

Input current and thermal derating on ZEUS

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Notice:

This note is to outline the current/temperature derating when 10-30V power input is used on ZEUS v1i3 and v1i4 boards.

It has been noted that in certain conditions of high ambient temperature and high current consumption the input power devices approach their maximum junction operating temperatures.

This depends on ambient temperature and current consumption, and can cause problems with power budgeting at lower input voltages.

The following table shows the maximum input currents allowed at different ambient temperatures:

T_A	Input Current	Input power (@ $V_{in}=10V$)	Power delivered by on-board DC/DC converter (@85% efficiency typ.; $V_{CC}=5V$)
20°C (68F)	3.5A	35W	29.75W
44°C (111F)	3A	30W	25.5W
54°C (129F)	2.8A	28W	23.8W
60°C (140F)	2.5A	25W	21.25W
70°C (158F)	2.2A	22W	18.7W

The worst case scenario occurs with the lowest input voltage (10V) and the highest ambient temperature (70°C/158F). Therefore, the power budget of a system consisting of ZEUS and any external peripherals (USB, LCD, CF, PC104, Modem...) should be carefully considered especially where the ZEUS is powered by voltages at the lower end of the input range.

If you have any questions about this or about any of our products please contact Eurotech Ltd Technical Support.