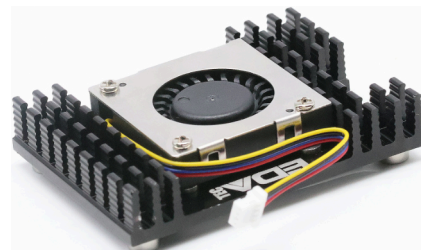


ED-CM5ACOOOLER

Active Cooler for Raspberry Pi CM5

- ◆ Aluminium profile, CNC cut, easy to install
- ◆ Active Cooler with a temperature-controlled blower fan and pre-installed with thermal conductive silicone
- ◆ Excellent cooling performance to reduce the temperature of Raspberry Pi CM5 CPU, Wi-Fi module and power management chip



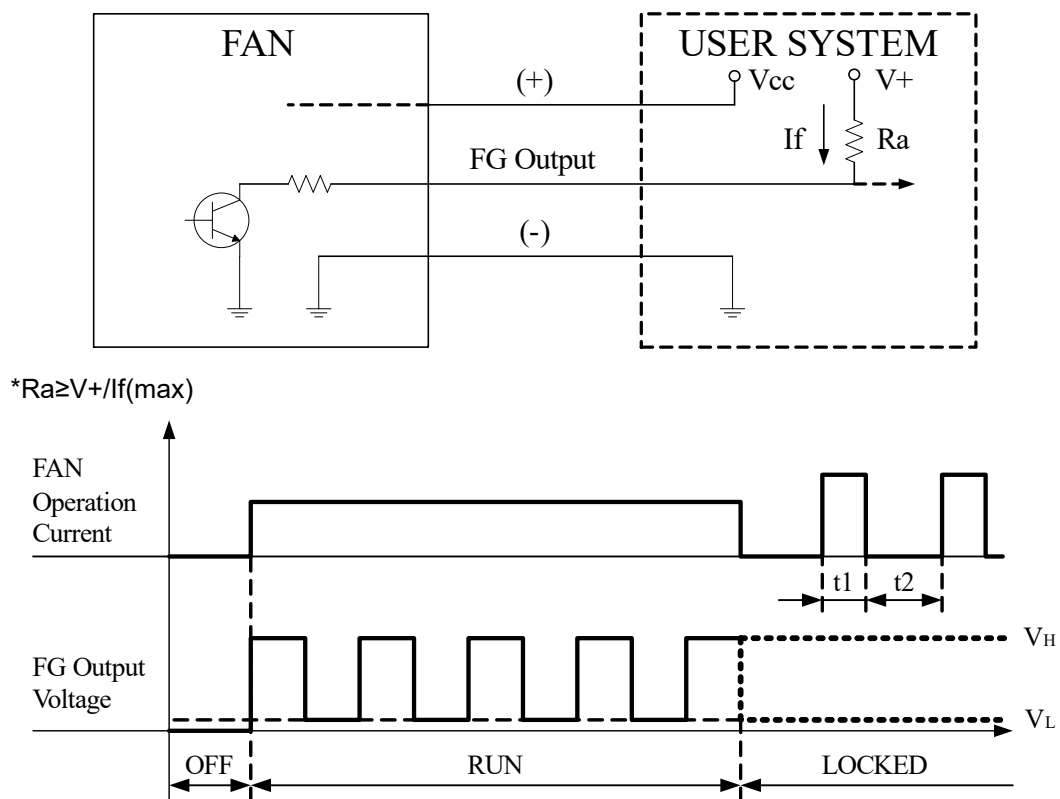
Specifications

Cooling Performance		
Test Device Configuration	Raspberry Pi CM5 + Raspberry Pi CM5 IO Board	Raspberry Pi CM5 + Raspberry Pi CM5 IO Board + ED-CM5ACOOOLER
Software Configuration	CPU 4 cores running at full load via sysbench	
Ambient Temperature	25°C	
Stable running temperature of CPU (°C)	84.3	57.6
Test Results: Under the environment of 25°C, when the device is running in a stable state, ED-CM5ACOOOLER can reduce the temperature of Raspberry Pi CM5 CPU by 27°C, allowing the Raspberry Pi CM5 CPU run continuously at its maximum mains frequency (2400MHZ).		

