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ADVANCED MOTION CONTROLS

Everything's possible.

Servo Drives & Controls Overview

About *ADVANCED* Motion Controls

ADVANCED Motion Controls has earned a reputation for being the most flexible and affordable manufacturer of quality high performance and high power density servo drives. Camarillo California is home to our state-of-the-art 86,000 ft^2 (m^2) facility that integrates Engineering, Manufacturing, Testing and Support in a single location. By selecting *ADVANCED* Motion Controls as your servo drive and controls supplier, you will be adding an integral member to your design engineering team with multi-industry expertise.

30 Years of Excellence

30 years of servo drive manufacturing, with over 2.5 million servo axes built and shipped worldwide!

Any: Motor, Controller, Feedback, Network, Environment, Industry, Application!

Our servo drives and controls can be found all over the world in the highest performance applications and the harshest environments, as well as working reliably in day-to-day operations. With hundreds of readily available models as well as offering modifications to existing products and complete custom solutions, *ADVANCED* Motion controls has the solution to any servo application!

ADVANCED MOTION CONTROLS

For Company Information, Product Datasheets, Installation Manuals and Downloads visit a-m-c.com

Technologies and Product Capabilities

Combining cutting-edge technology and creative engineering, *ADVANCED* Motion Controls is able to design and manufacture high quality servo drives capable of delivering high power at a low cost. As the demands of the motion control industry have increasingly asked for better performance, more features, and simplified integration, *ADVANCED* Motion Controls has responded by finding resourceful solutions to the problems faced by OEMs and servo system designers. Whether by implementing innovative design techniques throughout our line of standard products, or by directly solving a specific customer's application with a brand-new custom product, *ADVANCED* Motion Controls has the drive expertise to take on your servo system challenge.

Any Network

CANopen

EtherCAT

ETHERNET POWERLINK

Ethernet

RS-485/232 SERIAL

Modbus

We also have the ability to quickly produce custom DigiFlex® Performance™ drives utilizing many other common types of network communication.

Any Motor

- **Three Phase (Brushless)**
  - » **Servo - BLDC, PMAC**
  - » **AC Induction (Closed Loop Vector)**
  - » **Closed Loop Stepper**
- **Single Phase**
  - » **Brushed**
  - » **Voice Coil**
  - » **Inductive Load**

Any Feedback

- **Absolute Encoder**
  - » **EnDat®**
  - » **Hiperface®**
  - » **BiSS® C-Mode**
- **1Vp-p Sin/Cos Encoder**
- **Incremental Encoder**
- **Aux. Incremental Encoder**
- **Hall Sensors**
- **Resolver**
- **±10VDC Position**
- **Tachometer**
  - » **±10VDC**
  - » **±60VDC**

Accessories

- **Mounting Cards**
- **Filter Cards**
- **Power Supplies**
- **Shunt Regulators**

ADVANCED Motion Controls' University Outreach program provides cost-reduced and free servo drives to future generations of engineers and motion control system designers for university and research applications. Hundreds of academic projects at educational institutions worldwide have taken advantage of University Outreach to achieve success with their motion control endeavor. To learn more about the opportunities available and to see past successful student projects visit **www.a-m-c.com/university/program-overview.html**

ADVANCED MOTION CONTROLS

Any Application, Any Industry

ADVANCED Motion Controls is able to utilize our extensive experience in providing high performance servo drives to support motion control applications in numerous industries. With an ever-expanding customer base across new and emerging fields, and having been established as a top supplier for traditional servo solutions, *ADVANCED* Motion Controls brings our wealth of diverse motion control knowledge to a wide variety of industries, including but not limited to:


Assembly Automation and General Factory Machinery


Communications Control


Electric Mobility and Mobile Robotics


Entertainment


Homeland Security and Defense


Inspection Testing and Rapid Prototyping


Lab Automation


Machine Tool and Metalworking


Material Handling and Conveyed Systems


Medical

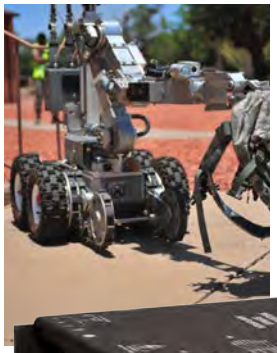

Packaging


Power Generation and Alternative Energy Sources


Robotics (fixed)


Semiconductor

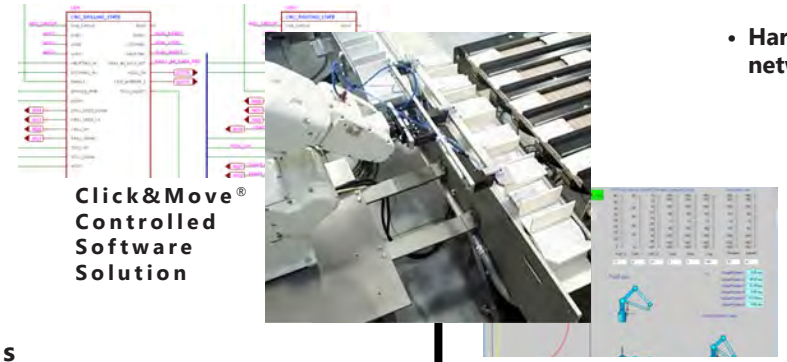

Simulators



CLICK&MOVE® AUTOMATION SOLUTION

The C&M automation system consists of two parts:

- **Software - used to create motion, PLC code, and an HMI**
- **Hardware - a PC, a stand-alone controller, servo drive(s), and networked I/O as needed**



Click&Move® Controlled Software Solution

Connectivity Possibilities

Software

Hardware

Optional 3rd Party Components

HMI

PLC

Remote or Local I/O

Click&Move® Embedded (Stand-alone) Servo Drive

PC (Win OS or Linux)

