(English)
Ver. 1.0

MULTI FAN CONTROLLER

ZM-MFC3

User's Manual

※ Please read thoroughly before installation.
※ The specifications of the product may change without prior notice to improve performance.

ZALMAN
COOL INNOVATIONS

Safety Precautions

▣ The following precautions and directions are measures against possible accidents and injuries. Please read them thoroughly before using this product.

Warning — **Neglecting the following may cause serious injury or death.**

- ▶ Opening the cover of the product while the power cord is plugged into the Current/Voltage Sensor (CVS) may cause electrocution of the user or critical damage to the product.
- ▶ Handling the power cord with wet hands may cause electrocution.
- ▶ During heavy lightning storms, unplug the main power cord from the CVS to prevent possible system damage and fire hazards.
- ▶ Plugging in the CVS Cable of the CVS into the motherboard's USB port may damage the motherboard and CVS.
- ▶ If the current to be measured exceeds 10A (RMS), use a cable or conductor that allows current greater than the current to be measured to flow through it, and always connect protective grounding prior to use of this instrument.

Caution — **Neglecting the following may cause minor injuries, degrade product conditions, or cause malfunction.**

- ▶ Operating the product in an extremely cold or hot environment can degrade product performance and life span.
- ▶ Allowing liquids to enter the product can result in malfunction.
- ▶ Operating in a humid or non-ventilated environment can reduce product life span.
- ▶ Do not place heavy objects on top of the CVS.
- ▶ Must use a well wrung-out cloth to clean the CVS.
- ▶ Using the product for purposes not specified by ZALMAN may cause damage to other devices connected to this product.
- ▶ Must be installed on an easily reachable location.

Disclaimer) Zalman Tech Co., Ltd. is not responsible for any damages due to extemal causes, including but not limited to, improper use, problems with electrical power, accident, neglect, alternation, repair, improper installation, or improper testing.

Environmental Conditions

This product must be used under the following environmental conditions:

a) Indoor use b) Altitudes up to 2,000m c) Temperatures between 5 ℃ and 40 ℃

d) Maximum relative humidity 80% for temperatures up to 31 ℃ decreasing linearly to 50% relative humidity at 40 ℃

e) MAINS supply voltage fluctuations within ±10% of the nominal voltage

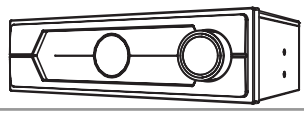
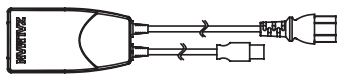
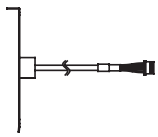
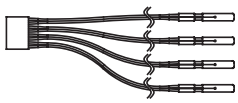
Specifications

Dimensions	147 × 87 × 42 (mm)
Power & Temperature Display	10 ~ 999W / -9.9℃ ~ +99.9℃
Fan Compatibility	1 × 4-Pin (Supports fans with PWM function)
	3 × 3-Pin (Supports fans with RPM output function)
Fan RPM Control (60 ~ 5,940 RPM)	PWM Regulation Method (Fan PWM)
	Voltage Control Method (Fan No.1 ~ 3)
Output Current	MAX 0.7A
Output Voltage	+4 ~ 11VDC
Input Voltage	+12VDC / 5VDC