Temperature-controlled Blower	
Input voltage	5V DC (3.5~5.5V) supplied via four-pin fan header on a motherboard
Start voltage	≥ 3.5V (POWER ON/OFF)
Power consumption	0.75W
Rated current	0.15 ± 0.02A
Fan speed control	Pulse width modulation control with tachometer
Maximum fan speed	8000 RPM ± 15% (At 25°C, after 3~5 minutes rotating)
Maximum airflow	1.09 CFM
Noise	27.7dB

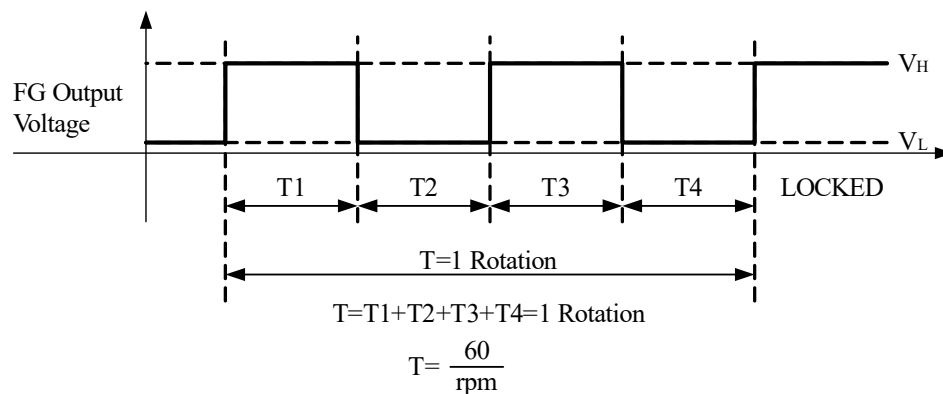
Mechanical Characteristics	
Dimensions	56.5mm x 41mm x 14.1mm (WxDxH)
Weight	About 31g
Material	Aluminium Profile

Frequency Generator (FG) Signal for Temperature-controlled Blower

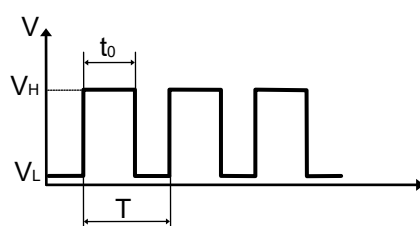
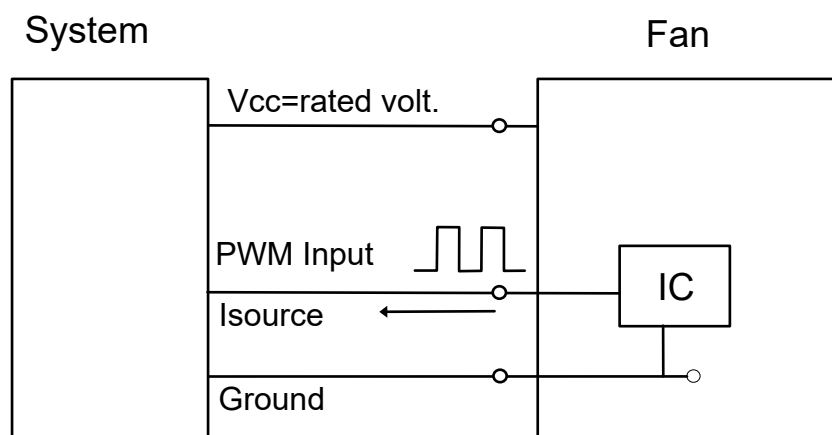


