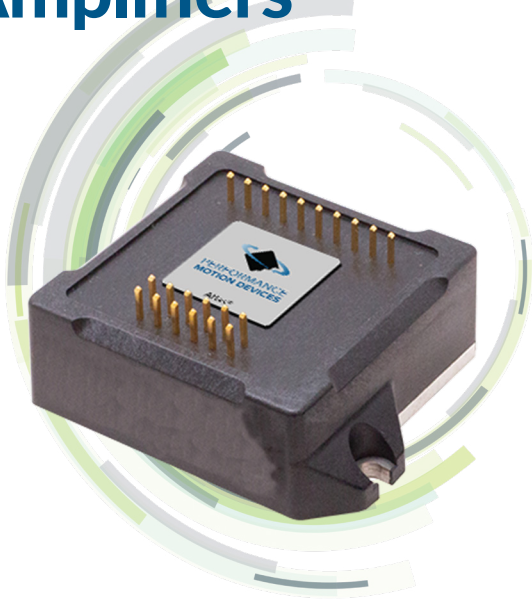


ATLAS® Digital Amplifiers



ATLAS® Digital Amplifiers are compact single-axis amplifiers that provide high performance torque control for DC Brush, Brushless DC, and step motors. They are packaged in a compact, solderable module and are ideal for use in positioning motion control, velocity control, and precision force control applications.

High Performance in an Ultra Compact Package

ATLAS Digital Amplifiers are used for direct control of motor torque, or in conjunction with higher level motion controllers. Their very compact size and high power output make them ideally suited for applications such as medical equipment, laboratory automation, scientific instruments, general purpose motion control, force feedback, and actuator controls. ATLAS Amplifiers are provided in vertical and horizontal mounting configurations, with three power levels, and two package sizes.

Advanced Amplifier Technology

ATLAS Digital Amplifiers utilize PMD's proprietary digital current control and switching technology for exceptional efficiency and quiet motor operation. Control features include user-programmable gain parameters, performance trace, field oriented control, and I²t current management. Atlas amplifiers are internally powered from a single motor supply voltage, and provide automatic protection from overcurrent, undervoltage, overvoltage, overtemperature, and short circuit faults.

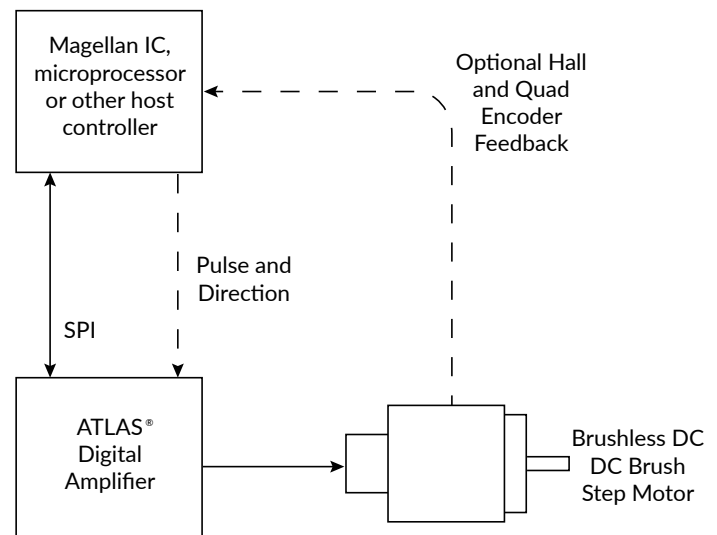
Easy to Use

The ATLAS family has been designed to work seamlessly with PMD's Magellan motion control ICs. Alternatively, they can be used with dedicated FPGAs, digital signal processors, or general purpose microprocessors. Communication is via SPI (Serial Peripheral Interface) using a simple, packet-oriented protocol. For step motors, in addition to the SPI format a pulse and direction input mode is provided.

