EtherCAT Master Adapter Board (pn7729)

Document Revision 1.0

For more information please visit the product web page:

www.vitalsystem.com/dspmc

Contents

License Agreement

Before using the 7729 and accompanying software tools, please take a moment to go thru this License agreement. Any use of this hardware and software indicate your acceptance to this agreement.

It is the nature of all machine tools that they are dangerous devices. In order to be permitted to use 7729 on any machine you must agree to the following license:

I agree that no-one other than the owner of this machine, will, under any circumstances be responsible, for the operation, safety, and use of this machine. I agree there is no situation under which I would consider Vital Systems, or any of its distributors to be responsible for any losses, damages, or other misfortunes suffered through the use of the 7729 board and its software. I understand that the 7729 board is very complex, and though the engineers make every effort to achieve a bug free environment, that I will hold no-one other than myself responsible for mistakes, errors, material loss, personal damages, secondary damages, faults or errors of any kind, caused by any circumstance, any bugs, or any undesired response by the board and its software while running my machine or device.

I fully accept all responsibility for the operation of this machine while under the control of 7729, and for its operation by others who may use the machine. It is my responsibility to warn any others who may operate any device under the control of 7729 board of the limitations so imposed.

I fully accept the above statements, and I will comply at all times with standard operating procedures and safety requirements pertinent to my area or country, and will endeavor to ensure the safety of all operators, as well as anyone near or in the area of my machine.

WARNING: Machines in motion can be extremely dangerous! It is the responsibility of the user to design effective error handling and safety protection as part of the system. VITAL Systems shall not be liable or responsible for any incidental or consequential damages. By Using VSI products, you agree to the license agreement.
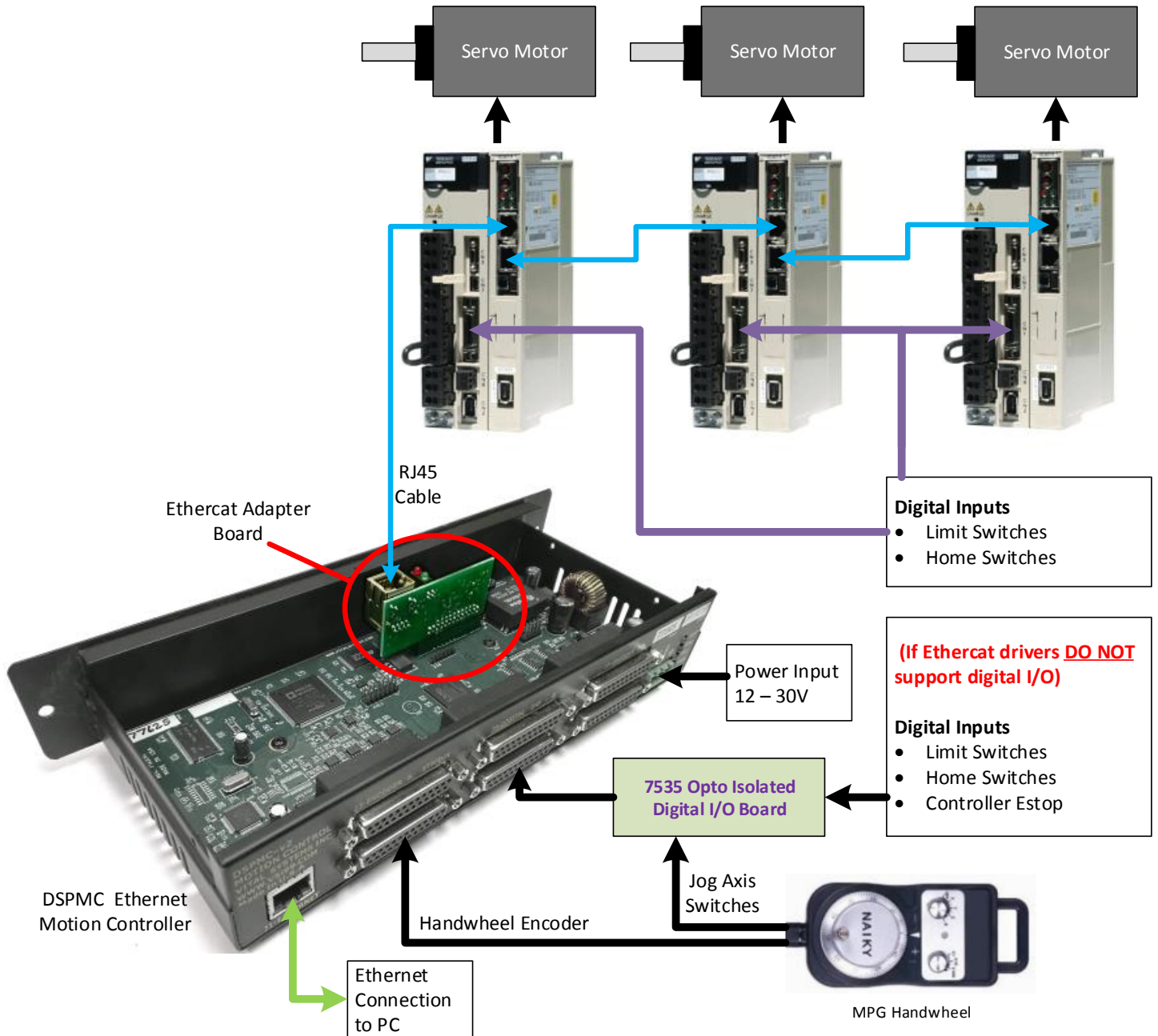
Introduction

The EtherCAT Adapter Board (pn7729) is an extension to the DSPMC Ethernet Motion Controller (pn7762) that is designed as a solution for EtherCAT master capabilities with Mach3 and Mach4 CNC software.