Electrical Characteristics: (at $T_a=25^\circ\text{C}$, $V_{cc}=\text{Rated Volt.}$)

Parameter	Ratings			Unit
	Min	Typical	Max	
FG Supply Voltage (V_+)	--	--	5.5	Voltage
FG Output Current (I_f)	--	--	5	mA
FG Output (V_L)	--	--	0.5	Voltage
FG Output (V_H)	--	V_+	--	Voltage



PWM Control Signal for Temperature-controlled Blower



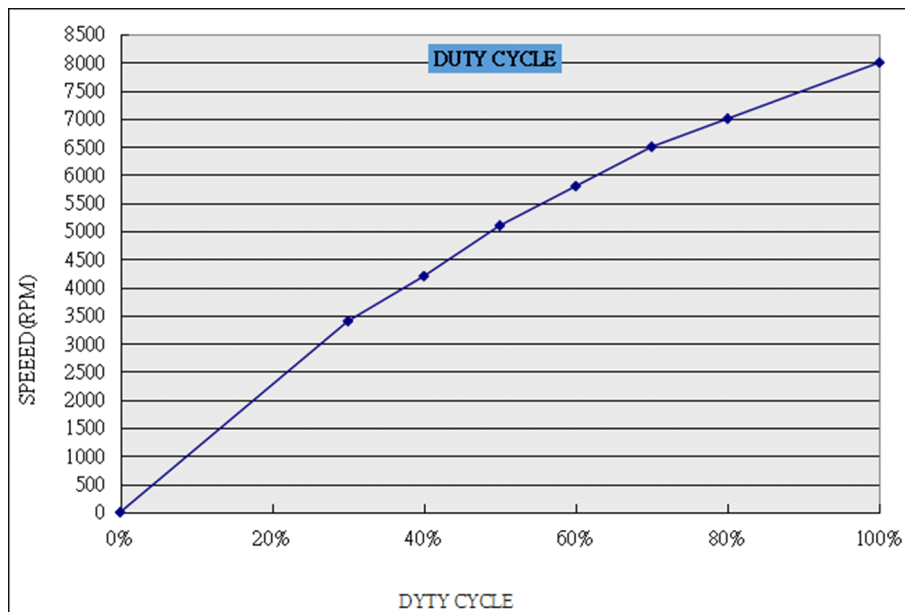
1. PERIOD: $T = 1/f_{PWM}$

2. Duty Cycle = t_0/T

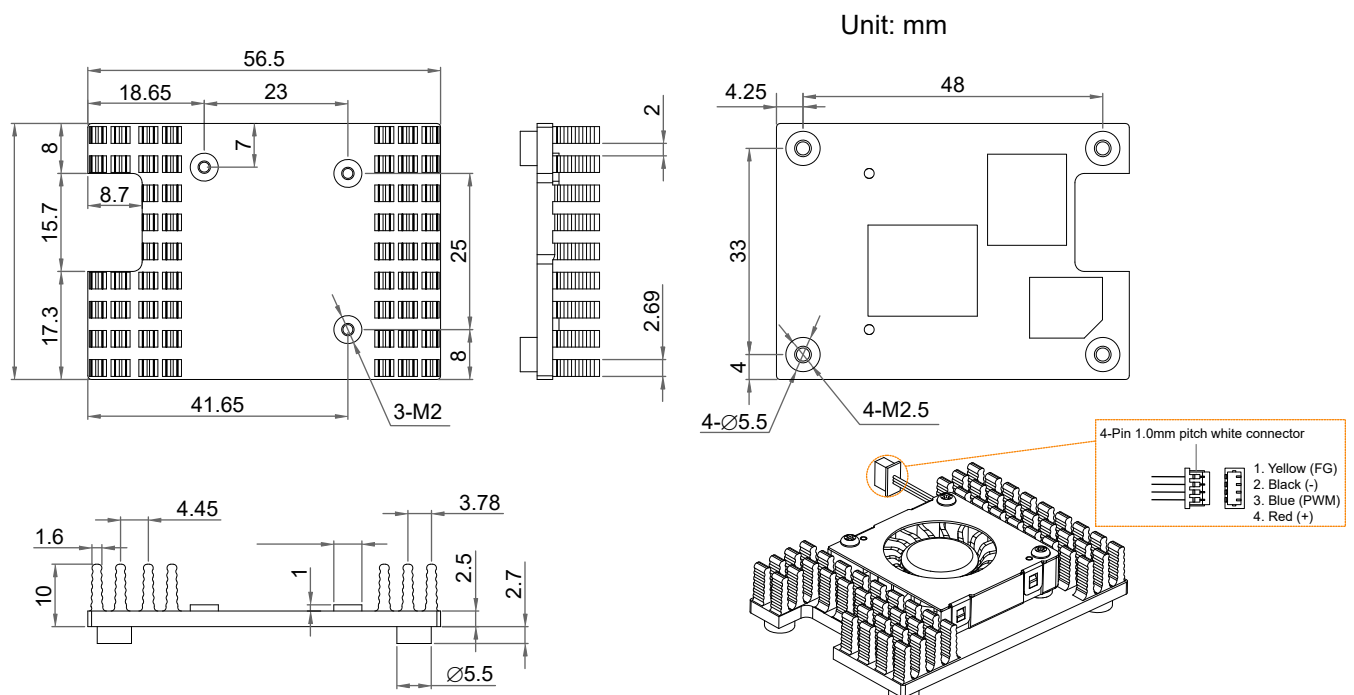
Parameter	Min	Typical	Max	Unit
f_{PWM}	15K	25K	50K	Hz
V_H	2.5	--	5	V
V_L	0	--	0.8	V

PWM Test Record for Temperature-controlled Blower

8000 RPM PWM TEST RECORD			
DUTY CYCLE	SPEED (RPM)	RANGE	CURRENT (mA)
0%	0	± 0	0 ± 0
30%	3400	± 800	19 ± 5
40%	4200	± 800	30 ± 5
50%	5100	± 800	45 ± 10
60%	5800	± 800	61 ± 20
70%	6500	± 800	80 ± 20
80%	7000	± 800	124 ± 20
100%	8000	± 800	150 ± 20



Dimensions



Ordering Code

P/N: **ED-CM5ACOOLER**

Configuration: Black Active Cooler for Raspberry Pi CM5

Packing List

- 1 x ED-CM5ACOOLER
- 1 x Accessory Set (With 4 x M2.5*8 screws, 4 x M2.5*H1.5 nylon gaskets and 4 x M2.5*H3 nylon gaskets)

