






**Cabinet Environmental Temperature Control
Module**

CMS012-S01

User Manual

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Symbol Definition	
	WARNING: Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	RISK OF ELECTRICAL SHOCK: Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	ESD HAZARD: Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user.

Safety& Caution Symbols

The following table lists Safety& Caution symbols used on equipments.














No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chasis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

Table of Contents

Cabinet Environmental Temperature Control Module CMS012-S01.....	1
Section 1 Product Overview.....	1
Section 2 Technical Specifications.....	2
Section 3 Hardware Structure.....	3
Section 4 Configuration of Fan Startup and Stop Temperature and Overtemperature Alarm Limit.....	4
Section 5 Module Dimensions and Mounting.....	5
5.1 Dimensions.....	5
5.2 Mounting.....	5
5.3 Disassembly.....	6
Section 6 Wiring Instructions.....	7
6.1 Terminals.....	7
6.2 Cable Requirement.....	7
6.3 Example of Connecting Wires.....	8
Section 7 Project Application Instruction.....	10
7.1 Precautions.....	10
7.2 Fault Analysis and Troubleshooting.....	10
7.3 Daily Maintenance.....	10
Section 8 Revision.....	11

Cabinet Environmental Temperature Control

Module CMS012-S01

Section 1 Product Overview

Cabinet Environmental Temperature Control Module CMS012-S01 (hereinafter called CMS012) is a product that can monitor and regulate the cabinet temperature independently. It can monitor temperature in real time, and turn on the fan when temperature reaches a set value (four levels of temperature can be set), accelerate the ventilation in the cabinet, so as to cool the cabinet down. It can also output contact signals of overtemperature alarm and faulty module power supply monitoring in the cabinet. There are four levels of overtemperature alarm limit to be set.

Section 2 Technical Specifications

Table 2-1 Technical specifications

Parameter		Description
Model		CMS012-S01
Working power		220 VAC \pm 10%
Temperature monitoring	Temperature monitoring range	-20 to +70 °C
	Temperature monitoring accuracy	\pm 2 °C
	Overtemperature alarm limit	You can set 40°C, 45 °C, 50 °C or 60 °C
Supply power of fan	Number of fans that can be started or stopped	4
	Power supply voltage and current	Voltage: 220V AC \pm 10%; current: 60 mA (max)
	Temperature of fan startup	You can set 20 °C, 25 °C, 30 °C or 35 °C
	Temperature of fan stop	2.5 °C lower than the startup temperature
Alarm output	Type of overtemperature and power supply alarm contact	Photoelectroisolated transistor
	Specification of overtemperature and power supply alarm contact	Voltage: 60V (max); current: 50mA (max)
	Overtemperature and alarm contact	ON: alarm; OFF: normal
	Power supply alarm contact	ON: power supply is normal; OFF: power supply is abnormal
EMC level		Industrial III B
Anti-corrosion		G3 anti-corrosion
IP rating		IP20
Dimensions (W \times H \times D)		78 mm \times 105 mm \times 53 mm
Temperature	Operating temperature	-20 to +70 °C
	Storage temperature	-40 to +85 °C
Humidity	Operating humidity	10% to 90% (RH), non-condensing
	Storage humidity	5% to 95% (RH), non-condensing

Section 3 Hardware Structure

The hardware structure of SMS012 is shown in Figure 3-1.

