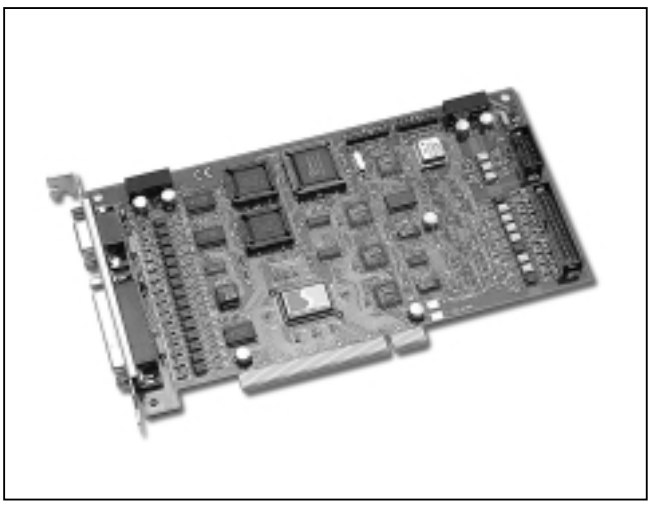
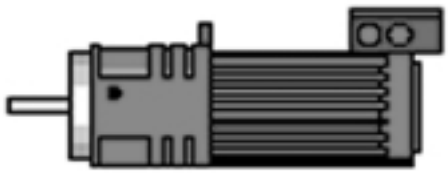
PISO-PS300

3-axis High Speed Stepping/Servo Control Board





Functional Description

PISO-PS300 is a 3-axis, high speed (max. pulse rate: 1MHz), command-type, stepping/servo motor control board. The embedded CPU of PISO-PS300 performs the motion command transferred from host-PC by way of the 2K-bytes FIFO. It also sends the positions and status back to host-PC via another 2K-bytes FIFO. This buffer provides time buffer, so, it is very suitable for windows operating system. This board provides DOS, windows 95 and windows NT drivers.

Features

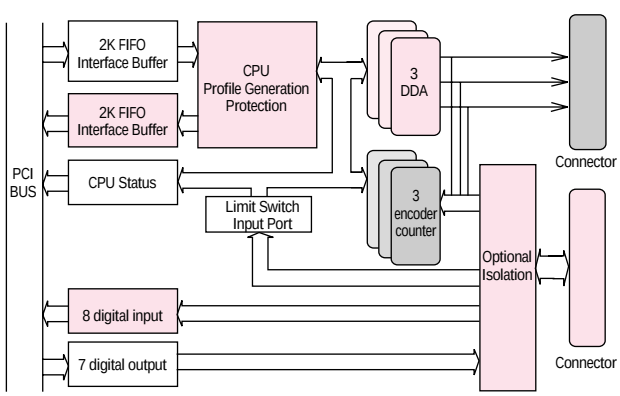
- PCI bus
- 3-axis pulse output stepping/servo control board
- Maximum output pulse rate: 1MHz.
- Simulation mode / real mode.
- Encoder/pulse read back.
- Programmable output mode: CW/CCW, Pulse/Direction
- 3-axis linear interpolation, 2-axis circular interpolation.
- Programmable trapezoidal speed profile.
- Programmable DDA period.
- Programmable direction configuration.
- Programmable 2 speed home return, home preset, home direction.
- Home, forward, backward limit switches per axis.
- Hardware emergency stop, software emergency stop.
- Limit switch auto-protection.
- Programmable limit switch normal state: N.O. (normal open) or N.C. (normal close).
- 8 digital inputs, 7 digital outputs.
- 2500V optical isolation.
- Embedded CPU, totally 45 command set.
- DOS, windows 95/98, windows NT DLL driver.
- BCB, VB, Delphi driver.
- Will support LabView driver in the future.