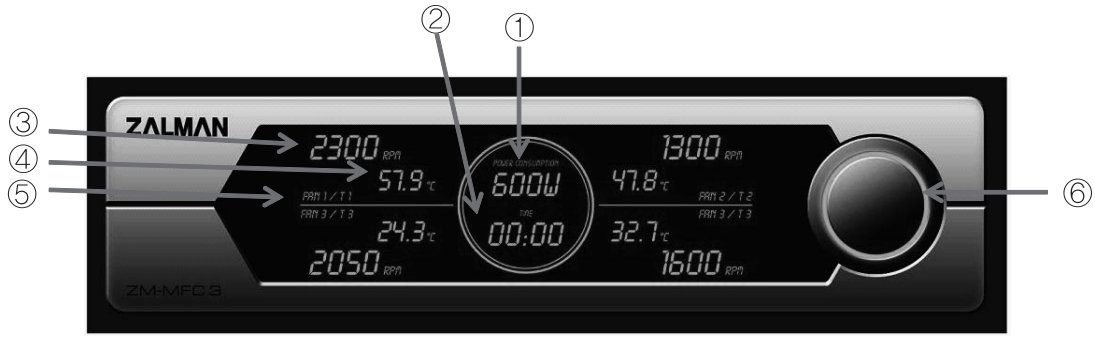
CVS Specifications

Input	100 - 240V~, 50 / 60Hz, 10A
Bypass Output	100 - 240V~, 50 / 60Hz, 10A
Output	5V~, 0.03A

Components

Component	Part Name	Included
	ZM-MFC3	1
	CVS (Ampere/Voltage Sensor)	1
	CVS Extension Bracket	1
	Temperature Sensor	1
	C3 Cable	1
	Y Cable	1
	4-Pin Cable	1
	3-Pin Cable	1
	Bracket Screw (UNC #6-32×6)	1
	MFC3 Installation Screw (PWH M3×5)	4

Front Panel



① Power Load Meter : Displays Power Load between 10 ~ 999W.
Readings of 1 ~ 9W are shown as “Lo” and readings of 1000W+ are shown as “Hi.”

② Timer : Timer shows Computer usage time and resets when Computer is turned OFF.

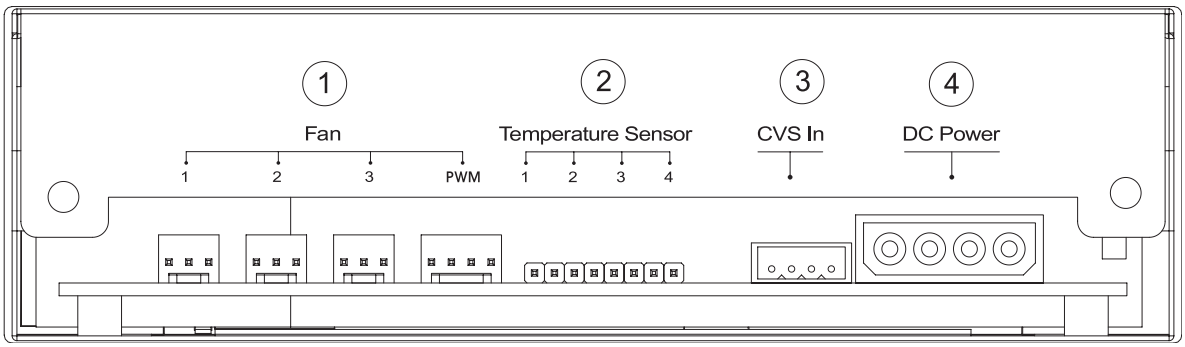
③ RPM Display : RPM is displayed in units of 10RPM. Values of 200RPM and below are shown as “0.” Values between 201 ~ 6000RPM are supported by the display.

④ Temperature Display : Displays temperatures between -9℃ and +99℃. Temperatures below -10℃ are shown as “Lo.” The Display will blink temperatures between 80 ~ 99.9℃ and display “Hi” for temperatures above 99.9℃.

⑤ Fan Channel Display

⑥ Jog Wheel : Jog Wheel is used for adjusting Fan RPM and selecting a Fan Channel. RPM can be set from 60 to 6000RPM in units of 60RPM.

Back Panel



① Standard Fans (Fan 1~3): 3-Pin fans that support the RPM output function can be connected for use. PWM Fan : A 4-Pin fan that supports the PWM function can be connected for use.

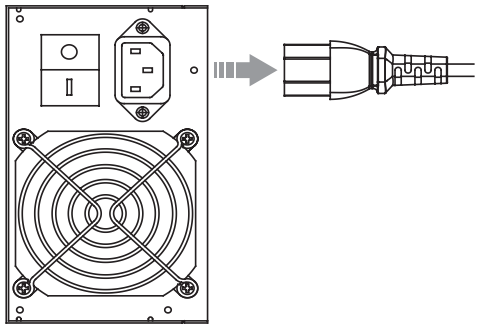
② Temperature Sensing: Four temperature sensors can be connected.

