

Doc No.: AN-263

Version: 1.0

Date: 09 December 2010

Subject: Additional EMC protection for the MC464

APPLICATION NOTE

1. Introduction

In some environments, it is necessary to add additional EMC protection to improve the noise immunity of the MC464. This document details some things which can be done to make the MC464 more immune to incoming electrical noise and interference. Some details repeat what is already in chapter 3 of the MC464 user manual.

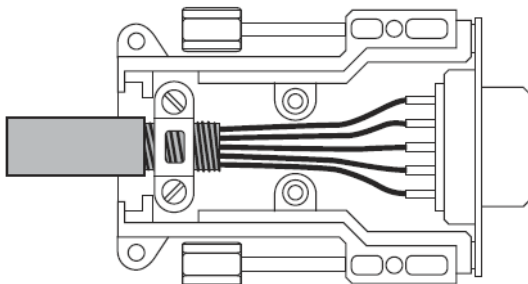
2. Shielding Encoder Cables

Electrical noise is often carried on the encoder cables between the servo drives and the MC464. It is vital to terminate the screen correctly so that noise is not carried into the MC464 via the encoder signal wires.

Page 3-9 of the MC464 user manual shows how to terminate encoder cables. The information is repeated here:

2.1. Cable Shields

All encoder cables must be terminated in the correct D-type plug, either 9 way or 15 way as required. For best EMC performance use a metal or metalised plastic cover for the D-type connector. Clamp the screen of the encoder cable where it enters the connector cover. Do not make a "pig-tail" connection from the screen to the plug cover. When plugging the D-type into the MC464, use the jack-screws to firmly attach the D-type plug to the socket on the MC464 or its axis module.



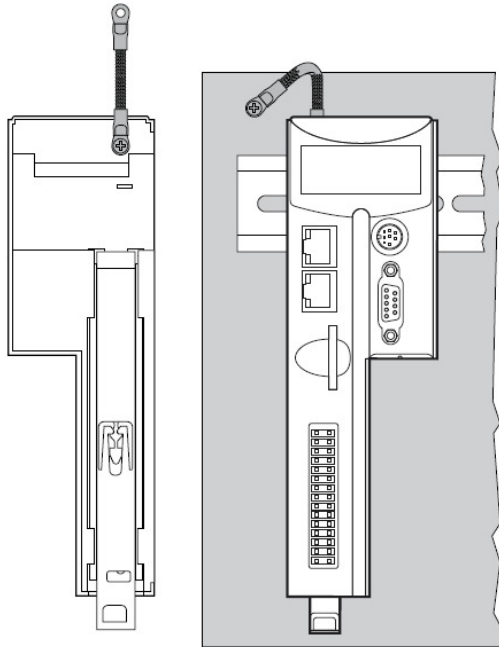
Both ends of the encoder cable's screen must be connected using a 360 degree contact and not a pig-tail connection.

The 0V must be connected separately from the screen. Make sure that encoder cables are specified with one extra wire to carry the 0V.

3. Shield Cable to MC464

The MC464 must either be mounted using the panel mounting clips provided, or if DIN rail mounted, it must have a braided shield wire connected between the metal MC464 chassis and the metal earthed panel. The shield strap must be as short as practically possible.

Use a flat braided conductor, minimum cross-section 4mm x 1mm. Connect to the earthed metal panel as close to the MC464 as possible. Do not use circular cross-section wire. Do not run the conductor to a central star point.



1. Fix a Shield cable to the upper tapped hole in the MC464. Use a M3 screw of length 10mm max.

2. Fix the other end of this cable to the back plate (chassis)



4. Connection to Flexaxis Module

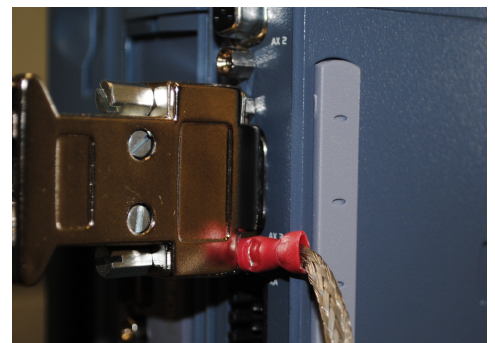
Where the P874 and P879 modules are used, Trio advise that an additional shield strap may be required. Use a flat braid, minimum cross-section 4mm x 1mm. Do not use circular cross-section wire. Do not run the conductor to a central star point.



Fix the Shield cable to the D-Type socket fixing screw. Trap the crimp eye between the D-type plug and the hex socket that it screws into. Make sure that the D-Type still makes good contact with the socket. The "eye" must not be too thick; less than 1mm.

Fix the other end of the shield cable to the back plate (chassis).

Make sure that the back plate is earthed.



Make the shield cables out of flat braid. Make the shield wires as short as possible. If there are 2 or 3 P874s/P879s in the system fix a shield cable to each one.