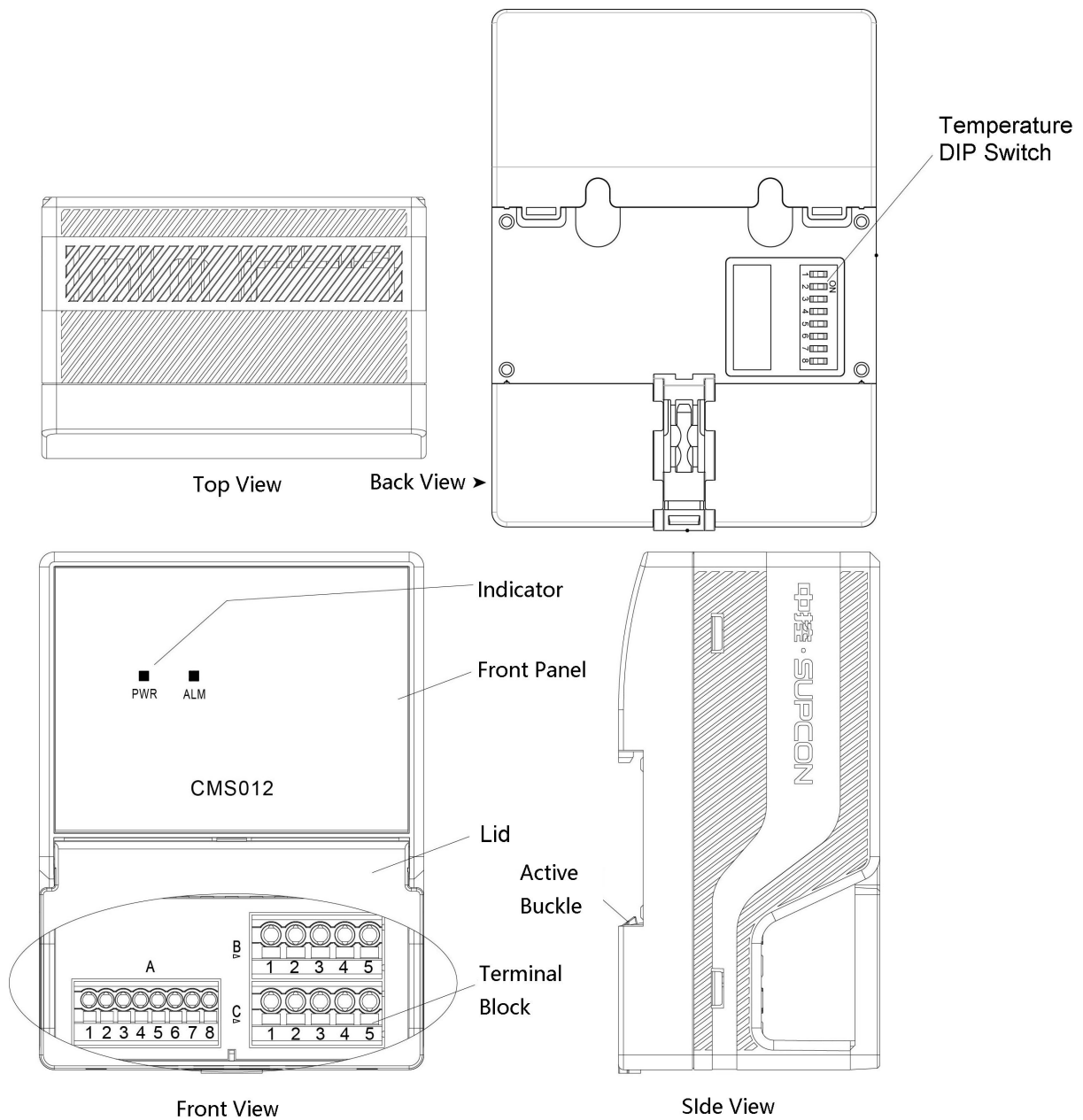


Figure 3-1 Module structure

Section 4 Configuration of Fan Startup and Stop Temperature and Overtemperature Alarm Limit

There is an 8-pin DIP switch on the back of the module. DIP 1 to 4 control the fan startup temperature, and DIP 5 to 8 control the alarm temperature. If the DIP is set to ON, it means it is set to the corresponding temperature. The corresponding relationship between DIP and temperature is shown in Table 4- 1.

Table 4- 1 Corresponding relationship between DIP and temperature

DIP	Function	Corresponding Temperature	Meaning
1	Startup and stop temperature of the fan	20°C	It monitors the cabinet temperature. When the temperature reaches to the set value, all the fans in the cabinet will be turned on; when the temperature is 2.5 °C lower than the limit, all the fans will be stopped, For example: if the set temperature to startup the fan is 20 °C, fans will be turned off when temperature is lower than 17.5 °C.
2		25°C	
3		30°C	
4		35°C	
5	Overtemperature alarm limit	40°C	It monitors the cabinet temperature. When the temperature reaches the set value, alarm indicator ALM lights red and output alarm signal; when the temperature is lower than the alarm limit, alarm stops.
6		45°C	
7		50°C	
8		60°C	

Section 5 Module Dimensions and Mounting



Risk of Electrical Shock:

Power supply of the module must be cut off before the mounting.