Features:
- Easy plug-in installation with DSPMC (pn7762).
- CANOpen over EtherCAT Implementation.
- Supports CANopen drive profile (CIA402).
- Real-time EtherCAT communication.
- Simplified EtherCAT drive config and operation.
- Cyclic Synchronous Positioning.

NOTE: Although configuration is simplified by handling the most common EtherCAT config from within the controller, there are some drive parameters that must be configured by the user. Most EtherCAT servo drive manufacturers provide software that configures the drive via USB port.

Installation Overview

Servo Motor · Servo Motor · Servo Motor

RJ45
Cable

Ethercat Adapter
Board

Digital Inputs
- Limit Switches
- Home Switches

Power Input
12 – 30V

(If Ethercat drivers DO NOT support digital I/O)

Digital Inputs
- Limit Switches
- Home Switches
- Controller Estop

7535 Opto Isolated Digital I/O Board

Jog Axis
Switches

Handwheel Encoder

DSPMC Ethernet
Motion Controller

Ethernet
Connection
to PC

MPG Handwheel

Mach Configuration

An axis ("*Motor*" in Mach4) can be set to use an EtherCAT slave drive to perform motion. This can be set by going to the plugins configuration in Mach and to the axis config tabs.
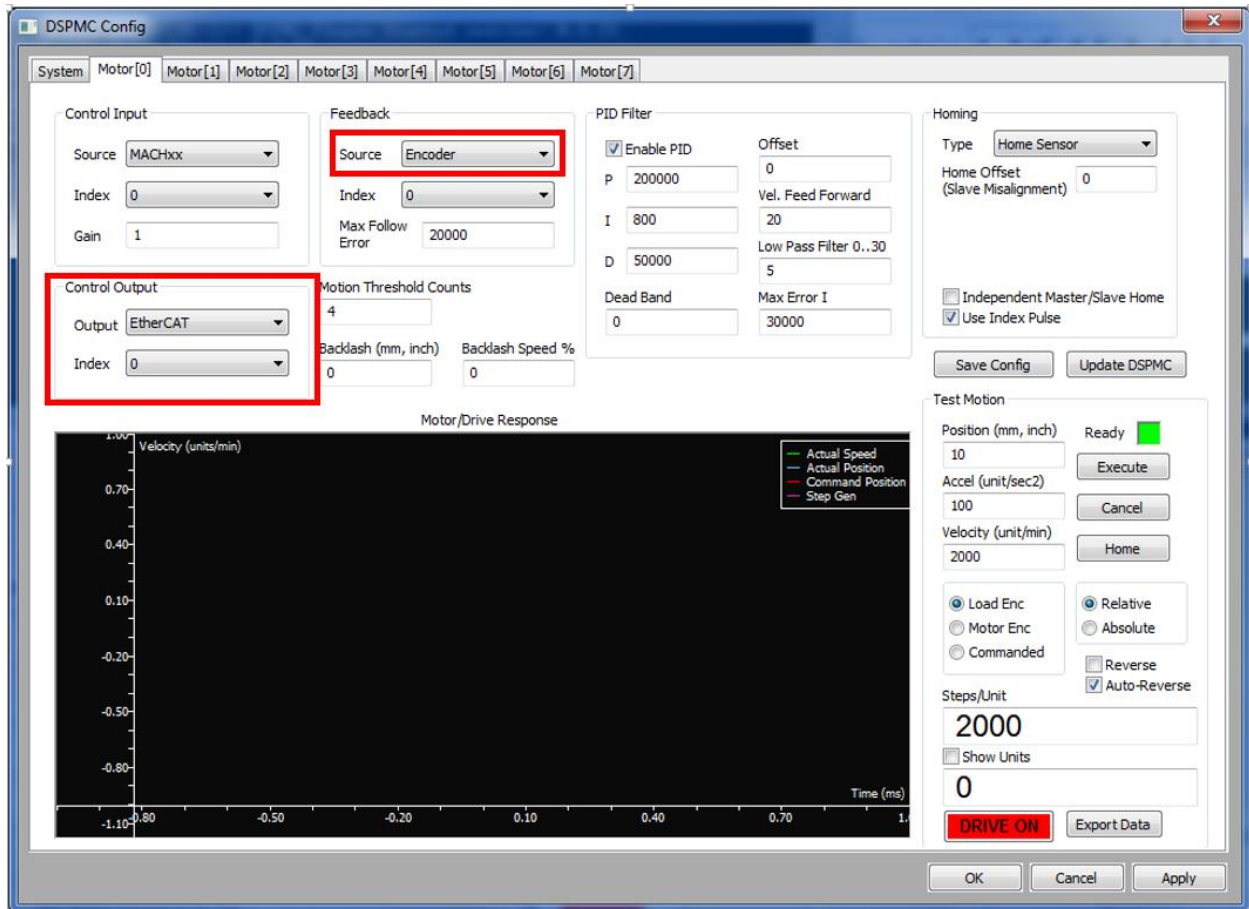
The marked entries indicate the EtherCAT-specific configuration.

- **Control Output** – Set this to "EtherCAT" to have an axis/motor control an EtherCAT Slave Drive.

- **Control Output Index** – This number will be used as to determine which EtherCAT Slave Drive to control.

- **Feedback –** The Feedback Source and Index settings are <u>NOT USED</u> with EtherCAT Control. Closed-loop feedback is achieved by reading the "Position Actual Value" (0x6064) object from the EtherCAT drive.