MACC Family Controller

Optional MACC I/O Card

Integrated Drive and Motor

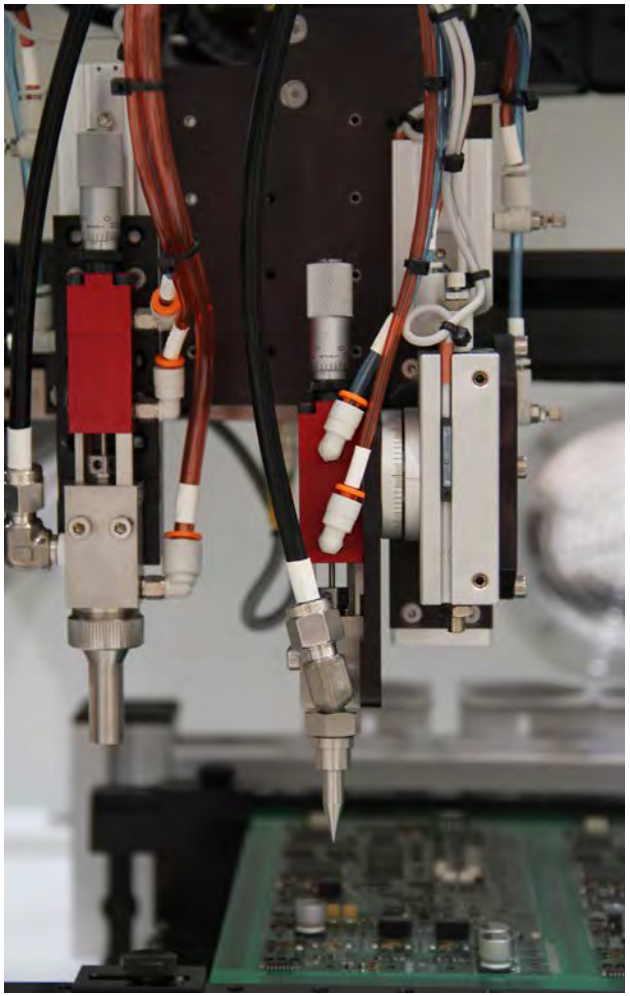
Fieldbus (CANopen, EtherCAT, POWERLINK, Modbus TCP)

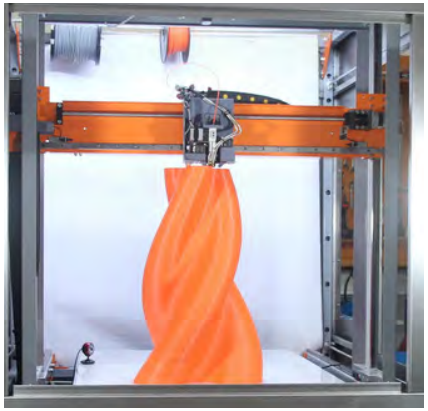
Panel Mount Networked or Click&Move® Embedded Servo Drives

PCB Mount Networked or Click&Move® Embedded Servo Drives with Mounting Cards

Click&Move® (C&M) is an automation solution designed for OEMs, systems integrators, and end users. C&M can include motion control, PLC logic, local I/O, and networked I/O. Applications can be simple, single-axis with minimal I/O to complex, multi-axes running in real-time.

- **Combines Motion, PLC and HMI control**
- **Fully compliant with PLCopen, the global standard for industrial control programming**
- **Fully IEC 61131-3 compliant using graphical Function Block Diagrams (FBDs) (pre-configured or user-defined)**
- **FBDs compiled to ANSI C++ source code**
- **Project logic is based on state machine architecture**
- **Multiple platforms supported: PC (Win OS and Linux), stand-alone controller (MACC), and *ADVANCED* Motion Controls®' servo drives**
- **Supports CANopen®, EtherCAT®, POWERLINK, and Modbus TCP network protocols**
- **Controls multi-axis networks or Click&Move® embedded stand-alone drives**





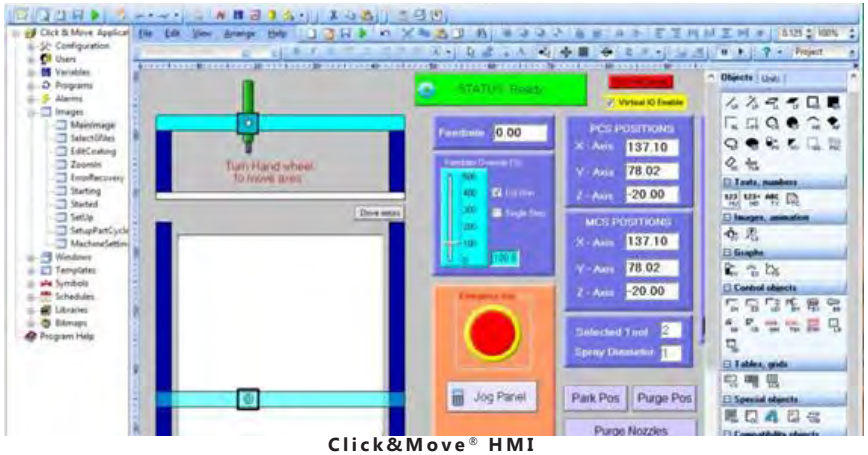
Click&Move® Application Examples

- **Packaging**
- **Wire Crimping**
- **Arc Welding**
- **Plasma Cutting**
- **Fixed Robotics**
- **3D Printing**
- **AGVs**
- **Industrial Actuators**
- **Lab Automation**
- **Communications Telemetry**
- **Laser Engraving**
- **...and many more!**