③ CVS Terminal: Receives the measured values of the CVS.

④ Power Connector: Connects with the PSU’s 4-Pin connector.

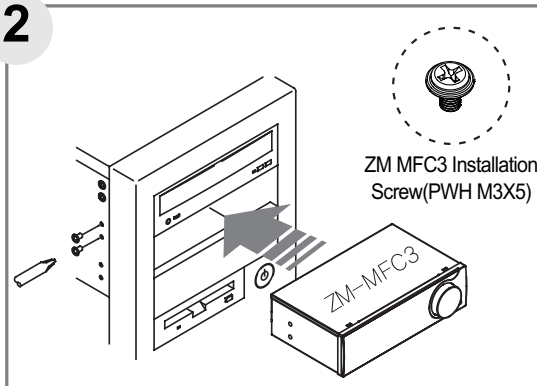
Installation

1



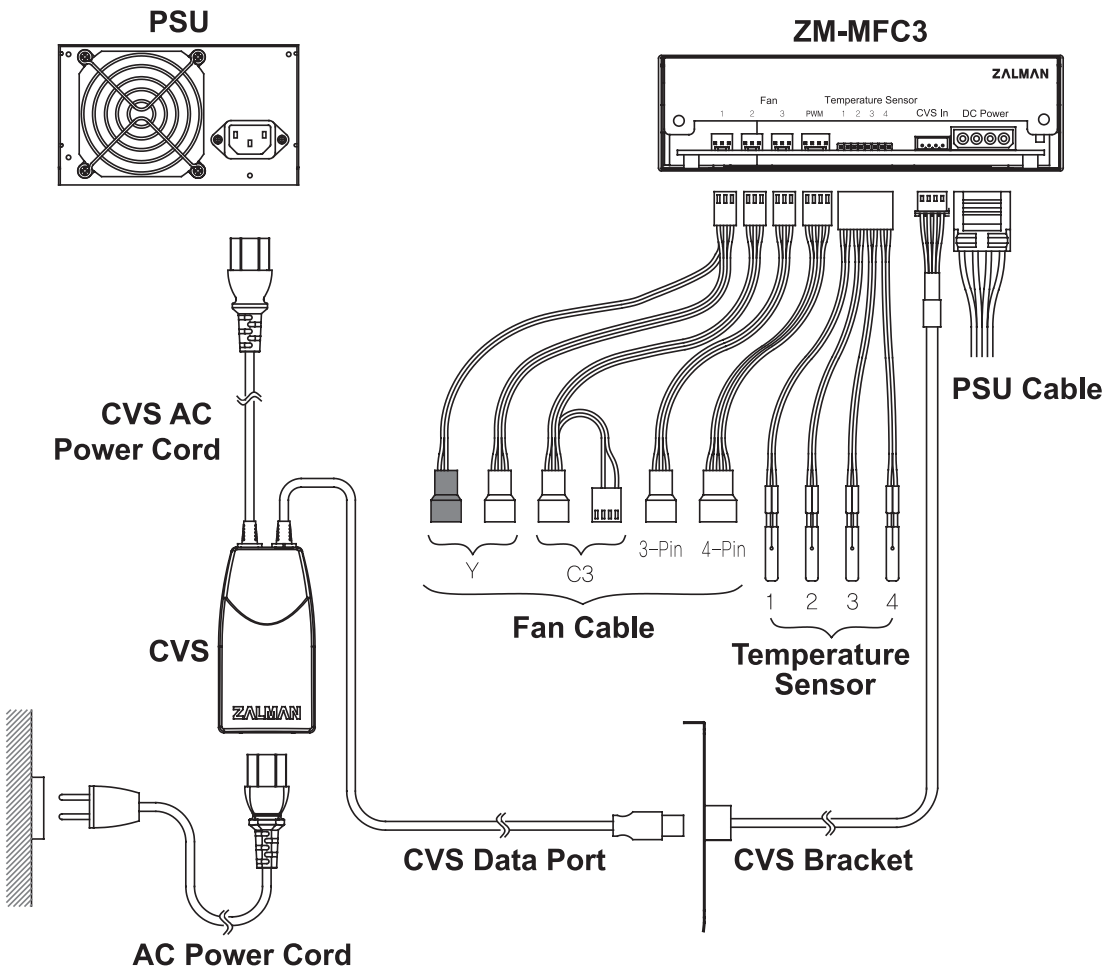
Turn the computer's power OFF and unplug the Main Power Cord before installing ZM-MFC3.