5.1 Dimensions

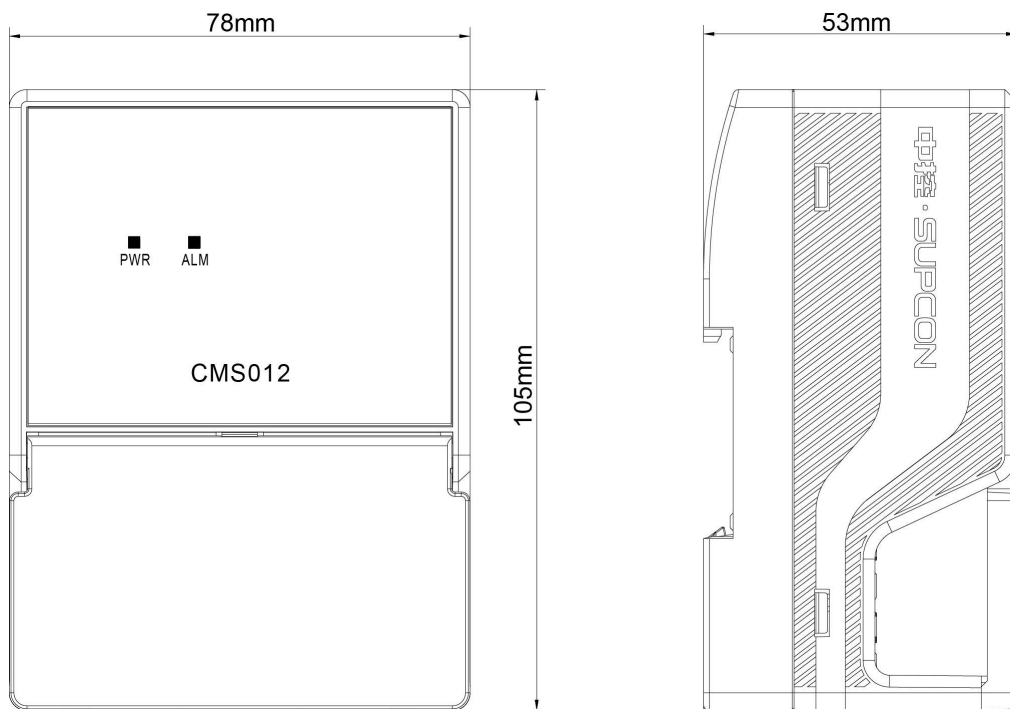


Figure 5-1 Dimensions

5.2 Mounting

The module applies standard DIN rail and it's generally mounted at the cabinet or the air outlet of the console.

- 1) Attach the side without a buckle of the module to the rail, as ① shows in Figure 5-2.
- 2) Rotate the module and fix the side of active buckle into the rail as ② shows in Figure 5-2 to complete the installation.
- 3) Connect the wires and sort them.

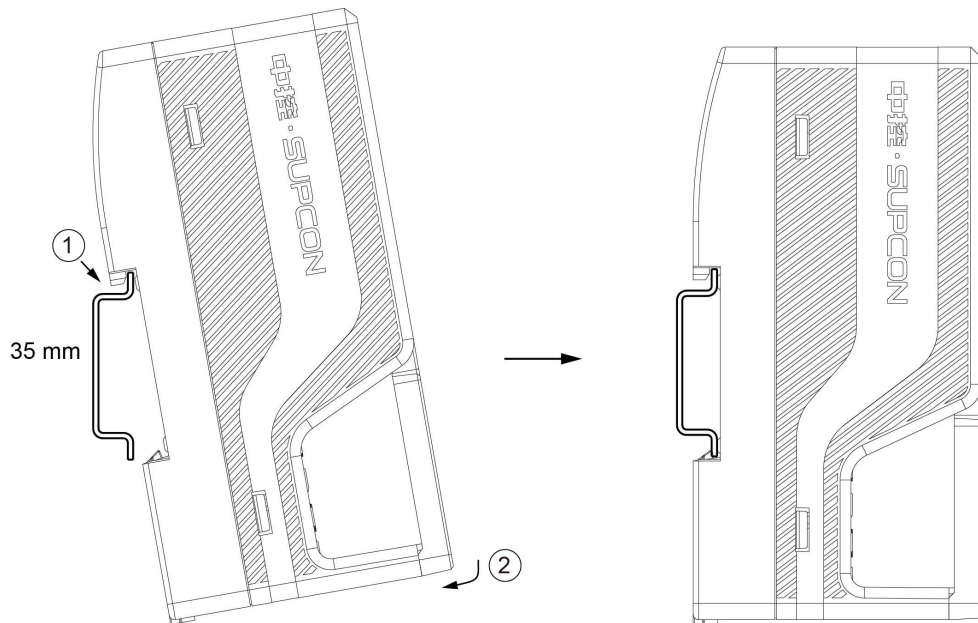


Figure 5-2 Mount the module

5.3 Disassembly

- 1) Cut off the power supply and disassemble the wires.
- 2) Pry open the active tab with the slotted screwdriver (medium or small size), as ① shows in Figure 5-3.
- 3) Rotate the module, as ② shows in Figure 5-3.
- 4) Remove the module from the guide rail and finish the disassembly.