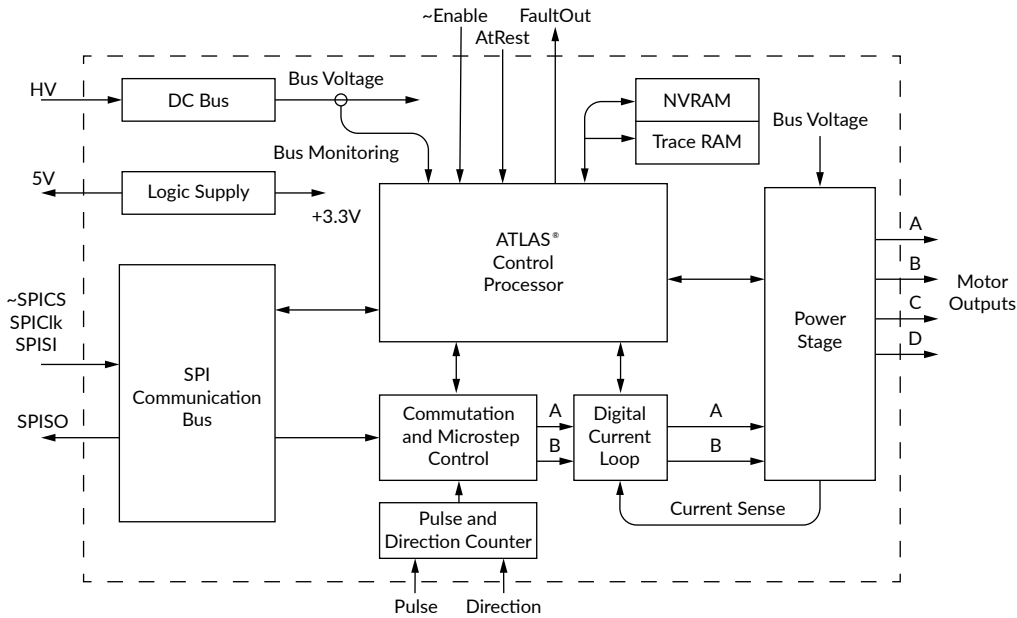
FEATURES

- Ultra efficient all digital solderable power amplifier
- Controls Brushless DC, step, and DC Brush motors
- Available in 75 W, 250 W, and 500 W power levels
- Operating supply voltage range of 12 V to 56 V
- Field oriented control
- Overcurrent, overvoltage, and undervoltage protection
- Single supply operation from motor bus voltage
- Fully digital current control
- I²t current foldback limiting
- On-board performance trace and motor parameter storage in NVRAM
- Multi-motor version allows motor type to be programmed by user
- SPI (Serial Peripheral Interface) eliminates analog +/- 10 V torque signals
- Pulse and direction input for step motor operation
- Internal temperature monitor
- Two different package sizes available
- Enable input and Fault output safety interlocks
- Works with Magellan® ICs, FPGAs or microprocessor-based controllers
- Comes in horizontal and vertical mount configurations
- Digital SPI torque command with checksum
- Industry leading efficiency and power density
- Full RoHS compliant and CE marked
- Up to 14A continuous, 25A peak motor output
- User programmable current loop gain values