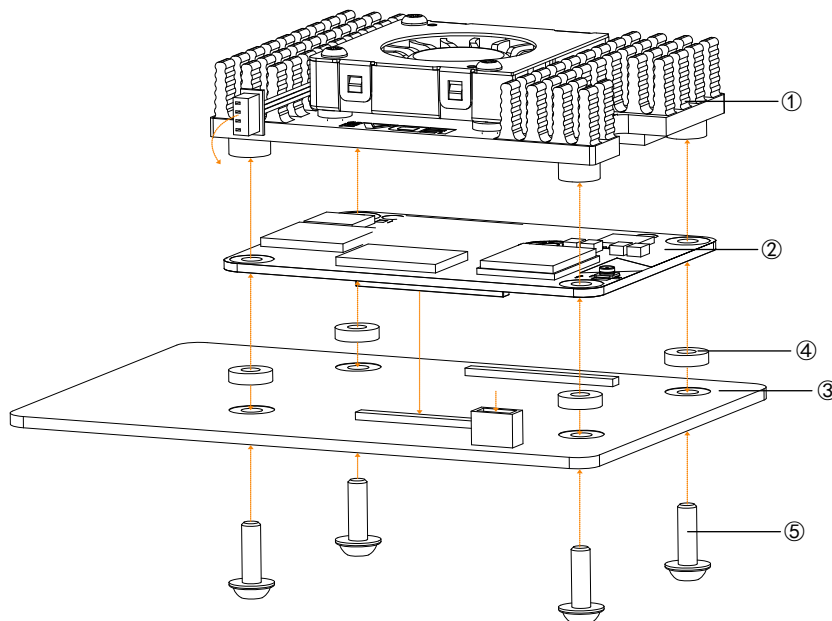
Installation

There are two ways to install ED-CM5ACOOLER, you can insert Raspberry Pi CM5 first or place nylon gaskets first.

Installation 1

Parts list:

NO.	Name	Quantity (PCS)
①	ED-CM5ACOOLER	1
②	Raspberry Pi CM5 (Not provided)	1
③	Motherboard (Not provided)	1
④	M2.5*H1.5 or M2.5*H3 nylon gaskets	4
⑤	M2.5*8 Screws	4



Note:

- Before you start installing, please remove the White Protective Paper from thermal silicone in the ED-CM5ACOOLER.
