PWM Compatibility Guide - How To
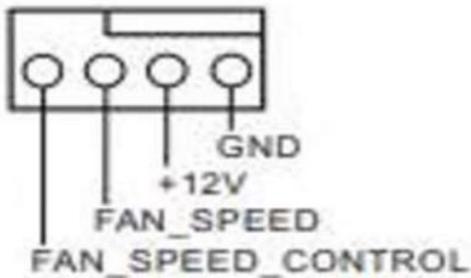
To check motherboard compatibility with AeroCool PWM function, ensure your motherboard header *Pin No. 4* has listed *FAN-SPEED-CONTROL* and *12V* on *Pin 2*. Example from Asrock Z87 Fatal1ty, where *Pin No. 4 - Fan_Speed_Control* and *Pin No. 2 is +12V.* This will allow you to have PWM control through AeroCool Hub.
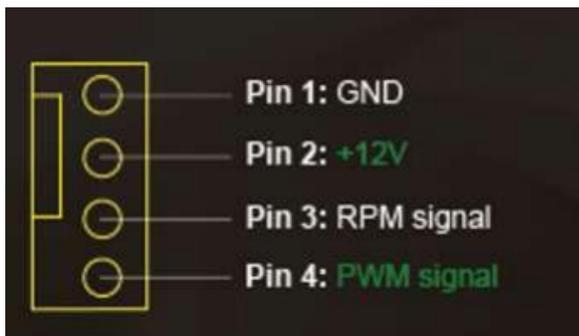Note: RPM will not be displayed.

For additional motherboard configurations, please read below:

1. How to find out if a fan header on your motherboard supports PWM?
Some motherboards feature 4-pin fan headers that actually DO NOT use a PWM signal on Pin No. 4 to control the fan speed but rather reduce the voltage on Pin No. 2 (also known as DC mode). Modern motherboard fan headers would have dual control modes, that allows you to select PWM or DC control mode.

Please refer to your motherboard manual to check whether your motherboard has 4-pin fan headers that control the fan speed by reducing voltage on Pin 2 or PWM cycle/Speed Control on Pin 4. See image below.

Look out for terms that may indicate the header is NOT using PWM, for example, if you see "VCC" on Pin 4 or "Speed Control" on Pin 2, then we can be sure the header does not support PWM.
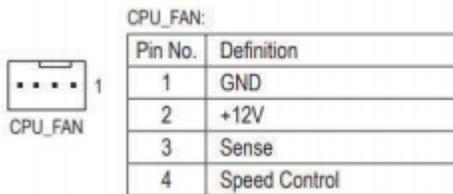
2. I have two Fan Header types. What do I do?

Let's use GIGABYTE GA-B85M-D3H that comes with two types of headers: Gigabyte GA-B85M-D3H motherboard comes with two types of headers. AeroCool Hub only works on the CPU_FAN Header. Further, explanation below.

A. On SYS_FAN1/SYS_FAN2/SYS_FAN3 header

SYS_FAN1/SYS_FAN2/SYS_FAN3:

Pin No.	Definition
1	GND
2	+12V /Speed Control
3	Sense
4	VCC

We can see that *Pin No. 4* uses *VCC* and *Pin No. 2* has *+12V/Speed Control.* As a result this header does NOT support PWM, and as a result will NOT work with AeroCool hub.
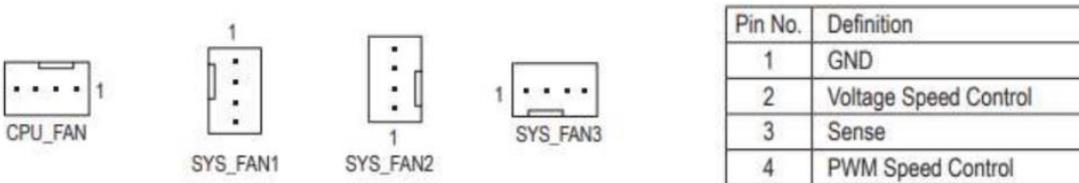
B. On CPU_FAN header

CPU_FAN:

Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control

We can see that *Pin No. 4* supports *Speed Control*, and will work with AeroCool Hub for PWM speed control.

3. My motherboard manual shows Speed Control on both Pin 2 and Pin 4. Is this compatible with AeroCool Hub?

Most modern motherboards are equipped with fan headers that have dual control mode, both PWM and DC control mode are possible on the same fan header. As can be seen on Pin 2 and Pin 4 definition, where we have speed control on both. See below:

CPU_FAN   SYS_FAN1   SYS_FAN2   SYS_FAN3

Pin No.	Definition
1	GND
2	Voltage Speed Control
3	Sense
4	PWM Speed Control

For headers such as these, there is usually an option within BIOS/UEFI to set the control mode to either PWM or DC. First, connect the hub to the fan header. Enter BIOS/UEFI mode and set the control mode for the connected fan header to PWM mode. Some illustrations below:

To Test if your PWM is functional: Go to Speed Settings on your BIOS/UEFI for the connected fan header. Toggle the speed between full speed and silent mode to ensure that PWM functions are working.

If PWM still does not work, please contact us for troubleshooting: techsupport@aerocool.com.tw