CONFIGURATION

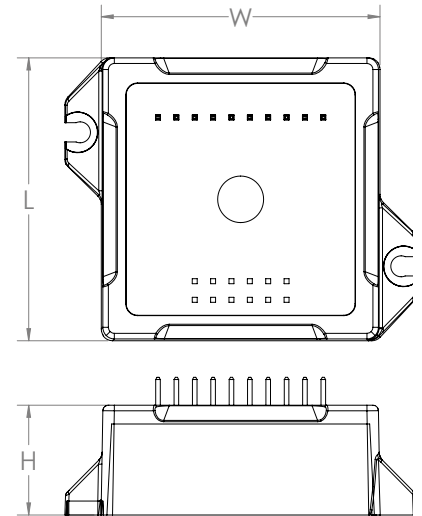


Technical Overview



MECHANICAL DIMENSIONS

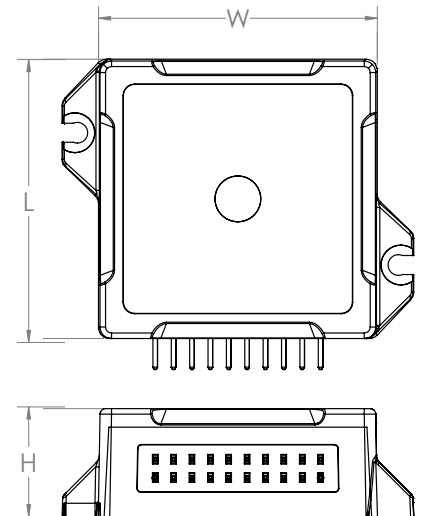
Horizontal Configuration



ATLAS FAMILY SPECIFICATIONS

| Parameter | Value |
|--------------------------|--|
| Supported Motor Types | Brushless DC, step motor, DC Brush, and multi-motor |
| PWM frequency | 20, 40, 80, 120 kHz |
| Current Loop rate | 20 kHz |
| Microstepping resolution | 256 microsteps per full step |
| User Programmability: | Non-volatile RAM user configuration storage |
| Trace Memory: | 2 KB |
| I/Os: | FaultOut, Enable |
| Safety: | Short Circuit, OverCurrent, I ² t Current Foldback, SPI Watchdog, Overvoltage, Undervoltage |
| Operating Temperature: | 0° - 40° C |
| Compliance: | RoHs, CE LVD:EN60204-1, EMC-D: EN61000-6-1, EN61000-6-3, EN55011 |
| UL: | Designed to UL508C, UL840, and EN60204-1 |

Vertical Configuration



ATLAS MODELS SPECIFICATIONS

| Model | Voltage Input | Peak Current | Continuous Current | Package |
|----------------------------|---------------|--------------|--------------------|---------------|
| Low Power, brushless DC | 12-48V | 3.8 Amps | 1.5 Arms | Ultra Compact |
| Low Power, step motor | 12-48V | 3.8 Amps | 1.5 Arms | Ultra Compact |
| Low Power, DC brush | 12-48V | 3.8 Amps | 1.5 ADC | Ultra Compact |
| Medium Power, brushless DC | 12-48V | 12.5 Amps | 5.0 Arms | Ultra Compact |
| Medium Power, step motor | 12-48V | 12.5 Amps | 4.5 Arms | Ultra Compact |
| Medium Power, DC brush | 12-48V | 12.5 Amps | 7.0 ADC | Ultra Compact |
| High Power, brushless DC | 12-56V | 25.0 Amps | 10.0 Arms | Compact |
| High Power, step motor | 12-56V | 25.0 Amps | 9.0 Arms | Compact |
| High Power, DC brush | 12-56V | 25.0 Amps | 14.0 ADC | Compact |

| Model | Length (L) | Width (W) | Height (H) |
|--------------------------|-------------------------|-------------------------|-------------------------|
| Ultra Compact Vertical | 1.054 (in) 26.8 (mm) | 1.051 (in) 26.7 (mm) | 0.526 (in) 13.4 (mm) |
| Ultra Compact Horizontal | 1.054 (in) 26.8 (mm) | 1.051 (in) 26.7 (mm) | 0.526 (in) 13.4 (mm) |
| Compact Vertical | 1.520 (in) 38.6 (mm) | 1.517 (in) 38.5 (mm) | 0.600 (in) 15.2 (mm) |
| Compact Horizontal | 1.520 (in) 38.6 (mm) | 1.517 (in) 38.5 (mm) | 0.600 (in) 15.2 (mm) |

Development Tools

1 EASY START-UP Developers Kit

INCLUDES

- 1 or 4 axis configuration supports all Atlas unit types
- Pro-Motion software
- Includes rugged L-bracket hardware
- Complete manual set
- Complete cable and prototyping connector set