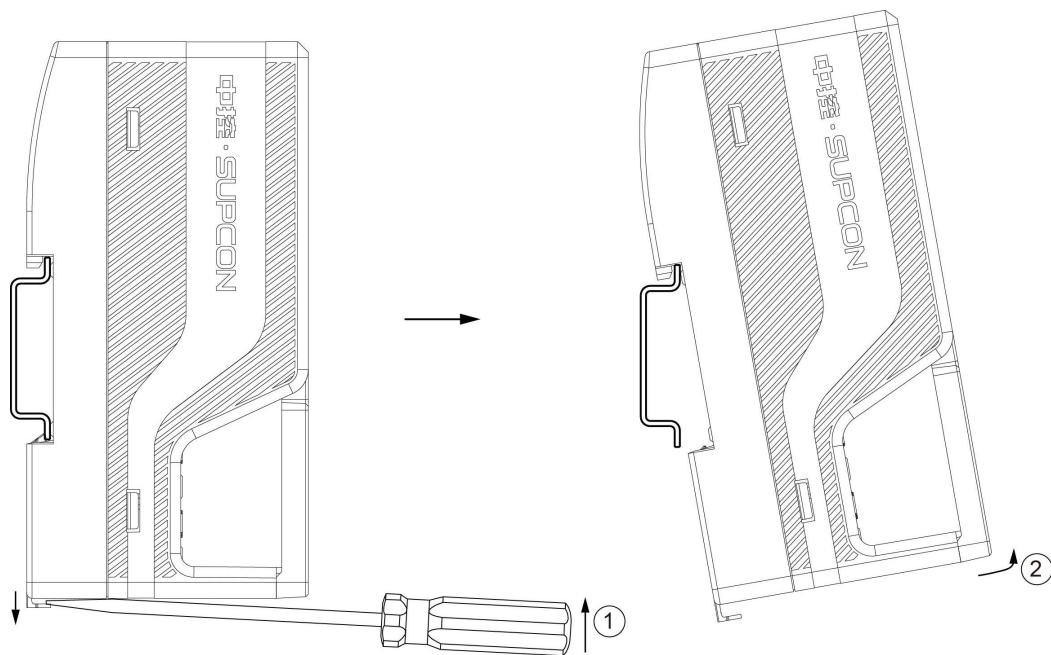


Figure 5-3 Disassemble the module

Section 6 Wiring Instructions

6.1 Terminals

The terminal blocks are underneath the lid on the front of CMS012. The terminals are shown in Table 6-1 and Table 6-2.

Table 6-1 Terminal wiring instruction of row A

Terminal mark of row A	Terminal description of row A
1	Power supply signal+
2	Power supply signal-
3	Temperature alarm signal+
4	Temperature alarm signal-
5 to 8	Empty

Table 6-2 Terminal wiring instruction of row B and row C

Terminal mark of row B	Terminal instruction of row B	Terminal mark of row C	Terminal instruction of row C
1	L (220V AC power supply input-fire wire-working power of device)	1	N (220V AC power supply input-null wire-working power of device)
2	L (220V AC power supply output-fire wire-the first fan)	2	N (220V AC power supply output-null wire-the first fan)
3	L (220V AC power supply output-fire wire-the second fan)	3	N (220V AC power supply output-null wire-the second fan)
4	L (220V AC power supply output-fire wire-the third fan)	4	N (220V AC power supply output-null wire-the third fan)
5	L (220V AC power supply output-fire wire-the fourth fan)	5	N (220V AC power supply output-null wire-the fourth fan)

6.2 Cable Requirement

Terminal Cable Requirement

The cable fitted to the terminal of row A is shown in the table below.

Table 6-3 Terminal cable requirement of row A

Parameter	Description
Cross-sectional area	0.2 to 1.5 mm ²

Parameter	Description
Stripping length	10mm
Slotted screwdriver	(0.4× 2.5) mm

The cable that fits terminals of row B and row C is shown in the table below.

Table 6-4 Terminal cable requirement of row B and row C

Parameter	Description
Cross-sectional area	0.2 to 2.5 mm ²
Stripping length	10mm
Slotted screwdriver	(0.4× 2.5) mm

6.3 Example of Connecting Wires

Example of connecting wires of CMS012 is as shown below.