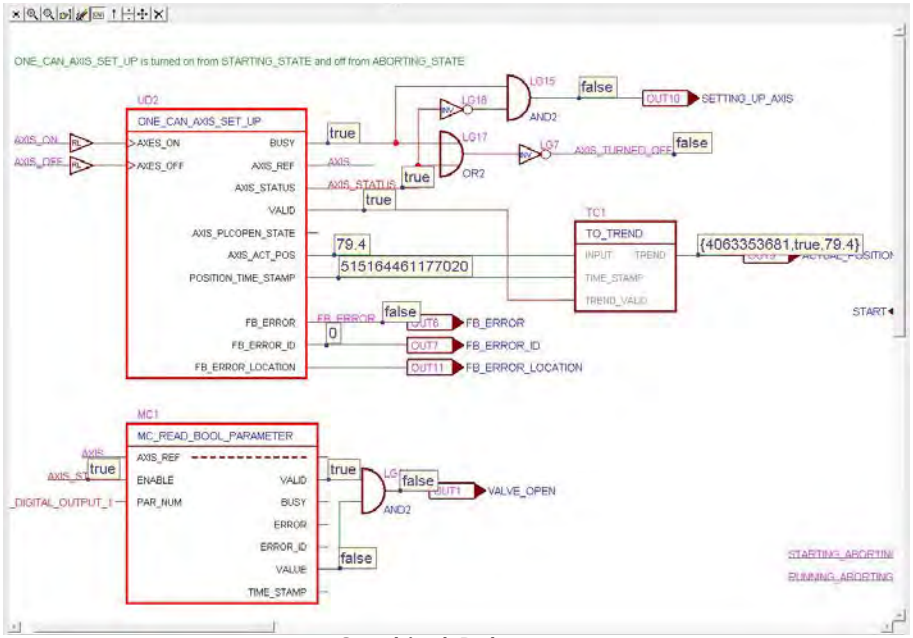
ADVANCED MOTION CONTROLS

The C&M Integrated Development Environment (IDE) provides the user with a programming environment for a range of applications: motion, PLC machine control, G-code file handling for CNC apps, process control, and robotics.

The IDE consists of an off-the-shelf graphics editor to create and modify FBD-based logic schematics and HMI screens, debug application code, organize and archive application code, merge and compare code, and automate the build/compile status.

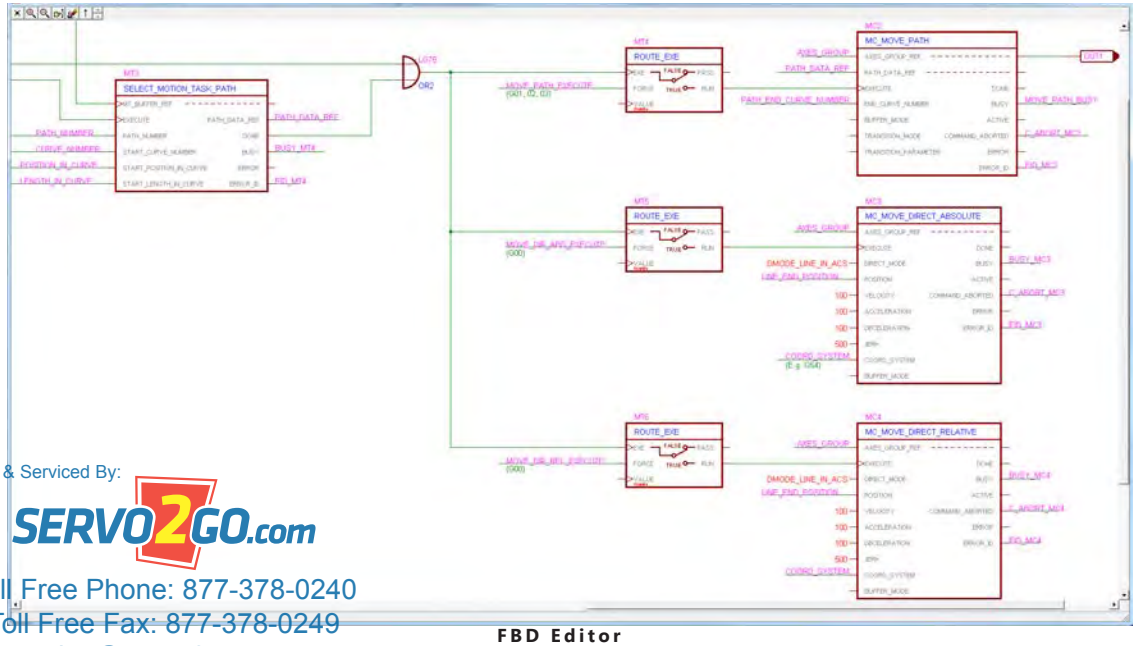


Click&Move® HMI



Graphical Debugger

- **Windows-based FBD-development system with common pull-down menus**
- **The HMI displays live information, and alters variables during real-time operation**
- **Virtual axes for motion simulation**
- **Graphical and text-based debugging tools**
- **Extensive built-in Help**
  - » **Tutorials**
  - » **Demos**
  - » **Example Applications**
  - » **White Papers**
- **External database links**
- **Multiple example applications**



FBD Editor

MACC Controller Family

Motion Automation Control Cards (MACC) are general purpose motion/automation controllers with embedded Click&Move® capability. Operating from a 24VDC power supply, MACC controllers can control DigiFlex® Performance™ servo drives over CANopen®, EtherCAT®, POWERLINK, or Modbus TCP networks. Additionally, the optional plug-in MACC I/O Modules enable control of non-networked AxCent™ or DigiFlex® Performance™ servo drives using traditional commands such as Step/Dir, ±10V Analog, and PWM/Dir.

» **MACC with Network Drives and Network I/O Module** - This solution can meet demands for drive and I/O command update rates in the few hundred microseconds range. The MACC integrates field bus masters directly or they can be installed into an external PC.

» **MACC with Non-Network Drives** - Non-networked servo drives, combined with the MACC, provide a system with the lowest overall cost. This solution can meet demands for drive and I/O command update rates in the 50 microsecond range. In this case, motor feedback connections are made to the external I/O module's dedicated inputs.

MACC02

As a stand-alone controller, the MACC02 can take the place of a PC in a control system to reduce cost, or can be configured to work in conjunction with a PC where the MACC02 handles the real-time and time-critical processes such as motion control, and the PC handles less time-critical processes such as the HMI.

- ARM Cortex-A9 microprocessor
- Micro SD card storage
- Real-Time Linux
- Real-Time clock
- Full PLC Logic for machine control
- Fieldbus I/O connectivity
- Multi-axes motion control
- CANopen, EtherCAT, POWERLINK, or Modbus TCP master capability
- WLAN and Bluetooth compatible

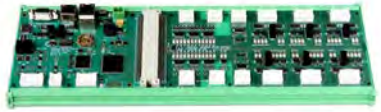
MACC11

The MACC11 (µMACC) is designed to be a compact, low-cost controller for machine automation and/or process control applications. Based on the firmware loaded, the MACC11 can control up to 6 axes of servos or steppers, servo drives via the CAN bus, or 2 servo axes via PWM signals.