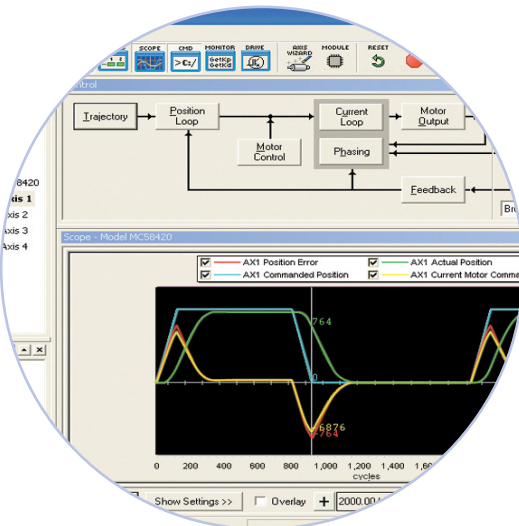


2 TUNE & CONFIGURE Pro-Motion® GUI

Pro-Motion is a sophisticated, easy-to-use Windows-based exerciser program for use with PMD amplifiers, motion control ICs, modules, and boards.

FEATURES

- Motion oscilloscope graphically displays parameters in real-time
- Easy motor setup with Axis wizard
- Autotuning of control parameters
- Advanced Bode frequency machine analysis
- Ability to save and load configuration parameters in NVRAM
- Trace capability for analyzing motor behavior



3 BUILD THE APPLICATION C-Motion®

Atlas Developer Kits are most often used in conjunction with either the DK58420 or the DK58113 Magellan IC Developer Kits.

C-MOTION & MAGELLAN IC DEVELOPER'S KIT FEATURES

- Develop embeddable C/C++ application code
- Connects to encoder feedback signals, limit switches, and other motion peripherals
- Control and exercise your entire machine
- Communicate to the PC via PC/104, serial, CAN, or SPI communications
- Store NVRAM parameters

```
code for executing a profile and trace
captured in this example could be used for tuning the Pro
trace buffer wrap mode to a one time trace
TraceMode(hAxis1, PMDTraceOneTime);

set the processor variables that we want to capture
SetTraceVariable(hAxis1, PMDTraceVariable1, PMDAxis1,
SetTraceVariable(hAxis1, PMDTraceVariable2, PMDAxis1,
SetTraceVariable(hAxis1, PMDTraceVariable3, PMDAxis1, P

// set the trace to begin when we issue the next update command
SetTraceStart(hAxis1, PMDTraceConditionNextUpdate);

// set the trace to stop when the MotionComplete event occurs
SetTraceStop(hAxis1, PMDTraceConditionEventStatus,
PMDEventMotionCompleteBit, PMDTraceStateHigh);
SetProfileMode(hAxis1, PMDTrapezoidalProfile);

set the profile parameters
SetPosition(hAxis1, 200000);
SetVelocity(hAxis1, 0x200000);
SetAcceleration(hAxis1, 0x1000);
SetDeceleration(hAxis1, 0x1000);

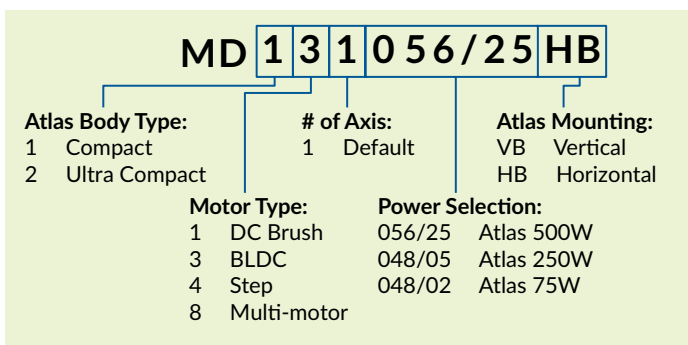
tion
1;
```

