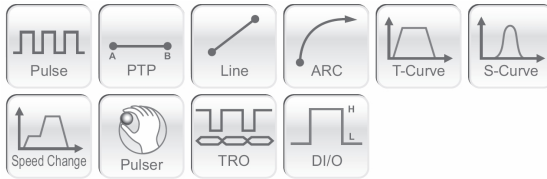
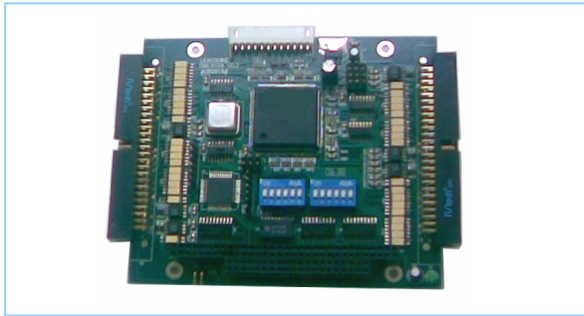




# DMC4400

## PC104 Bus 4-axis Stepping & Servo Motion Control Card



### Features

- ◇ **PC104 bus**
- ◇ **Pulse output rate up to 5MHz**
- ◇ **6 pulse/dir output modes: Pulse /DIR, CW/CCW etc**
- ◇ **2~4 axes high speed hardware linear interpolation**
- ◇ **2 axes high speed hardware circular interpolation**
- ◇ **Multi-axis continuous interpolation**
- ◇ **Position/speed can be changed on-the-fly**
- ◇ **Various home return modes and auto home search**
- ◇ **4 axes incremental encoders input with 28-bit up/down counter**
- ◇ **Hardware position compare and trigger with auto-loading FIFO**
- ◇ **High speed position latch function**
- ◇ **20 general I/O**
- ◇ **Manual pulser input interface**
- ◇ **Programmable acceleration and deceleration time**
- ◇ **Trapezoidal and S-curve velocity profiles**
- ◇ **Multi-axis simultaneous start/stop**
- ◇ **Programmable interrupt sources**
- ◇ **Software limit function**
- ◇ **Easy interface to any stepping and digital servo systems**

### Software Support

#### Windows Platform

Driver and DLL supports for DOS and Windows 98. VB/VC/BC are recommended programming tools.

#### MOTION4000 Demo Software

MOTION4000 assists the motion system developer in debugging motion control software, and testing hardware systems.

### Introduction

#### Advanced 4 axes Motion Controller

Leadshine DMC4400 is an advanced 4-axis motion control card based on PC104 bus for stepping and digital servo control application. The DMC4400, the same as DMC5400, offers excellent linear and circular interpolation capability, continuous contouring performance and provides some high-level functions for advanced pulse output motion control solutions, such as position latch, position compare, and so on.

#### Velocity or Position Override

The DMC4400 provides powerful position or speed changing function while axis is moving. After motion begins, target of speed or position can be changed on the fly at the user's discretion.

#### Linear & Circular Interpolation

In multi-axis operation, the DMC4400 provides high speed hardware linear interpolation by any 2, any 3, or even all-4 axes, and any 2 axes can perform high speed hardware circular interpolation.

#### Continuous Contouring

The pre-register architecture of DMC4400 offers the feature to build the continuous interpolation function. The 2nd motion may follow previous motion instantly without latency, so perfect velocity continuity can be achieved.

#### Position Latch

The latch function is to capture the instant counter value of one or more axis when the latch signal activates. The LTC channel is used to receive the latch pulse. The latch function is implemented with hardware at very high speed. It's accurate and convenient for position measurements.

#### Various Home Return Modes

To meet various mechanical design and operating restrictions, the DMC4400 provides various home moving modes for users to choose as their best convenience.

#### Simultaneous Start/Stop

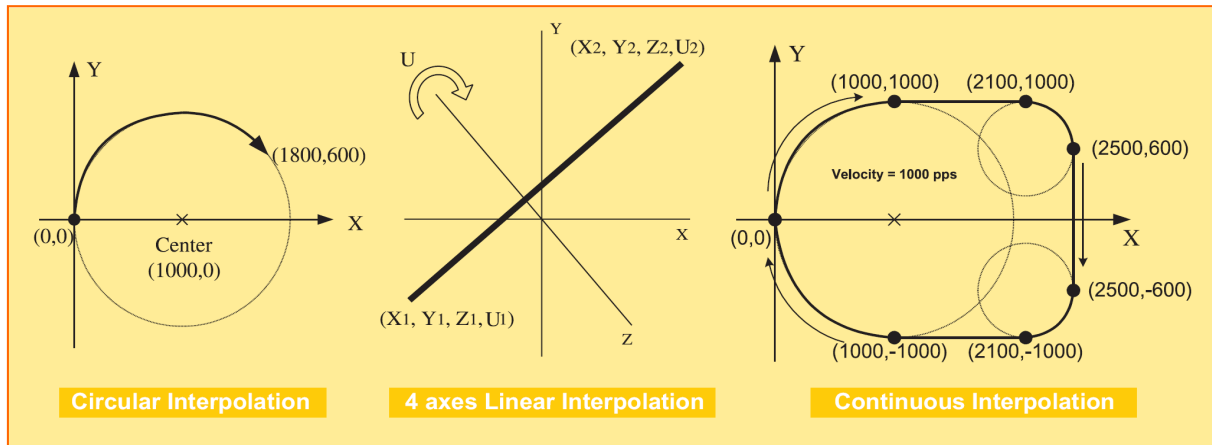
By using software program or external input signal, the DMC4400 can perform simultaneously start/stop function on multi-axis in one card. Also, the simultaneous stop function is selectable to be active when some axes are abnormally stopped.