- 32-bit 120 MHz Risc processor
- 256 kbyte zero wait state SRAM for data
- 1 Mbyte FLASH for firmware and user program storage
- C Programmable
- Micro SD card storage
- RTC with battery backup
- 6 12-bit analog inputs
- 2 11-bit analog outputs
- 9 digital I/Os
- 100 Mbit Ethernet
- USB 2.0 full speed peripheral for firmware update purposes
- Isolated CAN bus and RS485/232

MACC I/O Modules

The MACCIO modules feature the necessary digital and analog I/O to fulfill any application requirement. These cards are partially or fully customizable to fit the application specifications and budget. All of the different MACCIO modules are compatible with all models of the MACC Controller Family.



MACCIO1

- 8 16-bit analog inputs
- 8 16-bit digital inputs
- 16 optocoupled digital inputs
- 16 optocoupled digital outputs
- 2x4 isolated high speed RS422 differential outputs
- 4 isolated high speed RS422 differential inputs
- 4 incremental or EnDat 2.0 encoder inputs (population option)

MACCIO2

- 16 optocoupled digital inputs
- 16 optocoupled digital outputs

MACCIO3

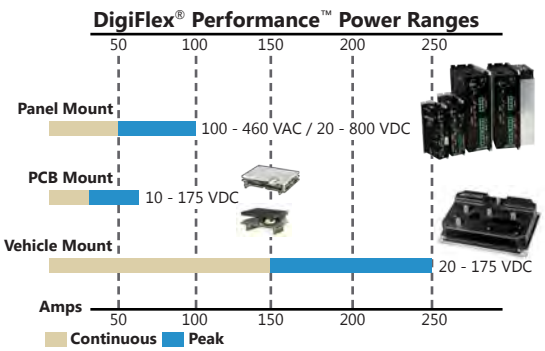
- 6 stages for Step/Dir drive control (isolation population option)
  - » 4 high speed RS422 differential outputs (per stage)
  - » 2 high speed RS422 differential inputs (per stage)
- RS422 inputs for 4 incremental handwheels
- 12 optocoupled digital inputs
- 12 optocoupled digital outputs
- 2 high speed optocoupled digital inputs

MACCIO4

- 4 stages for Step/Dir drive control
  - » 4 non-isolated digital outputs (open collector darlington)
  - » 4 non-isolated digital inputs
- 4 independent encoder inputs supporting encoders or handwheels

DigiFlex® Performance™ Servo Drives

The family of DigiFlex® Performance™ servo drives provide a wide range of options for servo system solutions. DigiFlex® Performance™ (DP) drives deliver peak power output from 1.5 to 27.4kW, and support an array of feedback options. Driving three phase brushless (servo, closed loop vector, closed loop stepper) and single phase (brushed, voice coil, inductive load) motors with the ability to interface with both digital network commands and traditional ±10V analog commands, DP drives offer a versatile blend of cutting edge technology and proven results.



- **Universal servo motor capability by means of automatic commutation adjustment**
- **Variety of feedback options - Absolute Encoder (EnDat®, Hiperface®, BiSS® C-Mode), Incremental Encoder, Hall Sensors, Resolver, 1Vp-p Sin/Cos Encoder, Tachometer**
- **Full tuning control of Position, Velocity, and Torque Loops**
- **Functional Safety (STO) Inputs available on select models - suitable for use in safety-related systems according to:**
  - » **EN 62061 / IEC 61508 SIL 3**
  - » **EN ISO 13849-1 Category 4 / PL e**

Functional Safety Type Approved
TÜVRheinland CERTIFIED
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- **Real-time oscilloscope for high-performance tuning**
- **Status panel for drive and system diagnostics**
- **I/O configuration for over 60 events and signals**
- **Dual loop feedback and control - increases stability and accuracy**
- **Stand-alone or network configuration**
- **Standard models in both Panel Mount, PCB Mount (Z-Drives), and Vehicle Mount (M/V™ Series Motor Controllers)**
- **Employs Space Vector Modulation, resulting in higher bus voltage utilization and reduced heat dissipation**
- **Extended Environment versions available (DZX series Z-Drives)**

Network Options

CANopen

» CANopen - CiA 301 Communications Profile and 402 Device Profile

EtherCAT

» EtherCAT - ETG.1000.6 EtherCAT Application Layer protocol specification and the ETG.6010 Implementation guideline for CiA 402 Device Profile (CoE)

ETHERNET POWERLINK

» POWERLINK - EPSG DS301 Communication Profile Specification Version 1.2.0

Modbus

» Modbus TCP/RTU - Open standard application-layer messaging protocol providing query-response communication over a serial line or on an Ethernet network

RS-485/232 SERIAL

» RS485 - *ADVANCED* Motion Controls' proprietary serial protocol, a byte-based, binary, master-slave standard to access drive commands

Ethernet

» Ethernet - *ADVANCED* Motion Controls' proprietary protocol over Ethernet UDP or TCP

