

# HSL-4XMO-CG-N/-P, HSL-4XMO-CD-N/-P

## 4-axis Pulse Train Motion Control Modules



HSL-4XMO-CD



HSL-4XMO-CG

### General Introduction

#### 4-axis Pulse Train Control Modules

ADLINK HSL-4XMO-CG-N and HSL-4XMO-CD-N are 4-axis pulse train motion control modules based on the HSL bus. The HSL bus provides a cost-effective distribution solution which reduces wiring and saves space compared to traditional PCI boards. One HSL bus can support up to 60 axes pulse train motion controllers. The HSL-4XMO series also offers point table management which can reduce move points in the module and provide movement without consuming CPU resources.

#### Velocity and Position Override

The HSL-4XMO provides powerful position and 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 HSL-4XMO provides linear interpolation by any 2, any 3, or even all 4 axes. Any 2 axes can also perform circular interpolation.

#### Continuous Contouring

The pre-register architecture of HSL-4XMO offers the feature to build the continuous interpolation function, where the second motion may follow previous motion instantly without latency. Thus perfect velocity continuity can be established.

#### Hardware Position Compare and Trigger Output

The HSL-4XMO provides position compare and trigger functions. The CMP channel will output a trigger pulse when encoder counter reaches the compared value preset by the user. Comparison is done by hardware and virtually no CPU the resource is needed.

#### Automatic Backlash Compensation

Whenever direction change occurs, the HSL-4XMO outputs backlash corrective pulses before sending commands. During interpolation mode, this function will be ineffective.

#### 13 Home Return Modes

To fit into various mechanical design and operating restrictions, the HSL-4XMO provides 13 home moving modes for users to choose from.

### General Features

- HSL communication protocol
- Transmission speed selectable: 3/6/12 Mbps
- Support for half/full duplex mode
- On-board DSP
- 4-axis pulse train Output channels
- Up to 60 axes on a single HSL Network
- Motion point table management
- Motion script download (G-Code-Like Language)

#### Notes:

1. HSL-4XMO-CG-N/-P provides general-purpose interface for connection. Steppers, linear motors, and other pulse train amplifiers can be easily connected.
2. HSL-4XMO-CD-N/-P provides D-sub interface for connection. Servo motors with a transfer cable can be easily connected.

### Motion Control Features

- Pulse train frequency up to 6.55 MHz
- Point-to-point motion
- 13 home return modes
- 4 axes high-speed position counter latches
- Dedicated motion I/O: EL, ORG, INP, RDY, SVON, ERC, and ALM
- Pulse output options: OUT/DIR, CW/CCW, AB phase
- 2 to 4 axes linear interpolation
- 2 axes circular interpolation
- Multi-axis continuous interpolation
- Position/Speed change on-the-fly
- 13 home return modes and auto home search
- Hardware position compare and trigger
- High speed position latch function
- Programmable acceleration and deceleration time
- Trapezoidal and S-curve velocity profiles
- 28-bit up/down counter for incremental encoder
- Hardware backlash compensator
- Software limit function
- Easy interface to any stepping motors, AC or DC servo, linear or rotary motors
- All digital inputs and outputs are 2500 V<sub>RMS</sub> isolated
- Point table management up to 2000 sets

### Specifications

■ Slave ID Consumption	4
■ Number of Controllable Axes	4
■ Maximum Number of HSL-4XMO in Single HSL Network	15 (60 axes)
■ Position Range	Pulse output is programmable to be OUT/DIR or CW/CCW 28-bit up/down counter for encoder feedback signal -134,217,728 to +134,217,727 pulses (28-bit)
■ General-purpose Input Type	NPN/ PNP jumper selectable
■ General-purpose Input Voltage	ON: 6.5 V to 24 V OFF: 0 to 3 V
■ General-purpose Output	N for NPN sinking type output P for PNP sourcing type output
■ General-purpose Output Current	±90 mA (max.)
■ Power Supply	22 Vdc to 26 Vdc
■ Power Consumption	8 W
■ CE Certification	√