2



Install the ZM-MFC3 into a 5.25" ODD bay as shown in the diagram.

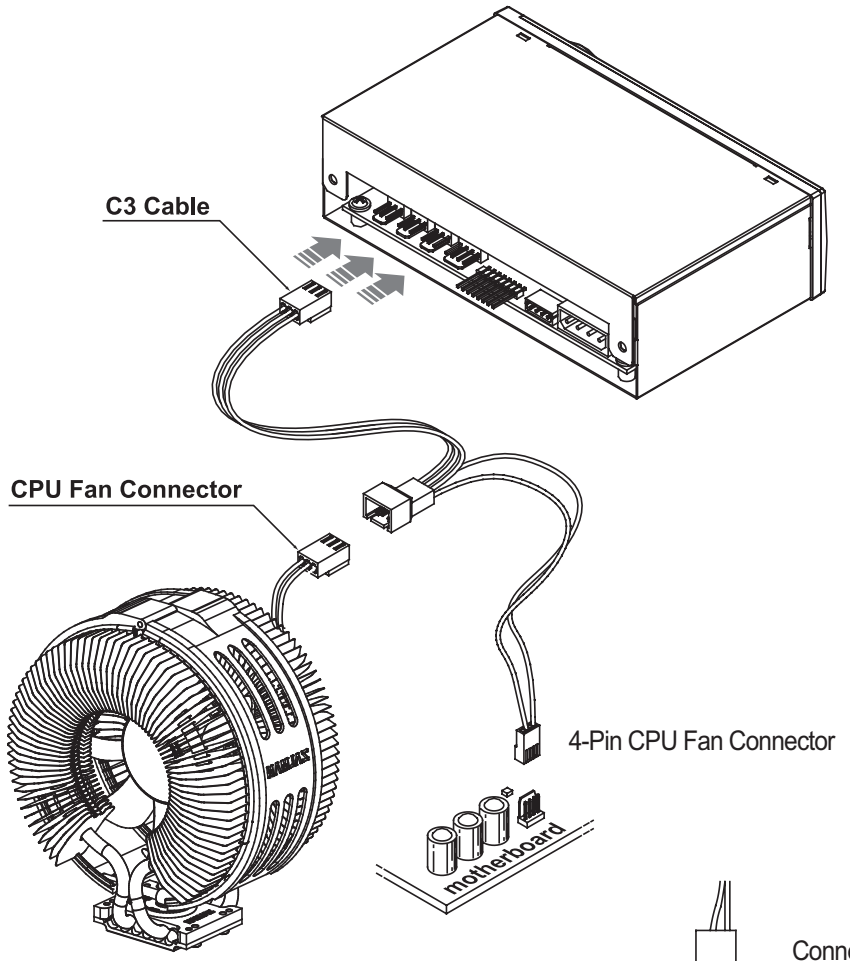
3

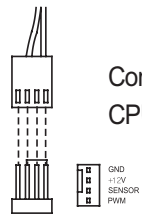


Connect the components as shown above and use adhesive tape to connect the temperature sensors to components for temperature monitoring. Please refer to pages 5~6 for C3 and Y Cable connection instructions.

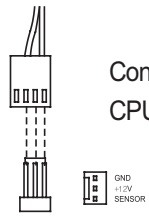
C3 Cable Connection

The C3 Cable sends the CPU fan's RPM signal to the motherboard to prevent malfunction during booting.