Specifications

Isolated Input

- No. of axes: 3 axes
- PCI bus
- Maximum pulse rate: 1MHz.
- Home, forward, backward limit switches per axis.
- 8 digital inputs, 7 digital outputs.
- 2500V optical isolation.
- Connector 1:D-sub 25-pin connector for encoder input.
- Connector 2:D-sub 9-pin connector for X,Y pulse output and servo-on signal.
- Connector 3:D-sub 9-pin connector for Z pulse output, limit switches and servo-on signal.
- Connector 4:D-sub 25-pin connector for limit switches, digital input and digital output.
- Power requirement: +5V@ 950mA typical.
- Operating temp range: 0¢X~60¢XC
- Storage temp range: -20¢X~70¢XC
- Humidity: 95% non-condensing
- Weight: 150g
- Dimensions: 195mm x 110mm

System block



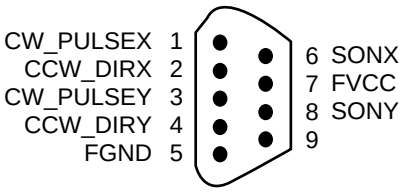
System block diagram of PISO-PS300

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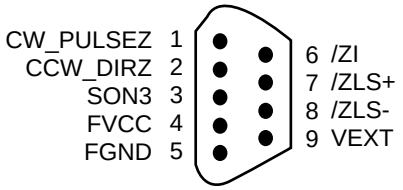
PISO-PS300

3-axis High Speed Stepping/Servo Control Board

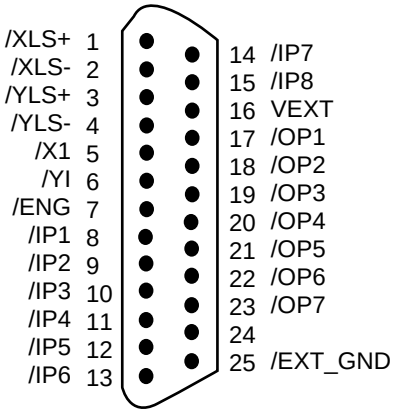
Pin Assignment of CON 2



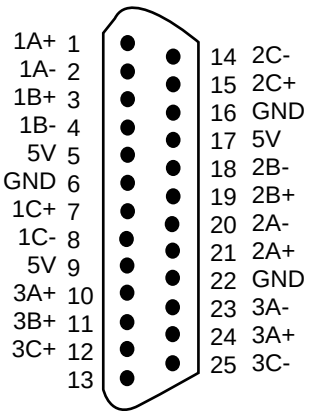
Pin Assignment of CON 3



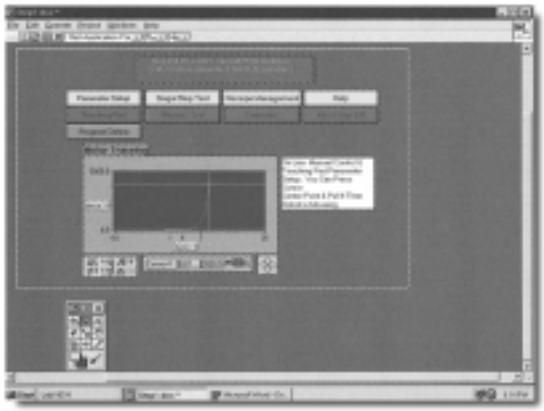
Pin Assignment of CON 4



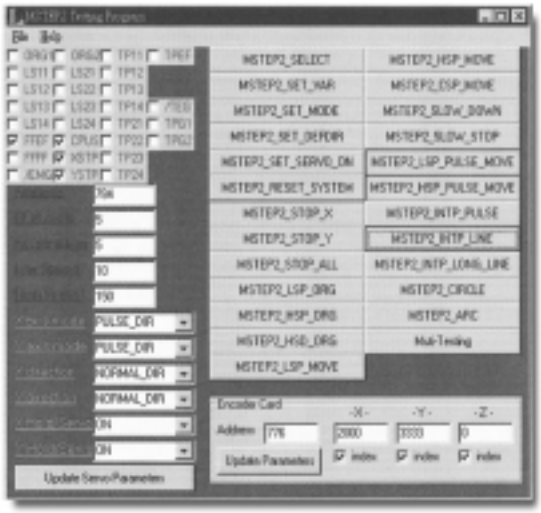
Pin Assignment of CON 1



DOS test panel



Windows test panel



Order Description

PISO-PS300:
3-axis High Speed Stepping / Servo Control Board

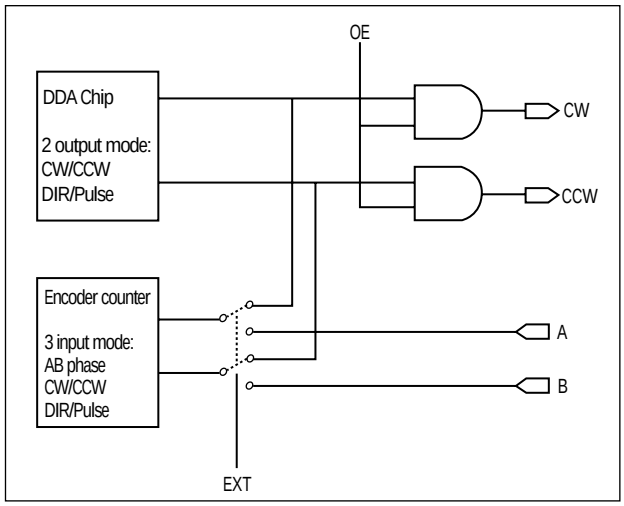
Options

- DB-8R Daughter board
  It includes 8 digital inputs, 7 relay outputs and X, Y limit switch inputs, emergency input.
- DN-25 Screw terminal board:
  One 9-pin S-sub connector and one 25-pin D-sub connector screw terminal board

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Operating Mode

For easily developing your system, PISO-PS300 provides two operating mode: simulation mode / real mode.



Simulation mode

In simulation mode, the PISO-PS300 will simulate the motion profile according to the motion command that received from host PC, and then the PISO-PS300 will send the 3-axis positions back to host PC. The PISO-PS300 will not output pulse to motor driver by set OE=0. The encoder counter counts the internal DDA output pulse by set EXT=0. Therefore, the positions which read from the encoder counter is really output pulse number.

This mode is very useful and efficient in the design phase. The simulation mode can be operated off from machine. The user can debug and develop the software previously or at home. And if the user has the daughter board DB-8R, it can also simulate the digital input/output like as a machine.

Real mode

In real mode, the output mode of DDA chip can be set as CW/CCW or DIR/PULSE mode according to user's motor driver, and set OE=1 for output enable. Setting EXT=1, the source signal of encoder counter come from external input. The input mode of encoder counter could be three kind mode: AB phase, CW/CCW and DIR/PULSE.

Command set

(1) MSTEP3_INITIAL
(2) MSTEP3_END
(3) MSTEP3_REGISTRATION
(4) MSTEP3_RESET_SYSTEM
(5) MSTEP3_SET_CONTROL_MODE
(6) MSTEP3_SET_VAR
(7) MSTEP3_SET_DEFDIR
(8) MSTEP3_SET_SERVO_ON
(9) MSTEP3_SET_ZERO
(10) MSTEP3_PRESET_POSITION
(11) MSTEP3_SET_NC
(12) MSTEP3_STOP
(13) MSTEP3_DEC_STOP
(14) MSTEP3_STOP_ALL
(15) MSTEP3_EMG_STOP
(16) MSTEP3_BACK_HOME
(17) MSTEP3_BACK_HOME01
(18) MSTEP3_PULSE_MOVE
(19) MSTEP3_INTP_PULSE
(20) MSTEP3_CONSTANT_SPEED
(21) MSTEP3_INTP_XYZ
(22) MSTEP3_INTP_LINE
(23) MSTEP3_INTP_LINE01
(24) MSTEP3_INTP_CIRCLE
(25) MSTEP3_INTP_CIRCLE01
(26) MSTEP3_INTP_ARC
(27) MSTEP3_INTP_ARC01
(28) MSTEP3_GET_CARD
(29) MSTEP3_GET_LIMIT
(30) MSTEP3_GET_P1
(31) MSTEP3_GET_XC
(32) MSTEP3_GET_XP
(33) MSTEP3_GET_YC
(34) MSTEP3_GET_YP
(35) MSTEP3_GET_ZC
(36) MSTEP3_GET_ZP
(37) MSTEP3_DI
(38) MSTEP3_DO
(39) MSTEP3_MSC
(40) MSTEP3_WAIT_X
(41) MSTEP3_WAIT_Y
(42) MSTEP3_WAIT_Z
(43) MSTEP3_IS_X_STOP
(44) MSTEP3_IS_Y_STOP
(45) MSTEP3_IS_Z_STOP

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