- Before you start installing, please make sure that the height of Raspberry Pi CM5 connector is 1.5mm or 3mm.
If the height is 1.5mm, you need select 4 M2.5*H1.5 nylon gaskets to install ED-CM5ACOOLER.
If the height is 3mm, you need select 4 M2.5*H3 nylon gaskets to install ED-CM5ACOOLER.
- If you need to design a case, it is recommended that the heat sink holes in the case are close to air outlet of the temperature-controlled blower fan on the ED-CM5ACOOLER.

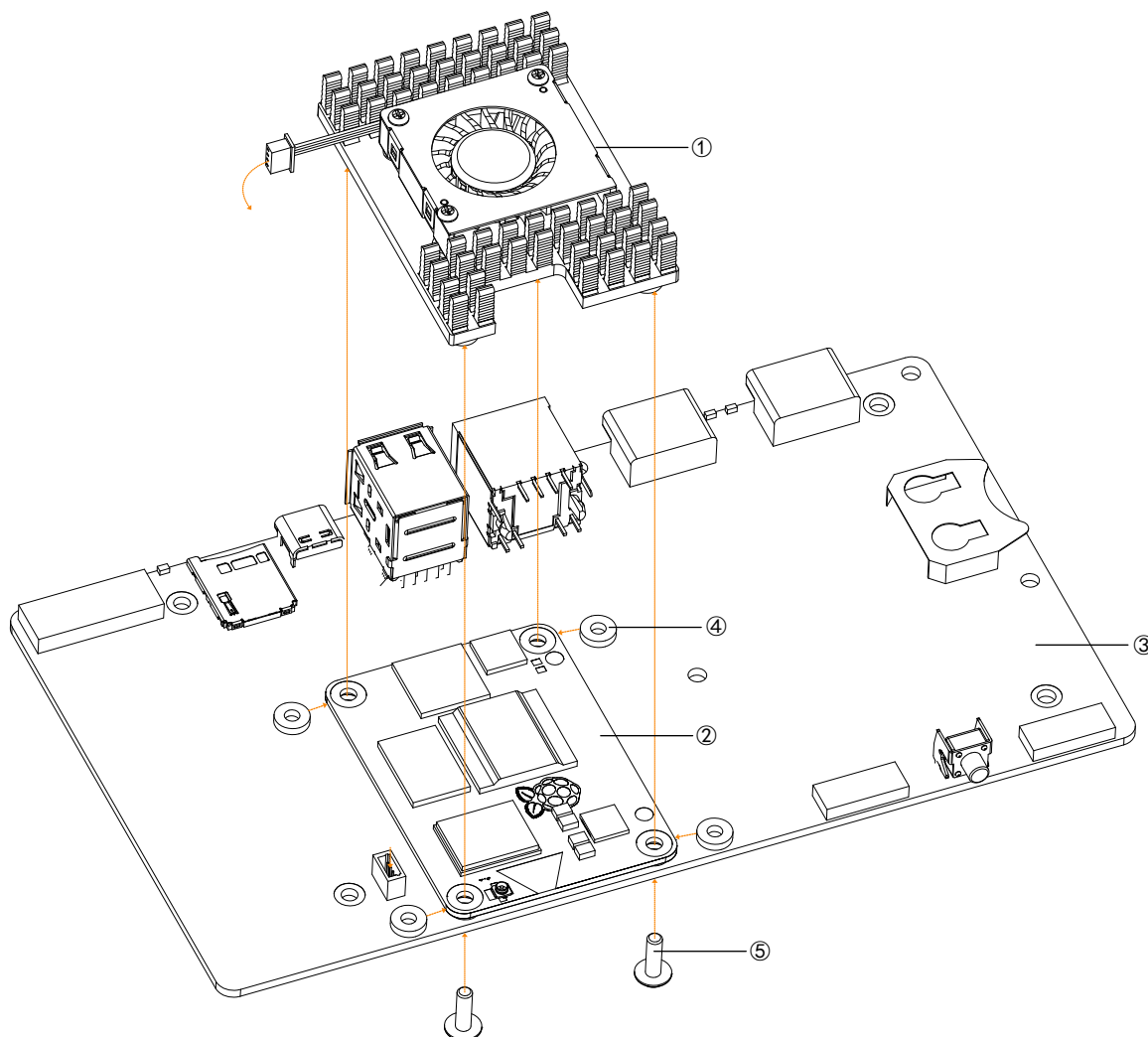
Steps:

1. Place 4 M2.5*H1.5 nylon gaskets or 4 M2.5*H3 nylon gaskets in the four screw hole positions on the **Motherboard**.
2. Insert **Raspberry Pi CM5** into **Motherboard** through the connector.
3. Place the **ED-CM5ACOOLER** on the **Raspberry Pi CM5**, align the 4 screw holes and insert 4 M2.5*8 screws from the bottom of the **Motherboard**. Tighten them clockwise using a screwdriver to install the **ED-CM5ACOOLER** onto the **Raspberry Pi CM5**.

Installation 2

Parts list:

NO.	Name	Quantity (PCS)
①	ED-CM5ACOOLER	1
②	Raspberry Pi CM5 (Not provided)	1
③	Motherboard (Not provided)	1
④	M2.5*H1.5 or M2.5*H3 nylon gaskets	4
⑤	M2.5*8 Screws	4



Note:

- Before you start installing, please remove the White Protective Paper from thermal silicone in the ED-CM5PCOOLER.
- Before you start installing, please make sure that the height of Raspberry Pi CM5 connector is 1.5mm or 3mm.
If the height is 1.5mm, you need select 4 M2.5*H1.5 nylon gaskets to install ED-CM5PCOOLER.
If the height is 3mm, you need select 4 M2.5*H3 nylon gaskets to install ED-CM5PCOOLER.
- If you need to design a case, it is recommended that the heat sink holes in the case are close to air outlet of the temperature-controlled blower fan on the ED-CM5ACOOLER.

Steps:

1. Insert **Raspberry Pi CM5** into **Motherboard** through the connector.
2. Place 4 M2.5*H1.5 nylon gaskets or 4 M2.5*H3 nylon gaskets in the four screw hole positions between the **Raspberry Pi CM5** and the **Motherboard**.
3. Place the **ED-CM5ACOOLER** on the **Raspberry Pi CM5**, align the 4 screw holes and insert 4 M2.5*8 screws from the bottom of the **Motherboard**. Tighten them clockwise using a screwdriver to install the **ED-CM5ACOOLER** onto the **Raspberry Pi CM5**.
4. Plug the power cable of temperature-controlled blower into the FAN connector on the **Motherboard**.

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