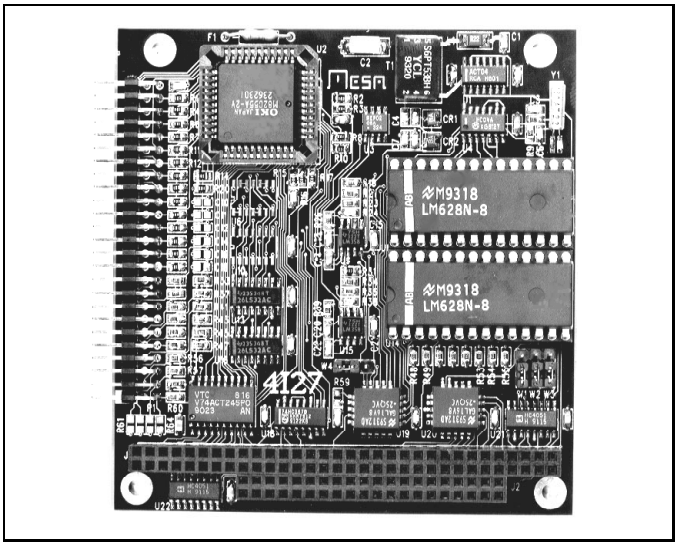
MESA ELECTRONICS 4I27A MOTOR CONTROLLER

FEATURES:

- **2 axis DC servo motor controller**
- **31 bit position range**
- **Programmable digital PID filter**
- **+-10V full scale analog output**
- **Low Power (less than 1 watt)**
- **Position & velocity control modes**
- **5V only operation**
- **Small size**
- **2 year warranty**
- **Driver software included**



The 4I27A is a low cost, LM628 based 2 axis DC servo motor control system implemented on a stackable PC/104 bus card. The 4I27A is designed for high performance positioning systems using DC servo motors with quadrature shaft encoders and analog input servo amplifiers.

The per axis output of the is a +- 10 volt analog signal with 12 bits of resolution.

Quadrature encoder and index inputs use balanced RS-422 levels for noise immunity.

Control signals for each axis include 3 auxiliary I/O bits. These I/O bits are used for over-temperature shutdown detect and servo amplifier enable. Eight general purpose I/O bits are available for any application use.

The LM628's used on the 4I27A are high performance digital processors specifically designed for motion control. The LM628 can execute a ramp-up, slew, and ramp-down motion sequence without host processor intervention.

Host interrupts can be generated at end of motion, position breakpoints, index pulse, or in response to various error conditions. Interrupts are or'ed on the 4I27A card, so that only one system interrupt is used. The IRQ line used can be software selected from any of the 11 available AT bus interrupts.

The 4I27A requires only +5V power, as all analog output power is generated on card.

A digital PID filter is used to set loop feedback parameters for stability and optimum performance. Velocity, target position and filter parameters may be changed during motion.

Demonstration software includes examples of 2 axis position mode operation, velocity mode operation, and a simple filter tuning program that allows dynamic filter coefficient modification while providing a graphic display of the servo system step response. Source code is provided for all demonstration software. A PWM output version of the 4I27A is available as the 4I27.

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LM629 COMMAND SUMMARY:

Reset	Load Trajectory
Define Home	Start Motion
Set Index Position	Read Status Byte
Interrupt on Error	Read Signals Reg.
Stop on Error	Read Index Pos.
Set Breakpoint Absolute	Read Desired Pos.
Set Breakpoint Relative	Read Real Pos
Mask Interrupts	Read Desired Vel.
Reset Interrupts	Read Real Vel.
Load Filter Parameters	Read Integ. Sum.
Update Filter	

(All commands may be executed during motion.)

I/O CONNECTOR PINOUT:

Pin#	function	Pin#	function
1	Motor Y QB	2	Motor Y /QB
3	Motor Y QA	4	Motor Y /QA
5	Motor X QB	6	Motor X /QB
7	Motor X QA	8	Motor X /QA
9	Motor Y Idx	10	Motor Y /Idx
11	Motor X Idx	12	Motor X /Idx
13	Motor Y Aout	15	Motor X Aout
17	NC	19	NC
21	/Motor Y En	23	/Motor X En
25	Motor Y Sns 1	27	Motor X Sns 1
29	Motor Y Sns 0	31	Motor X Sns 0
33	I/O bit 7	35	I/O bit 6
37	I/O bit 5	39	I/O bit 4
41	I/O bit 3	43	I/O bit 2
45	I/O bit 1	47	I/O bit 0
49	+5 volt power		

Even numbered pins 14 through 50 are grounded,

SPECIFICATIONS:	**Min**	**Max**	**Units**	**Notes**
POWER REQUIREMENTS:				
Supply voltage	4.5	5.5	V	
Supply current	----	200	mA	No external load
ANALOG OUT:				
Output Voltage	-10	+10	V	@ 5K minimum load resistance
RS-422 INPUTS:				
Input sensitivity	---	200	mV	Differential
Common mode range	--7	+7	V	
Termination resistance	120	140	Ohms	On card termination
I/O LOADING: (82C55 I/O port)				
Input logic low	-.5	.8	V	
Input logic high	2.0	5.5	V	
Output low	----	.4	V	2.5 mA sink
Output high	3.0	----	V	2.5 mA source
ENVIRONMENTAL:				
Operating temp. range -C version	0	+70	°C	
Operating temp. range -I version	-40	+85	°C	
Relative humidity	0	90	Percent	Non-Condensing

ORDERING INFORMATION: MESA 4I27A Add -I for industrial temperature version

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