Connection to a 4-Pin CPU Fan Header



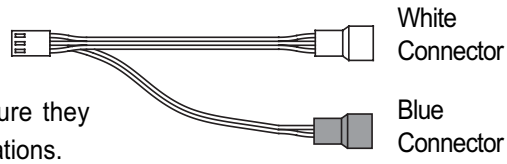
Connection to a 3-Pin CPU Fan Header

Tip

※ An error can occur if the fan RPM is set too low. In this case, deactivate the monitoring feature for the CPU fan in the BIOS. For BIOS settings information, contact the motherboard's manufacturer.

Y Cable Installation

1. When connecting the Y Cable with only ONE FAN, the White Connector must be used.
2. When connecting the Y Cable with multiple fans, to ensure they operate at the same speed, use fans with identical specifications.



Warning

※ If fans are connected using only the Blue Connector, the RPM cannot be controlled.

Operational Guidelines

1. Pressing the Jog Wheel for 3 seconds will enter Setting Mode.
2. While the Channel is blinking, turning the Jog Wheel counter-clockwise will decrease the RPM and and turning it clockwise will increase the RPM.
3. After the desired RPM is reached, pressing the Jog Wheel will save the RPM setting and the next Channel will be displayed. (Ch1 → Ch2 → Ch3 → Ch4 → Standby)
4. Five seconds without any input will cause the display to Exit Setting Mode.

Warning

※ RPM settings that exceed fan specs will not affect the fan beyond its specs. A fan with a maximum RPM of 3000RPM will operate at a maximum of 3000RPM even if the setting is at 5000RPM.

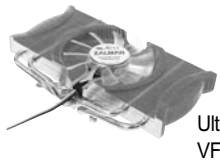
Items to Check Before Reporting for Malfunction

1. Be sure that the CVS is properly connected to the ZM-MFC3 and PSU.
2. Be sure that all the cables are connected properly.
3. Check the fans' specifications.
   (1) 2-Pin fans that do not support the RPM output function cannot be controlled. 3-Pin fans that support the RPM output function and output 2 clock pulses per cycle must be used.
   (2) A 3-Pin fan connected to the PWM 4-Pin connector will not enable RPM control.
4. If a faulty fan is used, noise will interfere with the RPM clock waves and disrupt accurate RPM control.
5. Fans with a specified minimum RPM may repeatedly stop and restart, but this is not a defect of the ZM-MFC3. Please set the RPM above the specified minimum RPM of the fan.

Zalman's CNPS (Computer Noise Prevention System) Products

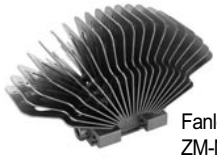
For a stable and noiseless system of the highest quality, use Zalman's Ultra Quiet CPU Coolers, Ultra Quiet VGA Coolers, Ultra Quiet Power Supplies, Heatpipe HDD Cooler, Fanless Northbridge Coolers, and Noiseless Case Fans.

Ultra Quiet CPU Cooler
CNPS9900 LED



Ultra Quiet VGA Cooler
VF1000 LED

Ultra Quiet Power Supply
ZM1000-HP



Fanless Northbridge Cooler
ZM-NBF47

Silent Case Fan
ZM-F1, F2, F3

Heatpipe HDD Cooler
ZM-2HC2

International Safety and EMC Certifications

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Product Warranty (International)

Thank you for purchasing Zalman's product.

Warranty - If this product has any defects, Zalman guarantees that it can be exchanged within one (1) year from the date of purchase.

* Product exchange can be arranged with the reseller where the product was purchased.
For further inquiries, visit the "Get Support" section of Zalman's website at www.zalman.com.

There will be no exchanges in the following cases:
A) Violation of the Safety Precautions and the instructions in this manual.
B) Human fatality and/or property damage due to events of natural causes.
C) External case damage, electrical problems, and damage to components caused by user fault.

Contact Information

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Disposal of Old Electrical & Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)