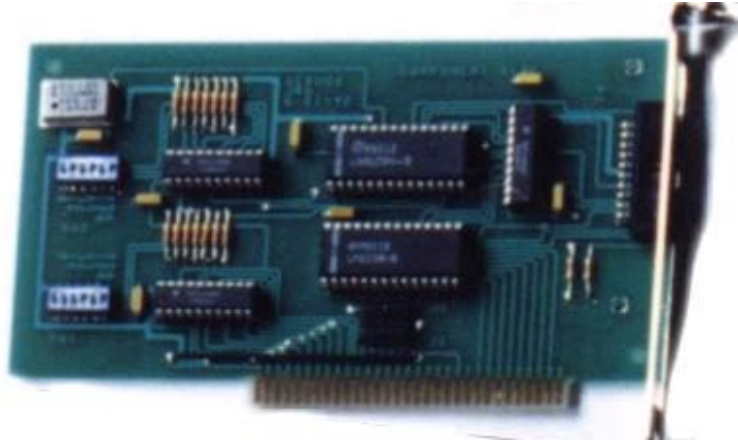


## JRA Co.

1878 Graefield Rd Birmingham Mi. 48009 USA 248-637-9480 9481 Fax  
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# SERVO2 CONTROLLER



## FEATURES

PC compatible 2 axis servo controller

Resides in 1 ISA slot

Controls brush DC servo motors with incremental encoder type feedback

PWM and Sign output ( 8bit )

Full PID control

Position or velocity modes

LM629N-8 Based

Change velocity on the fly

+/- 32 bit position range

Multiple cards may be arranged in PC for 4 or more axes

Complete with exerciser software

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The Servo2 system is an affordable high performance digital servo controller based on the national semiconductor LM629N-8 Motion control IC. The user friendly software and matched components such as amplifiers and motors allow the user to get the system running with little effort or knowledge of servo systems or programming. Using the included software and a PC motors may be run simultaneously at different speeds, accelerations and with different destinations.

The servo2 controller card plugs into any PC compatible ISA bus slot and independently controls 2 servo motors. Each controller resides at a user selectable I/O address. More axes may be added by simply using more cards. Velocity ,position and acceleration feedback is provided by an incremental type optical encoder mounted on the motor shaft.

The Controller operates in 2 modes: Position mode and Velocity mode.

### **Position mode**

In position mode the user enters max motor speed in rpm and final position in encoder counts. Upon issuing a start command the motor will accelerate to max speed, run at that speed then decelerate to a stop at the final position. The shaft will remain locked at the final position until a new command is issued.

### **Velocity Mode**

In the velocity mode, the user selects motor speed and direction. Upon issuing a start command the motor will accelerate to the command velocity and continue at that velocity until a new command is issued.

### **Feedback**

Shaft position is measured in quadrature encoder counts and may be chosen as either relative or absolute. Quadrature counts yield a resolution equal to 4 times the number of encoder lines. For example a 500 line encoder will yield 2000 counts per motor revolution.

### **Performance**

The controller is compatible with DC brush type servo motors and incremental optical encoders. Motor movement is smooth and vibration free unlike stepper motors. Using JRA amps and motors Systems are pretuned and ready to run providing the user with an affordable alternative to stepping motors for use in a variety of XY positioning and robotics applications. Currently no software exists for CNC contouring applications. **For CNC software use our DSP-4 controller.**

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### Exerciser Software

The following functions are provided in our DOS based exerciser software. The source code is supplied in a QuickBasic format.

POSITION MODE  
VELOCITY MODE  
LEARN MODE  
TEACH MODE  
DEFINE HOME POSITION  
TURN MOTORS OFF  
SET ERROR THRESHOLD  
READ CONTROLLER STATUS  
SET BREAKPOINTS  
INTERRUPT HOST  
ADJUST PID FILTER COEFFICIENTS  
PLOT POSITION VS TIME  
READ COMMAND POSITION  
READ COMMAND VELOCITY  
READ REAL POSITION  
READ REAL VELOCITY

More information on the LM629N-8 controller may be obtained by visiting the National Semiconductor website

### Servo2 Pinout 20 Pin Connector

1	GND
2	PWM MTR 2 ( 8 BIT 15.6 kHz)
3	GND
4	SIGN MTR 2 (DIRECTION)
5	GND
6	PWM MOTOR 1
7	GND
8	SIGN MTR 1
9	5 VDC
10	CH B MTR 1
11	CH A MTR 1
12	GND
13	5 VDC
14	CH B MTR 2
15	CH A MTR 2
16	GND
17	INDEX MTR 1
18	INDEX MTR 2
19	HOST INT MTR 2
20	HOST INT MTR 1

ALL INPUTS/OUTPUTS ARE TTL COMPATIBLE OUTPUTS ARE BUFFERED VIA A SOCKETED 74LS540

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## **SIGNAL DESCRIPTION**

### **Outputs**

PWM    8 bit duty cycle modulated 15.6 kHz pulse to control motor speed. Active low used to drive amp.

SIGN    controls motor direction cw/ccw    ( to drive amp )

HOST INT    status bit alerts host

### **Inputs**

Channel a/b    Incremental shaft encoder input    CHA 90 degrees out of phase with CHB  
INDEX    optional input for home position. Active low when CHA and CHB are low

FOR COMPATIBLE AMPS ,POWER SUPPLIES AND MOTORS VISIT OUR WEBSITE AT

**[WWW.JRACO.COM](http://WWW.JRACO.COM)**

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