DigiFlex® Performance™ Servo Drives


Any Controller


Any Motor


Any Feedback


Any Application

CANopen EtherCAT ETHERNET POWERLINK

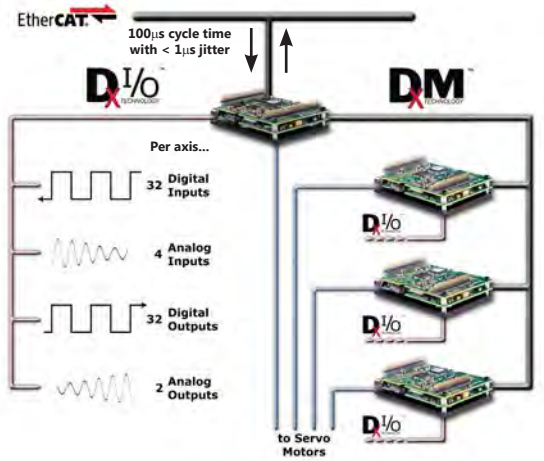
Any Network

Modbus Ethernet RS-485/232 Serial


Any Environment


Any Industry

ADVANCED Motion Controls' Exclusive Innovations in EtherCAT® Connectivity

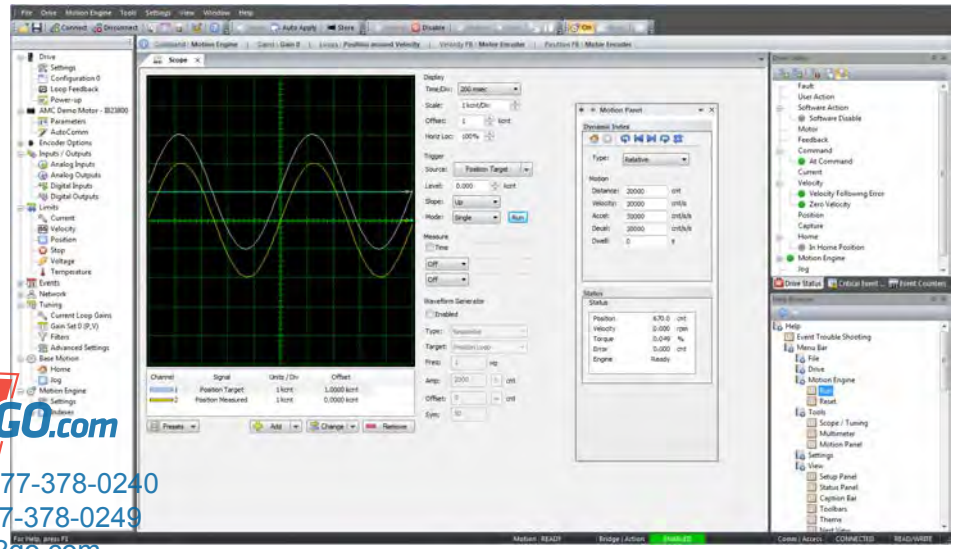


'DxM'™ Technology allows connectivity of up to 3 DZS (sub-nodes) to a single DZE (node) on an EtherCAT® network, providing control of up to 4 axes of servo motion at a reduced cost.

'DxI/O'™ Technology accommodates 70 additional digital and analog I/O points for each axis in a 'DxM' configuration, up to 280 I/O total!

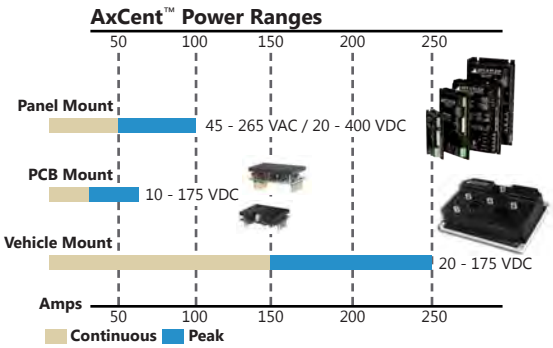
DriveWare® 7

DriveWare® 7 is the powerful servo drive tuning and configuration software used to commission and troubleshoot all *ADVANCED* Motion Controls DigiFlex® Performance™ servo drives. All drive limits, control loops (current, velocity, and position), and event handling can be configured in DriveWare. Notable features include a fully functional multi-channel oscilloscope, function generator and user friendly layout and interface.



AxCent™ Servo Drives

ADVANCED Motion Controls' AxCent™ family of servo drives provide unparalleled benefits in both simplicity and performance. Drive setup and operation does not require computer hardware or software, and achieves higher bandwidth and faster response times at a lower cost. Analog drive technology has been a staple of servo system solutions since day one, and our years of experience in building the highest quality products has created a solid and continuously improving selection of analog drives. A variety of command options, including ±10V analog, PWM and Direction, and specialized electric vehicle commands make *ADVANCED* Motion Controls' AxCent family of drives your best choice for proven servo solutions.



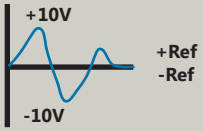
- **Built-in hardware protection - Over Current, Over Voltage, Under Voltage, Over Temperature, Short Circuit**
- **DIP Switches and Potentiometers for loop tuning, current limit adjustments and drive configuration**
- **Standard models support both brushless and brushed motor varieties**
- **Velocity feedback provided via incremental encoder, Hall Sensors, or tachometer**
- **Optical isolation between high and low power signals standard on certain models**
- **Current, Velocity, and Fault Monitor analog output signals**
- **Status LEDs for power and drive status**
- **Standard models in both Panel Mount, PCB Mount (Z-Drives), and Vehicle Mount (M/V™ Series Motor Controllers)**
- **Four quadrant regenerative operation**
- **Extended Environment versions available (AZX series Z-Drives)**

Input Command Signals

±10 V Analog

» Single-ended or differential ±10V analog input command used to adjust the motor current, voltage or speed.

