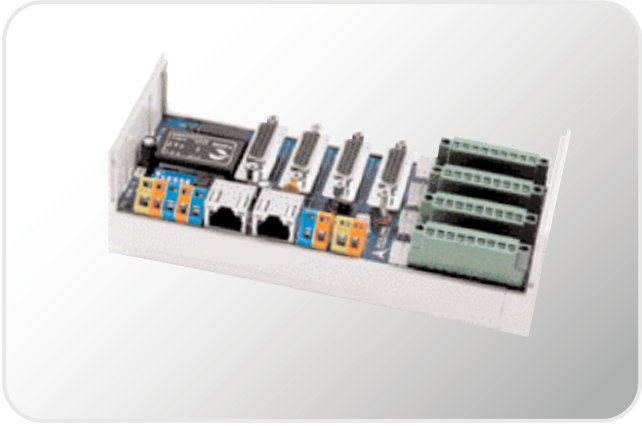
HSL-4XMO-CG-N/-P, HSL-4XMO-CD-N/-P

4-axis Pulse Train Motion Control Module



General Features

- *HSL communication protocol*
- *Transmission speed selectable: 3/6/12Mbps*
- *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. Users can easily connect steppers, linear motors, and other pulse train type amplifiers.
2. HSL-4XMO-CD-N/-P provides D-sun interface for connection. Users can easily connect servo motors with a transfer cable.

Motion Control Features

- *Pulse train frequency up to 6.55MHz*
- *Point-to-point motion*
- *On-the-fly speed/position change*
- *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*
- *2~4 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*
- *Softwares limit function*
- *Easy interface to any stepping motors, AC or DC servo, linear or rotary motors*
- *All digital inputs and outputs are 2500 V_{RMS} isolated*
- *Point table management up to 2000 sets*

**For HSL introduction, please refer to chapter 6.*

Specifications

Slave ID consumption	4
Number of controllable axes	4
Maximum number of HSL-4XMO in single HSL network	15
Position range (28 bit)	Pulse output is programmable to be OUT/DIR or CW/CCW 28-bit up/down counter for encoder feedback signal -134217728 to +134217728 pulse
General-purpose input type	NPN/ PNP jumper selectable
General-purpose input voltage	ON: 6.5V to 24V OFF: 0 to 3V
General-purpose output	N for NPN sinking type output P for PNP sourcing type output
General-purpose output current	±90mA (Max.)
Power Supply	$22V_{DC}$ to $26V_{DC}$
Power Consumption	8W
CE Certification	Ready

Introduction

4-Axis Pulse Train Control Module

ADLINK HSL-4XMO-CG-N and HSL-4XMO-CD-N are 4-axis pulse train motion control modules based on HSL bus. Compared with traditional PCI boards, distribution solution can let users benefit from wire-saving, space-saving, and cost-effective advantages. One HSL bus can support up to 60 axes pulse train motion control.
Besides, HSL-4XMO offers point table management which can save the moving points into the module and make movement without consuming CPU resource.

Velocity or Position Override

The HSL-4XMO 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 HSL-4XMO provides linear interpolation by any 2, any 3, or even all-4 axes. Besides any 2 axes can perform circular interpolation.

Continuous Contouring

The pre-register architecture of HSL-4XMO offers the feature to build the continuous interpolation function, ie, the 2nd 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 reached the compared value preset by user. Comparison is done by hardware while almost no CPU resource is needed.

Automatic Backlash Compensation

Whenever direction change is occurred, 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 as their best convenience.