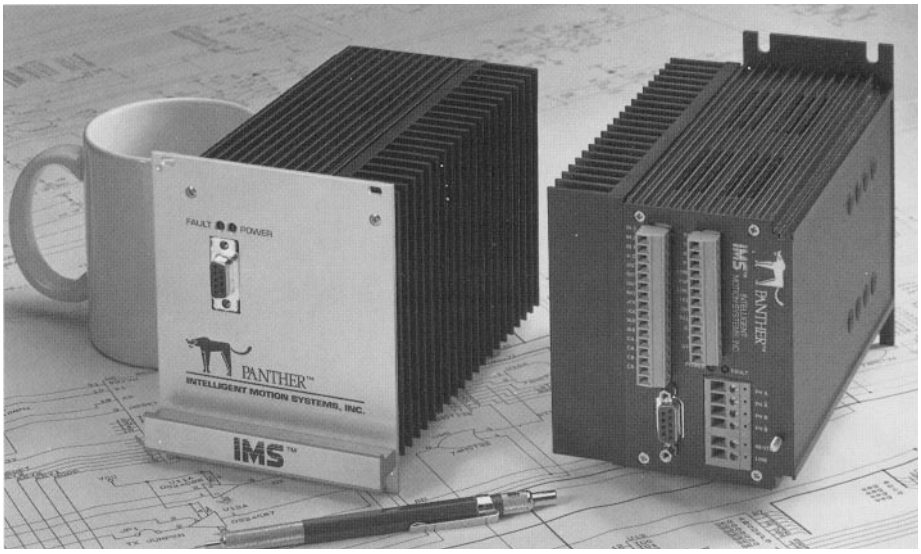
# PANTHER HI & HE

## COMPLETE HIGH PERFORMANCE MICROSTEPPING SYSTEM




### FEATURES

- Integral Indexer, Driver, Power Supply and Encoder Feedback
- Extremely Compact (4.0 x 6.7 x 4.4 inches) (101 x171 x 112 mm)
- Low Cost
- Short Circuit and Over Temperature Protection
- Built-in Line Filter
- Fault and Power Indicators
- High Output Current (7 Amps RMS, 10 Amps Peak)
- Advanced Surface Mount and ASIC Technology
- 115/240 VAC, 50/60 Hz Versions
- Optional Rack Mounting
- Fixed or Variable Step Resolution
- 1/100 Step Command Resolution
- 1/256 Step Motor Resolution
- Programmable Accel and Decel Ramps
- RS422 Party Line Operation (Optional RS232 Communication)
- 2k Bytes of Nonvolatile Memory for Program Storage
- 6 Buffered User I/O Ports
- Optically Isolated Home and Limit Switch Inputs
- Jog Inputs
- Go and Soft Stop Inputs
- Programmable Motor Run and Hold Currents
- Motor Speeds to 6,000 RPM
- Programmable Trip Points

### DESCRIPTION

Incorporated into the PANTHER HI & HE drivers are proprietary circuits that minimize ripple current while maintaining a 20kHz chopping rate. This prevents additional motor heating that is common with drivers requiring higher chopping rates. Now low inductance stepper motors can be used to improve high speed performance and system efficiency.

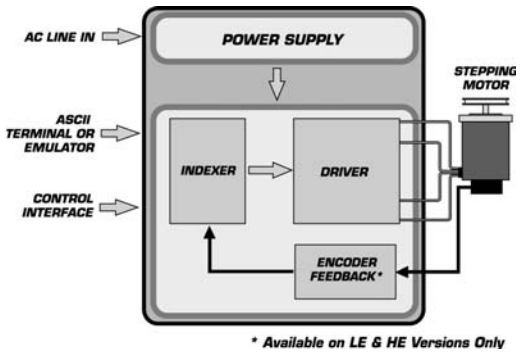
The built-in indexer on the PANTHER HI & HE allows the user, via a serial link, to program parameters such as acceleration/deceleration ramps, velocity, position, resolution and drive current to form simple or complex motions.