Controller Output

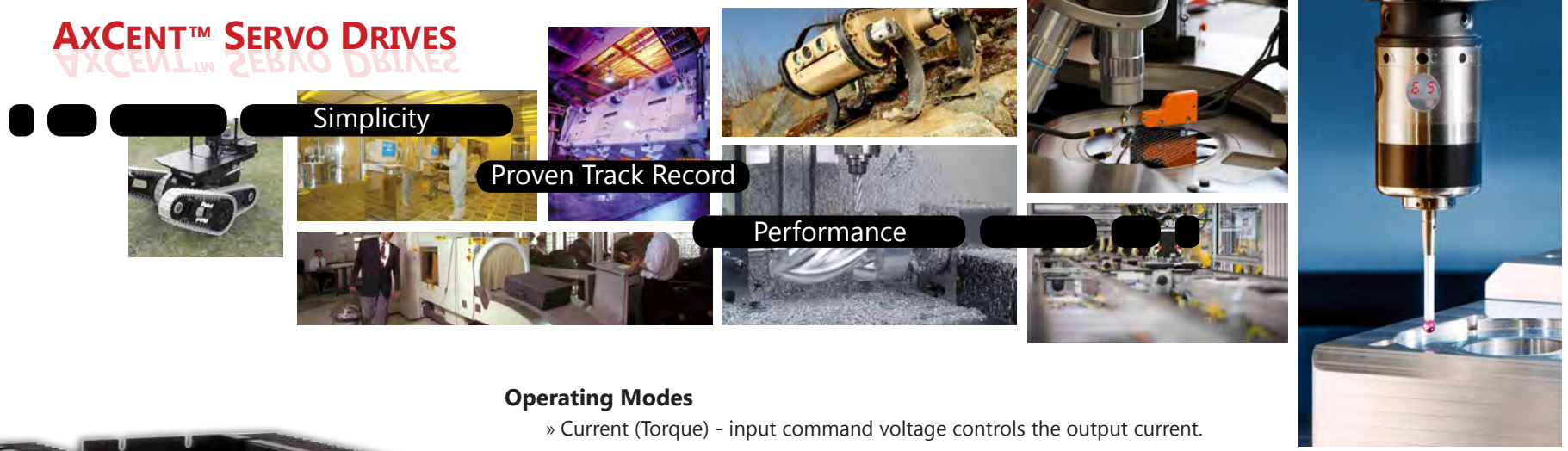


PWM & Direction

» Torque Mode PWM - The PWM signal is converted to an analog voltage in the drive used as the command signal into the current loop (similar to current mode in other products). The input duty-cycle controls the drive's output current.

Controller Output

AxCent™ Servo Drives



Operating Modes

» Current (Torque) - input command voltage controls the output current.

» Duty Cycle (Open Loop) - input command voltage controls the output PWM duty cycle.

» Hall Velocity - input command voltage controls the motor velocity, with the Hall Sensor frequency closing the velocity loop.

» Encoder Velocity - input command voltage controls the motor velocity, with the Encoder pulse frequency closing the velocity loop.

» Tachometer Velocity - input command voltage controls the motor velocity, with a DC tachometer closing the velocity loop.

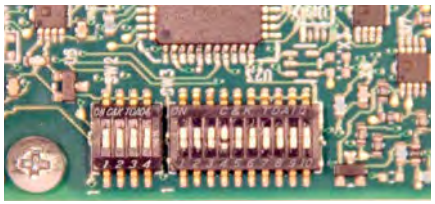
» Voltage - input command voltage commands a proportional output voltage regardless of power supply voltage variations.

» IR Compensation - input command voltage commands a proportional output voltage, adjusting for load torque variations.

Advanced Tuning

Certain AxCent™ models feature advanced tuning capabilities useful for fine-tuning both the current and velocity loop response behavior. Advanced tuning is accomplished via DIP Switches and allows the user greater flexibility and control of their application. Available advanced tuning settings are:

» Additional current loop proportional gain resistance
» Additional current loop integrator capacitance
» Additional velocity integrator capacitance



M/V™ Series Vehicle Mount Motor Controllers

ADVANCED Motion Controls' family of M/V™ series vehicle mount motor controllers are fully functional, four-quadrant servo drives purpose designed and built to operate today's modern mobile electric vehicular platforms. Available in both AxCent and DigiFlex Performance versions and packaged in a compact and rugged IP65 case, M/V series motor controllers provide high power from battery supplies for either permanent magnet brushed or brushless motors. Whether for traction / propulsion, steering, lifting, or any other electrically driven actuation, the unmatched power density, high efficiency, low weight, built-in regen, and cool thermal operation of M/V series motor controllers provide optimum performance for mobile electric vehicular applications.

20-54 VDC	20-80 VDC	40-175 VDC	40-175 VDC
250 A. peak	200 A. peak	125 A. peak	100 A. peak
150 A. cont	125 A. cont	80 A. cont	100 A. cont

- **AxCent™ (AVB, AB) and DigiFlex® Performance™ (DVC) models provide solutions for a wide range of command, configuration, and network options**
- **Selectable throttle command inputs: 0-5V or 0-5kΩ**
- **Standard and vehicle-specific I/O for over 60 events and signals**
- **Compact, Rugged, Vehicle Mount Design - IP65 Rating**
- **Functional Safety (STO) Inputs available on select models - suitable for use in safety-related systems according to:**
  - » **IEC 61508 SIL 3**
  - » **EN ISO 13849-1 Category 4 / PL e**

TÜVRheinland CERTIFIED — Functional Safety Type Approved — www.tuv.com ID 0600000000

- **Watertight I/O, signal, and feedback connector**
- **Watertight access panel for drive configuration and setup**
- **Selectable modes of operation**
- **DVC models configurable through DriveWare® 7, offering the same capabilities of DigiFlex® Performance™ digital servo drives**
- **AVB and AB models configurable through DIP Switches and potentiometers**

ADVANCED MOTION CONTROLS

M/V™ Series Motor Controllers

Throttle Command Inputs

M/V series motor controllers are configurable for a variety of different throttle command types common in electric vehicular applications. Each command type is user-selectable as standard single-ended, inverse single-ended, wigwag, or inverse wigwag.

0-5V Analog Voltage

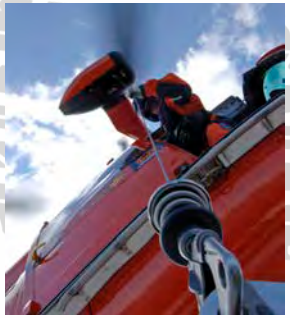
On DVC and AVB models, an external 0 - 5 volt supply provides the command input source.

0-5kΩ Potentiometer

On DVC and AVB models, an external 5kΩ potentiometer can be used in either a 3-wire or 2-wire configuration to provide the command source.

±10V Analog

On DVC and AB models, an external or on-board ±10 volt supply provides the command input source.



Vehicle Specific I/O

M/V series motor controllers feature unique programmable and dedicated inputs and outputs designed with mobile electric vehicular applications in mind.

