

PCI Express Interface Modules Motion Controller

Base Specifications

Model type	PEX-H740444V	PEX-H740444M	PEX-H741444V	PEX-H741444M
Bus requirements	PCI Express™ Base Specification Rev. 1.0a x1			
Number of slots	1 slot			
Memory Size	8 KB + 32 bytes x 2 + 16 KB			
Data transfer method	I/O transfer (memory mapped I/O)			
Dimensions	165.00 (D) x 106.65 (H) [mm]			
Weight	125g	120g	125g	
Power Consumption	+3.3 Vdc (+/-0.3V): 0.45 A (typ.)		+3.3 Vdc (+/-0.3V): 0.45 A (typ.)	
	+12 Vdc (+/-1.0V): 0.03 A (typ.)		+12 Vdc (+/-1.0V): 0.04 A (typ.)	
all I/O and control signals inactive				
all I/O and control signals active	+3.3 Vdc (+/-0.3V): 0.6 A (typ.)		+3.3 Vdc (+/-0.3V): 0.6 A (typ.)	
	+12 Vdc (+/-1.0V): 0.15 A (typ.)		+12 Vdc (+/-1.0V): 0.2 A (typ.)	
Environmental conditions	Operating temperature: 0 deg C to 50 deg C Relative humidity: 20% to 90% (non-condensing)			
Connectors	100-pin half-pitch female connector			
On-board connector	DX10A-100S (HIROSE ELECTRIC Co., Ltd.) or equivalent			
Acceptable cable connector	CN1: DX31A-100P (connector) plus DX-100-CV1 (cover) (HIROSE ELECTRIC Co., Ltd.) or equivalent			
Isolation	No-isolation		GMR isolation, photo isolation	
Interrupt sources	Occupancy interruption: 1 3 sources: controller interrupt, external reset interrupt, interlock interrupt			
MTBF	185222 hrs.	184996 hrs.	183466 hrs.	183244 hrs.

Motor Driving Pulse Specifications

Model type	PEX-H740444V	PEX-H740444M	PEX-H741444V	PEX-H741444M
Controller	PCL6045BL (Nippon Pulse Motor Co., Ltd.) or equivalent			
Base clock frequency	19.6608 MHz			
Number of axes	4 individual axes			
Pulse output rate	Approximately 0.073 pps to 6.5535 Mpps			
Number of output pulses	-134,217,728 to +134,217,727			
Acceleration and deceleration	Linear, S-curve (parabolic)			
Interpolation	Linear interpolation: 2 axes through 4 axes (Up to 32 axes can be controlled in parallel configuration.) Circular interpolation: 2 axes			
Pulse output mode	Up/down pulse output (CW/CCW mode) Step/direction output (Step/Dir mode)			
Output configurations	Differential line driver output (RS-422 standard)			
Motor configuration	Driver activation (pulse train input positioning control)			
Output current	+/- 20 mA (max.)			
Low level output voltage	+0.3 Vdc (typ.) (output current: +20 mA)			
High level output voltage	+3.4 Vdc (typ.) (output current: -20 mA)			

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Control Signal Input / Digital Input Specifications

Model type	PEX-H740444V	PEX-H740444M	PEX-H741444V	PEX-H741444M
Input signals	1+EL to 4+EL (Forward direction end limit signal: 1 pin/axis) 1-EL to 4-EL (Reverse direction end limit signal: 1 pin/axis) 1SD to 4SD (Slow down limit signal: 1 pin/axis) 1ORG to 4ORG (Origin signal: 1 pin/axis) 1ALM to 4ALM (Alarm signal: 1 pin/axis) 1INP to 4INP (Positioning completion signal: 1 pin/axis) 1PCS to 4PCS (Positioning start signal: 1 pin/axis) 1CLR to 4CLR (Counter clear signal: 1 pin/axis) 1LTC to 4LTC (Counter latch signal: 1 point/axis) DI1 to DI12 (Digital input signal: 12 pins) RESET (External reset signal: 1 pin)			
Input configurations	Photo-isolated high-voltage input (Source type)			
Maximum voltage rating	+50 Vdc			
Supply voltage range	+5 Vdc to +48 Vdc			
Input impedance (protection function)	680 Ω (Reverse bias protection diode and leakage current reduction shunt resistor: 1.5 k Ω)			
Low-level input current	I _{IL} = -4.7mA (typ.)			
Threshold current (shut-off guaranteed)	-0.5 mA (max.)			
Threshold current	-0.6 mA to -1.4 mA (voltage level conversion: +1.8 V to +3.3 V)			
Input response time	Closed open = 8 μ s (typ.) Open closed = 60 μ s (typ.) (only external reset signal = 20 ms (typ.))			

Interlock Specifications

Model type	PEX-H740444V	PEX-H740444M	PEX-H741444V	PEX-H741444M
Interlock function	INTLOCK pin (closed): pulse output enabled INTLOCK pin (closed open): board reset INTLOCK pin (open): pulse output disabled			
Input configurations	Photo-isolated high-voltage input (Source type)			
Maximum voltage rating	+50 Vdc			
Supply voltage range	+5 Vdc to +48 Vdc			
Input impedance (protection function)	680 Ω (Reverse bias protection diode and leakage current reduction shunt resistor: 1.5 k Ω)			
Low-level input current	I _{IL} = -4.7 mA (typ.)			
Threshold current (shut-off guaranteed)	-0.5 mA (max.)			
Threshold current	-0.6 mA to -1.4 mA (voltage level conversion: +1.8 V to +3.3 V)			
Input response time	20 ms (typ.)			

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Encoder Input Specifications

Model type	PEX-H740444V	PEX-H740444M	PEX-H741444V	PEX-H741444M
Encoder type	Incremental encoder			
Counter length	28bits			
Input signals	Encoder input (phase A): 1 pin/axis Encoder input (phase B): 1 pin/axis Encoder input (phase Z): 1 pin/axis			
Input configuration	High-speed photo-isolated input (HCPL-063L or equivalent)			
Input voltage	+5 Vdc	+24 Vdc	+5 Vdc	+24 Vdc
Input impedance	270 Ω	2.7 k Ω	270 Ω	2.7 k Ω
Input current	-8.3 mA			
Threshold current (shut-off guaranteed)	-0.8 mA (max.)			
Threshold current	-1.2 mA to -6.2 mA			
Maximum input frequency	1 MHz (The Encoder counter counts by 4 MHz at quad-edge evaluation.)			

Digital Output/Servo Driver Deviation Counter Output Specifications

Model type	PEX-H740444V	PEX-H740444M	PEX-H741444V	PEX-H741444M
Output signals	Digital output: 4 pins (DO1 through DO4) Servo driver deviation counter clear: 4 pins (1ERC to 4ERC)			
Output configurations	High-current drive open-collector output (Source type)			
Maximum voltage rating	+30 Vdc			
Applied voltage range	+5 Vdc to +24 Vdc			
Maximum output current	IoL = +100 mA (max.)			
Low-level output voltage	VOL = +0.2 V (max.), +0.1 V (typ.) (IoL = +100 mA)			
Leakage current	ICE = +100 μ A (max.)			
Output response time	TRON (short-circuit): 10 μ s (typ.) (with the maximum load) TROFF (open): 150 μ s (typ.) (with the maximum load)			



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