Programs can be executed by sending single commands, or can be stored in the on-board nonvolatile memory which can then be executed on power-up or by discrete user inputs.

The indexer has a variety of built-in functions. Some of which include limit switches and a homing algorithm, as well as general purpose inputs and outputs that can be used to detect switch closures and to activate solenoids and other external devices.

The PANTHER HE, with its built-in encoder option, can be used to enhance system performance by adding complex functions such as position verification, maintenance and stall detection. These functions can be of particular importance with systems requiring closed loop control to track movement and final position.

### BLOCK DIAGRAM



## *ELECTRICAL*

Input Voltage ..... 90 to 128 VAC or optional 180 to 264 VAC, 50/60 Hz
Drive Current Per Phase – Software Selectable ..... 2 to 10 Amps Peak (Max 7 Amps RMS)
Isolated Logic Inputs ..... Limit A, Limit B, Home, Party
Baud Rate ..... 9600
Velocity Generator Range ..... 20 to 20,000 steps/second
Motor Resolutions – 1.8°/Full Step ..... Auto-Variable, 200, 400, 800, 1600, 3200, 6400, 12800, 25600, 51200
Position Counter ..... ±8,388,607.99
Nonvolatile Memory ..... 2k Bytes
Inputs – General Purpose ..... 3 (0 to +5 VDC)
Inputs – Dedicated Inputs [Go, Jog +, Jog –, Jog Speed, Soft Stop] ..... 5 (0 to +15 VDC)
Outputs – General Purpose ..... 3 (0 to +5 VDC)
Encoder Resolution ..... 50–2000 (Lines in 50 Line Increments)
Protection ..... Thermal, Over/Under Voltage, Ø to Ø, Ø to Ground, and Ø to +$V_{BUS}$ Short Circuit
Status Indicators (LEDs) ..... Power, Fault

## *PIN ASSIGNMENTS*

| CONNECTOR P1 | | CONNECTOR P3 | |
|---|---|---|---|
| **PIN** | **FUNCTION** | **PIN** | **FUNCTION** |
| 1 | Phase A | 1 | Input 3 |
| 2 | Phase /A | 2 | Input 2 |
| 3 | Phase B | 3 | Input 1 |
| 4 | Phase /B | 4 | +5VDC Output |
| 5 | AC Neutral | 5 | Output 3 |
| 6 | AC Input Line | 6 | Output 2 |
| **CONNECTOR P2** | | 7 | Output 1 |
| **PIN** | **FUNCTION** | 8 | Moving |
| 1 | TX – | 9 | Jog + |
| 2 | TX + | 10 | Jog – |
| 3 | RX – | 11 | Index – |
| 4 | RX + | 12 | Index |
| 5 | Limit A | 13 | Channel A/ |
| 6 | Party | 14 | Channel A |
| 7 | Limit B | 15 | Channel B/ |
| 8 | Home | 16 | Channel B |
| 9 | Opto Supply | **CONNECTOR P4** | |
| 10 | Fault | **PIN** | **FUNCTION** |
| 11 | Ground | 2 | Transmit Data |
| 12 | Go | 3 | Receive Data |
| 13 | Soft Stop | 5 | Ground |
| Pins not shown are No Connect. | | 6 | +5VDC |

*Refer to product manual for complete pin assignment details.*

## *TEMPERATURE*

Storage ..... –40 to +125° C
Case ..... 0 to +60° C

## *ORDER INFORMATION*

| **Name** | **Part Number** |
|---|---|
| Microstepping System | Panther HI/HE |
| Built-in RS232 to RS422/485 Converter | Panther HI2/HE2 |
| Rack Mounting Option | add –RM to basic part # |
| Differential Encoder Option | add –DE to basic part # |
| 240 VAC Input Voltage | add –240 to basic part # |
| Inline RS232 to RS422 Converter | CV-3222 |
| Graphical User Interface | QuickSTART 1 |
| Small End Screwdriver | SD–1 |

## *MECHANICAL*

Dimensions in Inches (mm)