### Applications

- ◇ **Electronic assembly and measurement equipments**
- ◇ **Semiconductor and LCD manufacturing equipments**
- ◇ **Laser process equipments**
- ◇ **Vision & measurement automation equipments**
- ◇ **Biotech sampling and handing devices**
- ◇ **Robotics**
- ◇ **Special CNC machines**



## Various Interpolation Modes of DMC 4400



### Specifications

#### Motion

- ◆ Number of controllable axes: 4
- ◆ Up to 5MHz pulse output
- ◆ 6 Pulse/dir output modes: Pulse /DIR, CW/CCW etc.
- ◆ Position range: (28-bit), -134217728 ~ +134217728 pulses
- ◆ 28-bit Up/Down counter for encoder feed-back signals
- ◆ 4 axes encoder Input Frequency: 1MHz (before 4x)

#### Motion Interface I/O Signals

- ◆ Position latch input pin: LTC
- ◆ Incremental encoder signals input pins: EA and EB
- ◆ Encoder index signal input: EZ
- ◆ Mechanical limit switch signal input pins: ± EL, SD and ORG
- ◆ Servomotor interface I/O pins: INP, ALM, ERC; SVON(use a general DO), RDY(use a general DI)
- ◆ Manual pulser signal input: PE
- ◆ Simultaneous Start/Stop Signal I/O Pins: STA and STP

#### General-Purposed I/O

- ◆ 20 DI with opto-isolated
- ◆ 8 DO of open collector

#### Mechanical Specifications

- ◆ Dimension: 114 mm × 96 mm (W×D)
- ◆ Mounting hole: Standard PC104 board mounting holes

### Order Information

DMC4400	PC104 bus 4-axis motion control card
CABLE50-1.0-IDC	2-meter long Cable with 50 pin connectors
TB50-b	Termination Board with 50 pin connector
TBD50-b	Termination Board with 50 pin connector and PCB carrier for DIN rail

### DMC4400 Connectors

#### IDC 50 Pin Connector X1

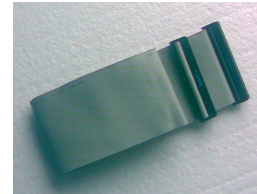
PUL1+	1	26	GND
PUL1-	2	27	PUL2+
DIR1+	3	28	PUL2-
DIR1-	4	29	DIR2+
EA1+	5	30	DIR2-
EA1-	6	31	EA2+
EB1+	7	32	EA2-
EB1-	8	33	EB2+
EZ1+	9	34	EB2-
EZ1-	10	35	EZ2+
INPUT1	11	36	EZ2-
INPUT2	12	37	INPUT3
ALM1	13	38	INPUT4
INP1	14	39	ALM2
PCS1	15	40	INP2
ERC1	16	41	PCS2
OUT1	17	42	ERC2
OUT2	18	43	OUT3
EL1+	19	44	OUT4
EL1-	20	45	EL2+
SD1	21	46	EL2-
ORG1	22	47	SD2
VCC	23	48	ORG2
VCC	24	49	VDD
GND	25	50	EXGND

#### IDC 50 Pin Connector X2

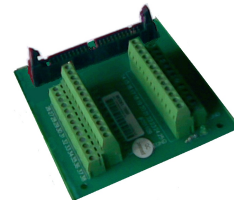
PUL3+	1	26	GND
PUL3-	2	27	PUL4+
DIR3+	3	28	PUL4-
DIR3-	4	29	DIR4+
EA3+	5	30	DIR4-
EA3-	6	31	EA4+
EB3+	7	32	EA4-
EB3-	8	33	EB4+
EZ3+	9	34	EB4-
EZ3-	10	35	EZ4+
INPUT5	11	36	EZ4-
INPUT6	12	37	INPUT7
ALM3	13	38	INPUT8
INP3	14	39	ALM4
PCS3	15	40	INP4
ERC3	16	41	PCS4
OUT5	17	42	ERC4
OUT6	18	43	OUT7
EL3+	19	44	OUT8
EL3-	20	45	EL4+
SD3	21	46	EL4-
ORG3	22	47	SD4
VCC	23	48	ORG4
VCC	24	49	VDD
GND	25	50	EGND

### Accessories

#### CABLE50-1.0-IDC:



#### TB50-b:



#### TBD50-b:

