

MD2 Software Overview and Quick-Start

CD CONTENTS

MD2xp - Interactive motion control program for Windows XP, with VB source code.

MD2VN2S.VB - Subroutine Library for VB.net

MD2.exe - Interactive motion control program for DOS

MD2QC* - Subroutine Library for ANSI C

MD2QB* - Subroutine Library for Quick Basic

MD2QI* - Subroutine Library for QBasic

MD2VD* - Subroutine Library for Visual Basic DOS

MD2VW* - Subroutine Library for Visual Basic Windows 3

MD2PA* - Subroutine Library for Pascal

MD2BI* - Subroutine Library for GW Basic

Microsoft .Net Framework needed by the MD2xp program.

DLLs and utilities to allow I/O access in VB and Windows.

ADDITIONAL INFORMATION

Information about the MD2 hardware and motion control in general can be found in the User's Guide.

Information about the subroutine libraries and the MD2.exe program can be found in the User's Guide.

Newer information can be found in our Support FAQ at our Website at ArrickRobotics.com

The Help function for the MD2xp program contains information about usage of the program, the MD2 system, and troubleshooting.

WARNINGS

* Do NOT use the MD2 system where a malfunction, programming error, or unexpected behavior could result in harm, loss of life, or damage to property.

* Only use the correct input voltage to power the MD2 system. The AC voltage requirement can be found on the label on the bottom of the driver box.

* Do NOT attach or remove any cables with power applied to the MD2 driver.

* Place the MD2 driver and motors in a well-ventilated area to minimize heat build-up.

* Do NOT replace the fuse with a different value or style.

* Do NOT remove the MD2 cover or disassemble motors.

* See the MD2 User's Guide for additional warnings and details.



SYSTEM REQUIREMENTS

- * The MD2xp program will run on most PC's running Windows XP, 98, ME, 2000, NT. Not all configurations have been tested so if you run into a problem, please contact us.
- * A standard parallel printer port is required for each MD2 system. These can be PCI, ISA or on the motherboard. USB or serial port converters do not work.
- * A mouse makes operation easier but most actions can be accomplished using the keyboard.
- * A CD drive.
- * Internet Explorer V5.01 or greater is required by Microsoft to install some components on some machines.

QUICK-START FOR COMPUTERS WITH WINDOWS XP

- 1 Review system requirements.
- 2 Review warnings.
- 3 Install parallel printer port(s) and drivers if needed.
- 4 Insert the MD2 CD and run setup.exe to install the MD2xp program.
- 5 Connect motors to the MD2, connect the MD2 to your computer, then apply power.
- 6 If more than 1 parallel port was found on your computer, you will need to set the port address before moving motors. Click the help button and learn about setting port addresses.
- 7 Check the MD2 Enable box on the Control screen.
- 8 Click the arrow buttons to move motors.
- 9 Adjust motor parameters on the parameter screen.
- 10 Refer to Help to learn about parameters, motion sequences, and troubleshooting.

QUICK-START FOR COMPUTERS WITH WINDOWS 98, 95, ME

- 1 Review system requirements.
- 2 Review warnings.
- 3 Install parallel printer port(s) and drivers if needed.
- 4 Insert the MD2 CD.
- 5 Run the wmi9x.exe program.
- 6 Run setup.exe to install the MD2xp program.
- 7 Connect motors to the MD2, connect the MD2 to your computer, then apply power.
- 8 If more than 1 parallel port was found on your computer, you will need to set the port address before moving motors. Click the help button and learn about setting port addresses.
- 9 Check the Enable box on the Control screen.
- 10 Click the arrow buttons to move motors.
- 11 Adjust motor parameters on the parameter screen.
- 12 Refer to Help to learn about parameters, motion sequences, and troubleshooting.

SOURCE CODE FOR WRITING CUSTOM PROGRAMS

The MD2xp program is written in Microsoft Visual Basic .Net 2005 Express. VB Express is free from the Microsoft website. The source code for the MD2xp program is provided along with the MD2 system so you can modify it and create your own custom application. Source code for MD2xp is located in the MD2xp directory on the CD

Use MD2xp as the starting point for your custom program by adding tabs for your custom application.