- The power supply alarm contact signal and temperature alarm contact signal output by CMS012 are connected to DI module.
- The 220VAC power supply ports B1 (L) and C1 (N) are connected to 220VAC power supply.
- The 220VAC power supply ports B2 to 5 (L) and C2 to 5 (N) are respectively connected to power supply port on the four fans.

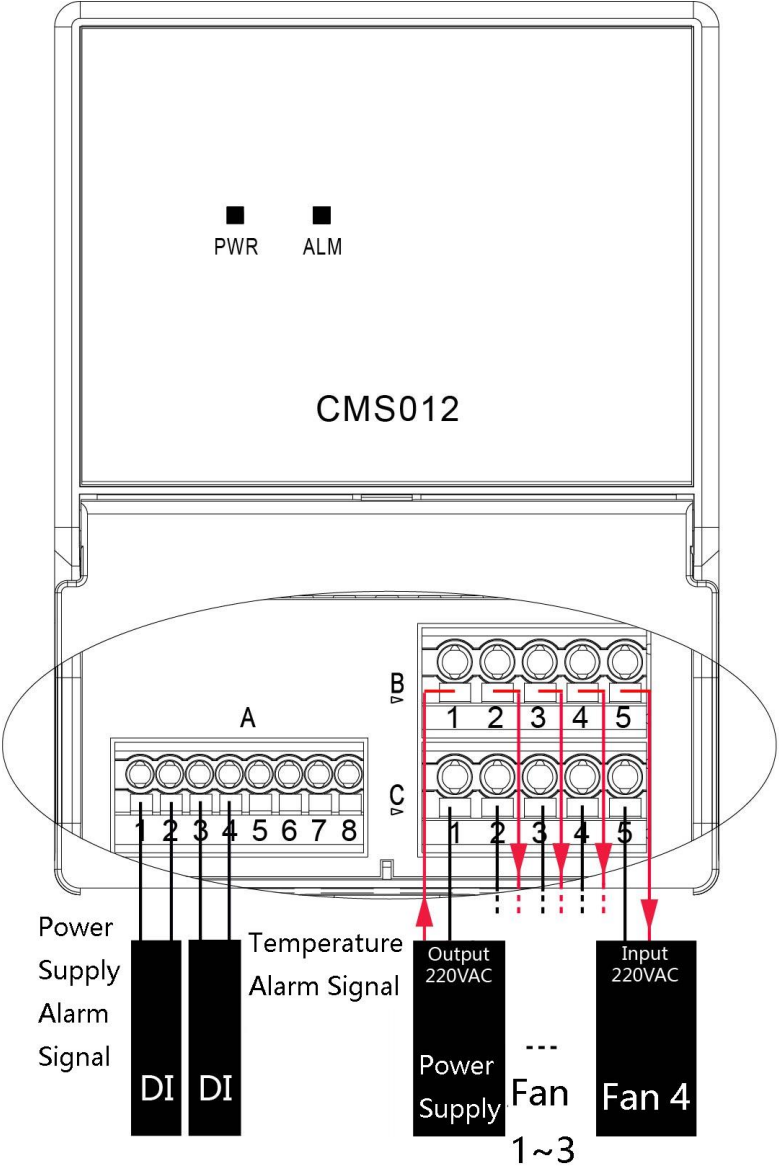


Table 6-5 Example of connecting wires

Section 7 Project Application Instruction

7.1 Precautions

1. Together with DI module, CMS012 sends the alarm information to system status diagnostic software according to the input method of dry contact signal.
2. There is no fuse when CMS012 outputs 220V AC, so it's recommended to add a fuse with a capacity of about 1 A on the external to protect from short circuits when connecting fans to supply power.

7.2 Fault Analysis and Troubleshooting

There is a group of indicators on the module panel which indicate the module operating status. When the fault occurs, you can troubleshoot according to the table below.

Table 7-1 Indicator's illustration

Indicator	Status	Indication and Solution
ALM	OFF	Normal
	Solid red	Overtemperature
PWR	Solid green	Normal
	OFF	The power supply is abnormal. Please check the power supply or change the module.

7.3 Daily Maintenance

When using CMS012, you should check it regularly and check whether the performance of the status indicator is normal or not.

When the control system is off and need maintenance, you can check if the input and output port connections are loose, the module power supply and alarm output are normal.

Section 8 Revision

Table 8- 1 Revision history

Version	Applicable Product Model	Remarks
V1.0 (20230425)	CMS012-S01 V10.00.00	