- Key Switch / Main Contactor Operation
- Electromagnetic Holding Brake Output
- Speed Limit Input
- Reduced Speed Reverse
- Forward / Reverse Inputs
- "Push" (Neutral) Input
- Horn / Reverse Alarm

Extended Environment Servo Drives

ANALOG DIGITAL EXTENDED ENVIRONMENT

ADVANCED Motion Controls' Extended Environment products are designed to operate under harsh thermal and mechanical extremes. An expanded thermal operating range allows these drives to function in both hot and cold ambient environments, and enhanced protection against shock and vibration provides additional system ruggedness. Extended Environment drives also afford benefits for applications in more docile conditions. The superior thermal capabilities reduce or eliminate the need for cooling systems such as external heat sinks and fans, enabling system designs to be more compact and to improve overall reliability.

Shock & Vibration

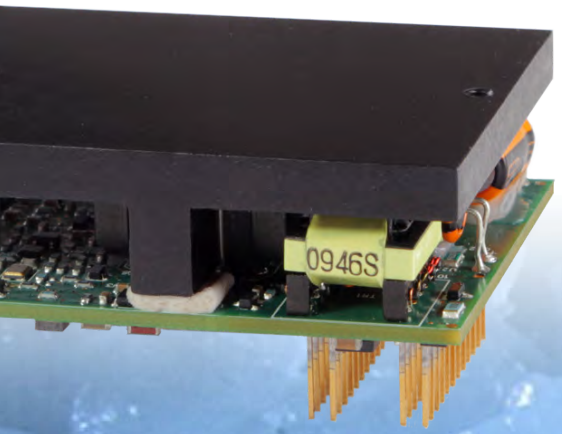
- **Ambient operating temperatures ranging from -40°C to 85°C (-45°F to 185°F)**
- **Over Temperature heat sink protection up to 105°C (221°F)**
- **Thermal rise cycling in about 2 minutes**
- **Shock up to 15g's at 11ms**
- **Vibration up to 30grms on all 3 axes**
- **Standard models in PCB Mount (Z-Drives) form factor - Panel Mount models available as custom designs**
- **Designed to assist system compliance toward:**
  - **» MIL-STD-810F: temperature, thermal shock, humidity, altitude, shock & vibration**
  - **» MIL-STD-1275D: characterization of 28VDC systems**
  - **» MIL-STD-461E: control of electromagnetic interference**
  - **» MIL-STD-704F: aircraft power characteristics**
  - **» MIL-HDBK-217F: reliability predictions**
- **Tested to meet above standards upon customer request**

DZX series

» DigiFlex® Performance™ Z-Drives
» User selected I/O and Event Handling
» Configurable limits & gains
» Distributed network control
» Comprehensive diagnostics

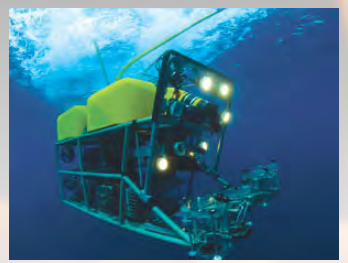
AZX series

» AxCent™ Z-Drives
» Highest bandwidth possible
» Dedicated operating modes
» Highest operating temperature
» Simplest installed platform



ADVANCED MOTION CONTROLS

Extended Environment Servo Drives



-40°C
AZX/DZX Series

-50°C and lower!
Custom Drives

+75°C
DZX Series

+85°C
AZX Series

+100°C and higher!
Custom Drives

Panel mount DigiFlex® Performance™ Servo Drive Models

Example model numbers: DPRALTR-060B080, DPEANIU-C100A400

Network Type	Feedback Type	5V TTL I/O Control Modules
Modbus RTU RS485	Incremental Encoder	DPRALTE
	Resolver	DPRALTR
CANopen	Absolute Encoder 1Vp-p Sin/Cos Encoder	DPCANTA
	Incremental Encoder	DPCANTE
	Resolver	DPCANTR

Combine to form model number

DC only Power Modules	Supply (VAC)	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
020B080*	-	20-80	20	10	133 x 90 x 36
040B080	-	20-80	40	20	191 x 112 x 36
060B080	-	20-80	60	30	191 x 112 x 36
015B200	-	40-190	15	7.5	133 x 90 x 36
025B200	-	20-190	25	12.5	191 x 112 x 36

*The 020B080 power module can also be combined with 24 VDC I/O DPxANIU control modules. Dimensions in this configuration change to 167 x 88 x 36.

Network Type	Feedback Type	24 VDC I/O Control Modules
Modbus RTU RS485	Incremental Encoder	DPRAHIE
	Incremental Encoder	DPRANIE
	Resolver	DPRANIR
CANopen	Absolute Encoder 1Vp-p Sin/Cos Encoder	DPCANIA
	Incremental Encoder	DPCANIE
	Resolver	DPCANIR
EtherCAT	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DPEANIU
POWERLINK Modbus TCP Ethernet	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DPPANIU
Click&Move® Embedded (Stand-alone)	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DPMANIU

Combine to form model number

AC or DC Power Modules	Supply (VAC)	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
015S400	100-240*	127-373	15	7.5	177 x 123 x 44
030A400	100-240	127-373	30	15	202 x 157 x 70
040A400	100-240	127-373	40	20	177 x 133 x 49
C060A400	200-240	255-373	60	30	257 x 183 x 84
C100A400	200-240	255-373	100	50	257 x 183 x 135
030A800	200-480	255-747	30	15	301 x 232 x 92
060A800	200-480	255-747	60	30	301 x 232 x 139

*Single Phase AC Only

Vehicle mount DigiFlex® Performance™ Servo Drive Models

Example model number: DVC200A100

Network Type	Feedback Type	M/V DigiFlex Control Module
CANopen	Incremental Encoder	DVC

Combine to form model number

Power Modules	Supply (VAC)	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
250A060	-	20-54	250	150	203 x 140 x 60
200A100	-	20-80	200	125	203 x 140 x 60

PCB mount DigiFlex® Performance™ Servo Drive Models

Example model numbers: DZCANTE-040L080, DZPANTU-020B200

Network Type	Feedback Type	5V TTL I/O Control Modules
Modbus RTU RS485	Incremental Encoder	DZRALTE
CANopen	Incremental Encoder	DZCANTE

Combine to form model number

Power Modules	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
012L080	20-80	12	6	64 x 51 x 18
020L080	10-80	20	12	64 x 51 x 23
040L080	10-80	40	20	76 x 51 x 23
060L080	10-80	60	30	76 x 51 x 23
010L200	40-175	10	5	64 x 51 x 23
025L200	40-175	25	12.5	76 x 51 x 23

Note: These power modules require an external 5VDC logic supply, and can only be combined with the DZxAxTE control modules.