Also provided are various source code libraries for C, VB 4, and QuickBasic. See the user guide for information.

MD2xp requires the Microsoft .Net Framework version 2.0. The Framework is provided on the CD and will be installed if needed. It can also be downloaded from the Microsoft website.

MD2xp uses the Microsoft WMI operating system component for the 'Find Ports' function. For Windows 98, you may need to install WMI manually by running wmi9x.exe from the CD or download it from the Microsoft website.

MD2.exe DOS Motion Control Program

MD2.exe is an graphical interactive motion control program for the DOS environment. It works best in DOS but can also be used in Windows 95 and 98 in a DOS window.

Section 2 of the User Guide explains usage of MD2.exe.

INSTALLATION for DOS, Windows 95, 98

There is no formal installation needed for MD2.exe. Simply copy the MD2.* files to a directory and run MD2.exe

Before moving motors, you will need to perform Calibration.

You will also need to identify the parallel port and Enable the MD2 system using the check box on the main screen.

Refer to section 2 of the User Guide for additional information.

USING MD2.exe WITH WINDOWS XP,NT,2K

For security reasons, Windows XP, NT, 2000 limit access to I/O ports without special device drivers. Since the MD2 software needs access to one or more parallel I/O ports, a special program called PortTalk is needed to open up the ports.

GETTING PORTTALK

Porttalk and its utilities are on the MD2 diskette.

You can also download it at <http://www.robotics.com/porttalk22.zip>

This software is written by Craig Peacock at BeyondLogic.org

WHAT'S IN PORTTALK

The PortTalk zip file contains a program called AllowIO.exe which can be used to run the MD2.exe program within XP/NT/2000. Device driver source code needed when you write custom MD2 programs using our subroutine libraries is also part of the PortTalk Package. Detailed documentation for PortTalk in the zip file.

USING MD2.exe WITH WINDOWS XP,NT,2000 — CONTINUED

INSTALLATION

There is no formal installation program for the MD2 program or PortTalk/AllowIO, instead, simply make a directory on your system (usually C:\MD2) and copy the contents of the MD2 diskette into it. Drag the MD2.bat file to the desktop to make a shortcut. Right-click the icon and make sure the working directory is set to C:\MD2. You can also set the icon to the md2.ico file.

The MD2.bat file has one line in it:

```
allowio md2.exe 0x278 0x378 0x3bc 0x60 0x21
```

Those are ZEROS before each 'x', not letter 'O's.

The first 3 addresses are the parallel printer ports, the last 2 are for keyboard and interrupts.

RUNNING MD2.EXE

The MD2.exe program is a DOS-style program that will run in a window and allow you to move motors (up to 6), change parameters, and make short programs easily. When the program begins for the first time, you will need to calibrate the motor speeds which takes about 10 minutes. Just select Calibrate from the Options menu. Then you can Enable the motors, and move them.

PROBLEMS?

MD2.exe must have access to the correct directory where parameter files, calibration files, and help files are stored so set the working directory to the same as the MD2.exe program's directory.

CONFIGURING PARALLEL PRINTER PORTS

There are several types of high speed parallel and bi-directional printer ports available now. Normally they are called ECP and EPP. Most of these ports have a mode in which they act like a standard (legacy) parallel port which is what the MD-2 works best with. Sometimes this is called SPP mode.

If the parallel port is part of the motherboard, you can change this mode by entering the setup utility while the computer boots up. Usually you have to press DEL or F1 or F2 to enter setup before the operating system boots. When in setup mode, look for a menu item called 'on board peripherals' or something similar, then look for the parallel printer port section. You will probably have to browse to find this setting since it varies depending on the computer. When you find it, select 'standard', SPP, or 'legacy' mode for the port. Also, select an address of 378 which will equate to motor numbers 3&4.

If the port comes on a card then there will probably be a utility program that will let you set the mode.

PERFORMANCE

Windows XP/NT/2000 often offers poor real-time performance because there are many programs running in the background. Disable screen savers, power saving features, virus protection, instant messengers, display themes, etc.