PMD PRODUCT FAMILY OVERVIEW

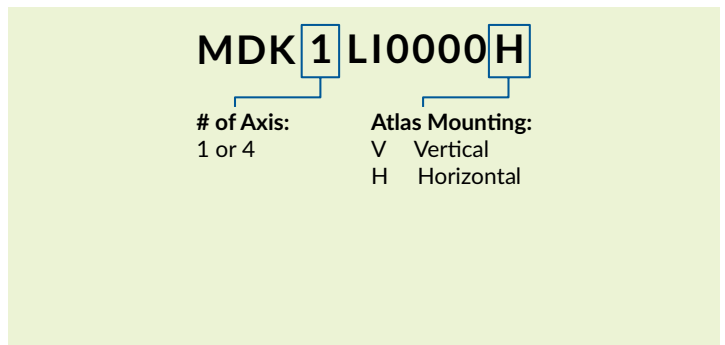
| | # Axes | Motor Types | Format | Voltage | Communication | Features |
|---|---------|--|--|---|---|--|
| JUNO® VELOCITY & TORQUE CONTROL ICs  | 1 | <ul style="list-style-type: none"> Brushless DC DC Brush Step Motor | <ul style="list-style-type: none"> 64-pin TQFP 56-pin VQFN | 3.3 V | <ul style="list-style-type: none"> RS232/485 CANbus SPI | <ul style="list-style-type: none"> Velocity control Current control Field oriented control |
| MAGELLAN® MOTION CONTROL ICs  | 1,2,3,4 | <ul style="list-style-type: none"> Brushless DC DC Brush Step Motor | <ul style="list-style-type: none"> 144-pin TQFP 100-pin TQF | 3.3 V | <ul style="list-style-type: none"> RS232/485 CANbus SPI Parallel | <ul style="list-style-type: none"> Position control Torque/current control Field oriented control Profile generation |
| ATLAS® DIGITAL AMPLIFIERS  | 1 | <ul style="list-style-type: none"> Brushless DC DC Brush Step Motor | <ul style="list-style-type: none"> 20-pin solderable module | 12-56 V | <ul style="list-style-type: none"> SPI Pulse and direction | <ul style="list-style-type: none"> Torque/current control Field oriented control MOSFET amplifier |
| ION®/CME N-SERIES DIGITAL DRIVES  | 1 | <ul style="list-style-type: none"> Brushless DC DC Brush Step Motor | <ul style="list-style-type: none"> Fully enclosed PCB-mounted module | 12-56 V | <ul style="list-style-type: none"> Ethernet RS232/485 CAN FD SPI | <ul style="list-style-type: none"> Position control Torque/current control Field oriented control Profile generation MOSFET amplifier Downloadable user code |
| ION® 500 & 3000 DIGITAL DRIVES  | 1 | <ul style="list-style-type: none"> Brushless DC DC Brush Step Motor | <ul style="list-style-type: none"> Fully enclosed cable-connected module | 12-56 V 20-195 V | <ul style="list-style-type: none"> Ethernet RS232/485 CANbus | <ul style="list-style-type: none"> Position control Torque/current control Field oriented control Profile generation MOSFET amplifier Downloadable user code |
| PRODIGY® MOTION BOARDS  | 1,2,3,4 | <ul style="list-style-type: none"> Brushless DC DC Brush Step Motor | <ul style="list-style-type: none"> Machine Controller PC/104 Standalone | <ul style="list-style-type: none"> 5 V: PC/104 and Standalone 12-56 V: Machine Controller | <ul style="list-style-type: none"> Ethernet RS232/485 CANbus PC/104 bus | <ul style="list-style-type: none"> Position control Torque/current control Field oriented control Profile generation Downloadable user code |

C-Motion® is the common motion language for all Performance Motion Devices products.

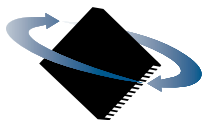
FOR ORDERING ATLAS



FOR ORDERING ATLAS DKS



To place an order email purchaseorders@pmdcorp.com. For questions email support@pmdcorp.com



**PERFORMANCE
MOTION DEVICES**

MOTION CONTROL AT ITS CORE

About Performance Motion Devices

Performance Motion Devices (PMD) is a worldwide leader in motion control ICs, boards and amplifiers. Dedicated to providing cost-effective, high performance motion systems to OEM customers, PMD utilizes extensive in-house expertise to minimize time-to-market and maximize customer satisfaction.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

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