

## Application Note

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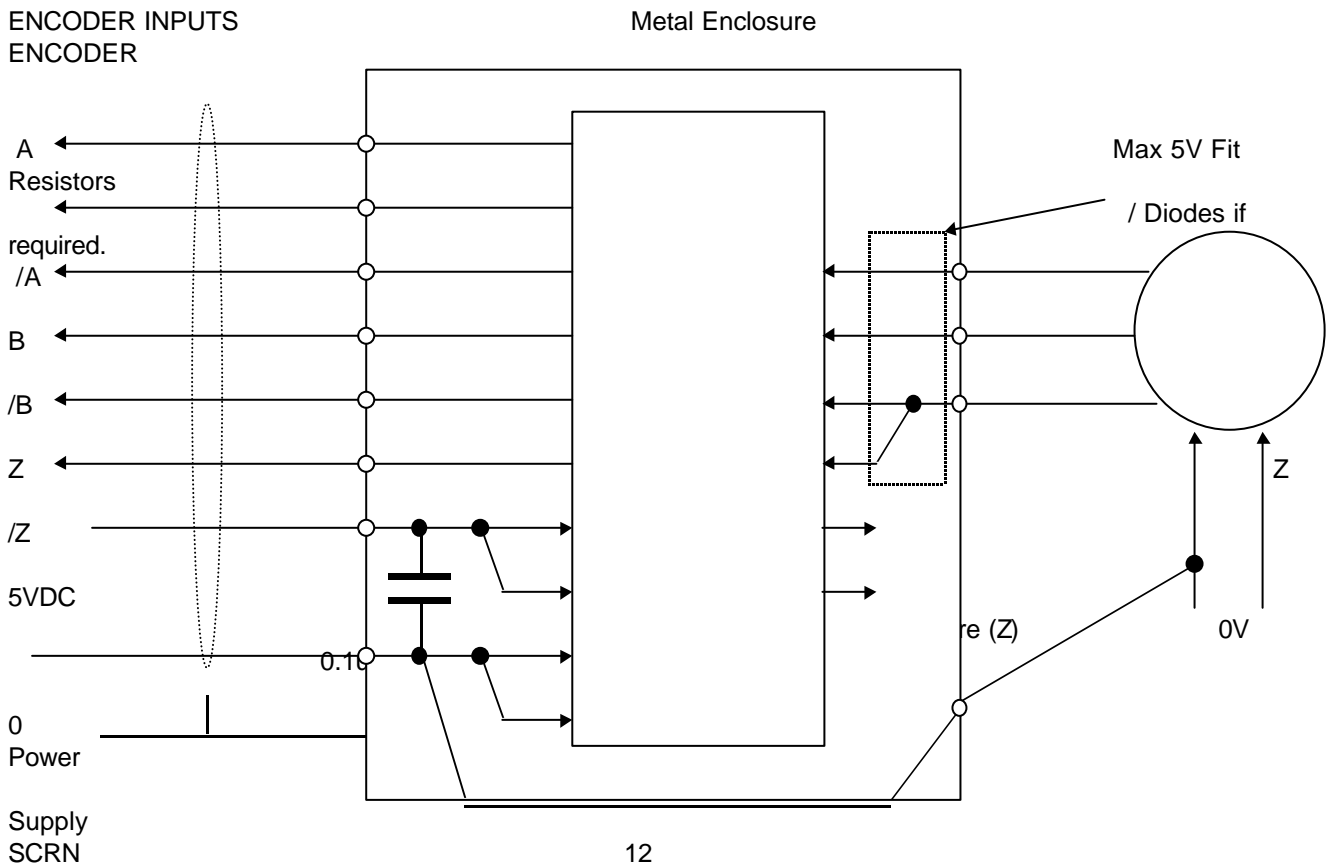
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**Subject:** Connection of Single Ended Encoder

It is not recommended to use single ended encoders in a new application. To be compatible with the encoder inputs on the Motion Coordinator series, an encoder with 5V differential line driver outputs (RS422) should be installed.

If single ended encoders absolutely MUST be used then try the following.

Bias the complementary input of each channel (A, B and Z) to 2.5V as described in the MC2/204/216 Handbook, Section 4.4 SERVO DAUGHTER BOARD, by connecting to the midpoint of two 220R resistors wired across the power supply. This does not work well with ALL encoders as the bias resistors require a lot of Power (W) and with some encoders even lower values of resistance will be needed.

The Best solution, other than use a differential encoder, is to provide a buffer circuit, in a metal screened enclosure, and fitted near to the encoder. An example circuit is given below.



Twisted Pair Cable