

Adequate PC Cooling for Ai-Logix Products

Because of the power consumption of the Ai-Logix boards, cooling considerations should be made. Ai-Logix boards are designed to work at a maximum ambient temperature of 60°C. To ensure that the proper temperature is maintained inside the PC, a proper cooling fan or fans should be used.

The following parameters need to be known in order to select the proper cooling fan:

1. Maximum ambient temperature outside of the enclosure
2. Power dissipation inside of the enclosure
3. Static Pressure inside the enclosure

Assuming a maximum ambient temperature of 40°C outside of the enclosure, the maximum temperature rise inside the enclosure would be 20°C.

For example:

For a single MTP16 the Power dissipation would be:

$$+ 5V \times 1.6A = 8W$$

$$+ 12V \times 150mA = 1.8W$$

$$+ -12V \times 150mA = 1.8W$$

$$\text{Total MTP16 Power} = 11.6W$$

If any other equipment is in the same enclosure as the MTP16 and is to be cooled by the same fan, then the dissipation from that equipment must also be considered in the calculation.

Computer fans are rated by their flow capability. This is measured in Cubic Feet per minute, or CFM. The required CFM can be calculated using the following equation:

$$\text{CFM required} = \frac{\text{Watts Dissipated} \times 3.16}{\text{Temp Rise } ^\circ\text{F}}$$

NOTE:

Temperature rise is calculated in degrees Fahrenheit. So a 20°C temperature rise corresponds to a 68°F Temperature Rise.

Using the above equation will give a required CFM of 0.54

NOTE:

The CFM must be the CFM of the fan at the Static Pressure of the enclosure.