The maximum outer diameter of the terminals are 6.75mm and the maximum inner diameter are 3.9mm. When locking the round terminal or Y terminal to output connectors, the terminals should not touch other parts to avoid short.



Please allow 4mm side clearance from the components and all side of the PCB. Allow 5mm clearance above the highest parts on the PCB. Be especially careful to allow 8mm between the solder side of the PCB and the mounting surface. If the clearances are not sufficient, the specifications for isolation and withstand will not be valid.



FG should be connected to the earth (ground) terminal of the apparatus. If not, the conducted noise and output noise will increase.

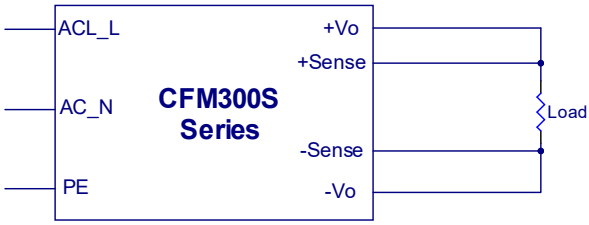


4.4. Output Remote Sensing

The CFM300S SERIES converter has the capability to remotely sense both lines of its output. This feature moves the effective output voltage regulation point from the output of the unit to the point of connection of the remote sense pins. This feature automatically adjusts the real output voltage of the CFM300S series in order to compensate for voltage drops in distribution and maintain a regulated voltage at the point of load. The remote-sense voltage range is:

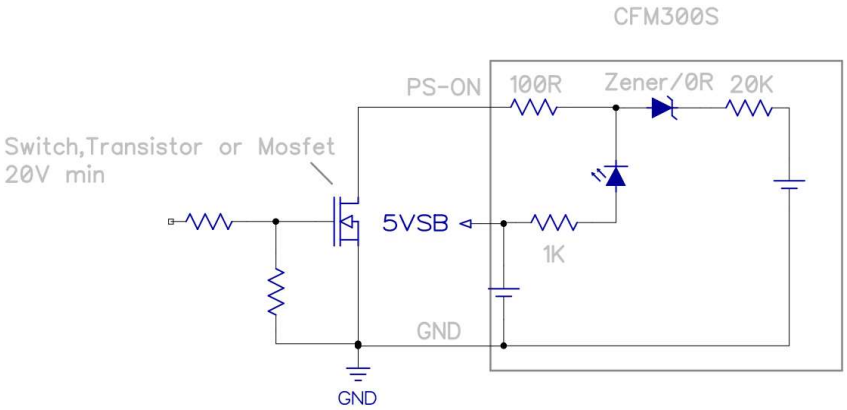
$[(+V_{out}) - (-V_{out})] - [(+Sense) - (-Sense)] \leqq 5\%$ of $V_{o_nominal}$

A Remote Sensing is provided in CN5. This is shown in the schematic below.



4.5. PS On/Off Remote Control

A PS On/Off remote control is provided in CN4. The PS-ON diagram and control function is shown as follow:



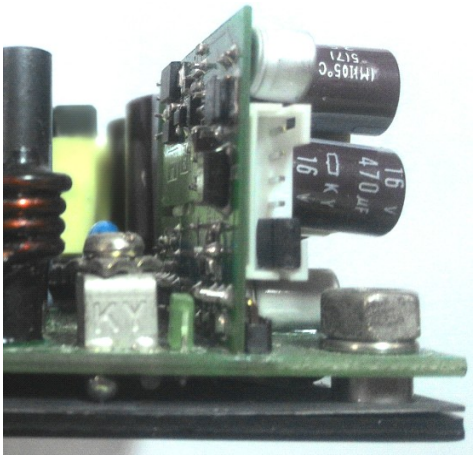
Power On: PS-ON and GND short

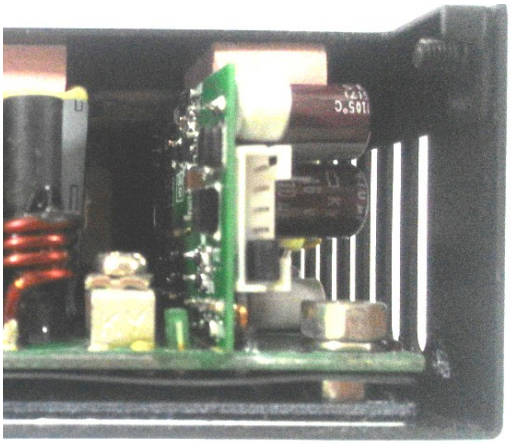
Power Off: Open circuit

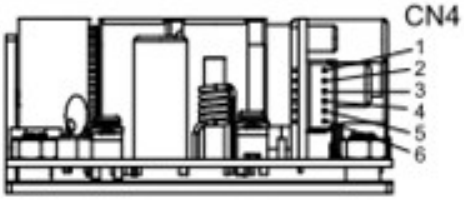
Power On / Off Switching Condition:

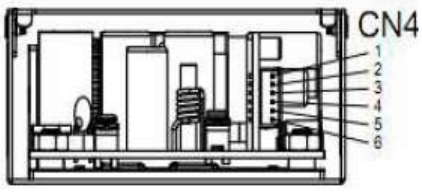
- The Power On or Power Off state must be maintained for more than 1 second.
- If faster switching (< 1 second) is required, please consult with us in advance.
- If an external voltage supply circuit causes the voltage to be outside the specified range, it may cause the circuit to malfunction or even cause the main output voltage to turn on.
- For any special use cases involving remote on/off, please consult beforehand to avoid exceeding specifications.

When the PS On/Off remote control function is not used, connect a short circuit between the PS-ON control and the signal GND.







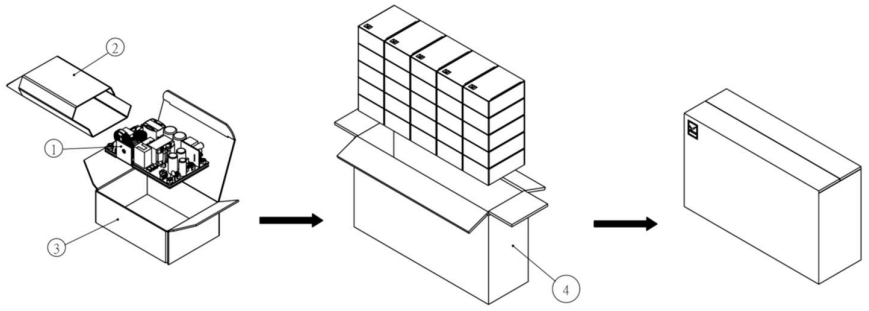


CN4:
PIN CONNECTION

Pin	Function
1	FAN Output-
2	FAN Output+
3	GND
4	+5VSB
5	GND
6	PS-ON

5. Packing Information

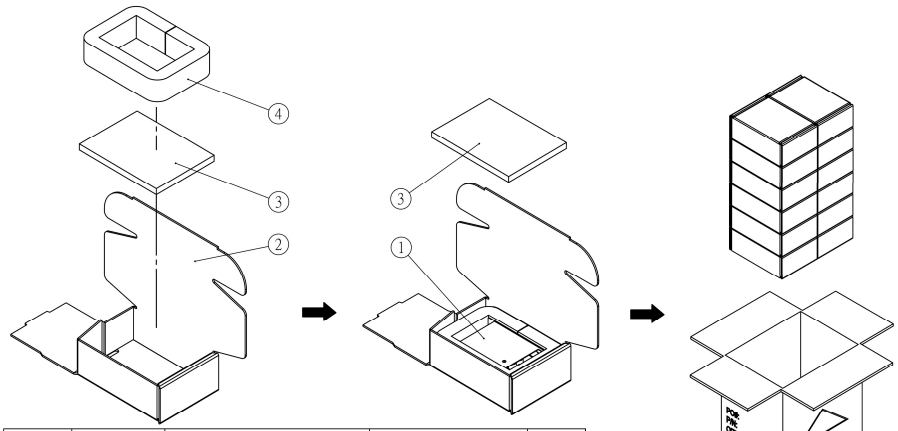
The packing information for CFM300S series is showing as follows:



ITEM	PART NO.	NAME	OUTSIDE DIM(mm)	PCS
1		CFM300S	127x76.2x29.5	25
2	G64F00005	Antistatic Bag	165x170x110	25
3	G64205245	Inner Box	140x100x55	25
4	G64112325	No.146 Cardboard Box	525x155x300	1

Each Box Packaging 25 PCS Products
Gross weight Ref. 12.7 Kg

CFM300S 25PCS a box, including the total weight of package material about 12.7Kg



ITEM	PART NO.	NAME	OUTSIDE DIM(mm)	PCS
1		CFM300S-C	136x87x40.4	12
2	G64208309	Inner Box	205x140x75	12
3	G64301235	Antistatic Foam	180x135x12	24
4	G64301236	Antistatic Foam	530x45x25	12
5	G64100141	No.47 Cardboard Box	309.1x239.4x475.7	1

Each Box Packaging 12 PCS Products
Gross weight Ref. 9 Kg

CFM300S-C 12PCS a box, including the total weight of package material about 9Kg

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