Network Type	Feedback Type	5V TTL I/O Control Modules
CANopen	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DZCANTU
EtherCAT	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DZEANTU DZSANTU

Note: DZSANTU drives must be used as sub-nodes in a 'DxM' configuration with a DZEANTU node.

Combine to form model number

Power Modules	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
020B080	20-80	20	10	90 x 64 x 20
040B080	20-80	40	20	90 x 64 x 20
020B200	40-175	20	10	90 x 64 x 20

Note: These power modules may either use an external logic supply or utilize the bus voltage supply for logic power, and can only be combined with the DZxANTU control modules.

Network Type	Feedback Type	5V TTL I/O Control Modules
POWERLINK Modbus TCP Ethernet	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DZPANTU
Click&Move® Embedded (Stand-alone)	Absolute Encoder 1Vp-p Sin/Cos Encoder Incremental Encoder	DZMANTU

Mounting Cards	Axes	Max A	Connector Type	Drive Compatibility
MC1XDZx02	1	40	Side-Entry	DZxAxTE
MC1XDZx02-QD	1	25	Vertical-Entry	DZxAxTE
MC1XDZx02-HP1	1	60	Side-Entry	DZxAxTE
MC1XDZPx01	1	40	Side-Entry	DZxANTU
MC4XDZP01	4	40	Side-Entry	DZE/DZS

PCB mount DigiFlex® Performance™ Servo Drive Models Extended Environment

Example model number: DZXRALTE-015L080

Network Type	Feedback Type	5V TTL I/O Control Modules
Modbus RTU RS485	Incremental Encoder	DZXRALTE
CANopen	Incremental Encoder	DZXCANTE

Combine to form model number

Power Modules	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
008L080	10-80	8	4	64 x 51 x 23
015L080	10-80	15	7.5	64 x 51 x 23
040L080	10-80	40	20	76 x 51 x 23

Panel mount AxCent™ Servo Drive Models

Model Number	Supply (VAC)	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)	Operating Mode
AB15A100	-	20-80	15	7.5	129 x 76 x 25	Current, Duty Cycle, Encoder Velocity
AB25A100	-	20-80	25	15	129 x 76 x 25	Current, Duty Cycle, Encoder Velocity
AB30A100	-	20-80	30	15	187 x 109 x 27	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Tachometer Velocity
AB50A100	-	20-80	50	25	187 x 109 x 27	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Tachometer Velocity
AB20A200	-	40-175	20	12	129 x 76 x 25	Current, Duty Cycle, Encoder Velocity
AB25A200	-	40-175	25	15	187 x 109 x 27	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Tachometer Velocity
AB50A200	-	40-175	50	25	187 x 109 x 27	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Tachometer Velocity
B30A40	-	60-400	30	15	203 x 143 x 41	Current, Duty Cycle, Encoder Velocity, Hall Velocity
B40A40	-	60-400	40	20	235 x 159 x 64	Current, Duty Cycle, Encoder Velocity, Hall Velocity
AB30A200AC*	30-125	-	30	15	187 x 109 x 62	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Tachometer Velocity
B30A40AC	45-265	60-400	30	15	203 x 166 x 103	Current, Duty Cycle, Encoder Velocity, Hall Velocity
B40A40AC	45-265	60-400	40	20	235 x 164 x 114	Current, Duty Cycle, Encoder Velocity, Hall Velocity
B060A400AC	200-240	255-373	60	30	257 x 183 x 84	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Voltage, IR Comp
B100A400AC	200-240	255-373	100	50	257 x 183 x 135	Current, Duty Cycle, Encoder Velocity, Hall Velocity, Voltage, IR Comp

*Available 1Q17. Final specifications may differ.

Vehicle mount AxCent™ Servo Drive Models

Example model number: AVB125A200

Applications	M/V AxCent Control Modules	Combine to form model number	DC Power Modules	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
Electric Mobility and Vehicle	AVB	⟷	250A060	20-54	250	150	203 x 140 x 60
General Industrial	AB		200A100	20-80	200	125	203 x 140 x 60
			125A200	40-175	125	80	203 x 140 x 60
			100C200	40-175	100	100	203 x 140 x 60

PCB mount AxCent™ Servo Drive Models

Example model number: AZBE40A8

Operating Mode	Control Modules
Current	AZB
Duty Cycle	AZBD*
Torque Mode PWM	AZBDC
Encoder Velocity Duty Cycle	AZBE
Hall Velocity Duty Cycle	AZBH

*AZBD control module only compatible with 10A4xx power modules.

Combine to form model number

Power Modules	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
10A4	10-36	10	5	38 x 38 x 7
10A4IC*	10-36	10	5	38 x 38 x 17
6A8	20-80	6	3	64 x 51 x 17
12A8	20-80	12	6	64 x 51 x 17
20A8	10-80	20	12	64 x 51 x 23
40A8	10-80	40	20	76 x 51 x 23
60A8	10-80	60	30	76 x 51 x 23
10A20	40-175	10	6	64 x 51 x 23
25A20	40-175	25	12.5	76 x 51 x 23

*10A4IC models are a drive and interface card assembly; interface card is soldered to the drive and features quick-disconnect connectors.

Mounting Cards	Axes	Max A	Connector Type	Drive Compatibility
MC1XAZ01	1	25	Vertical-Entry	AZ/AZX
MC1XAZ01-HR	1	60	Side-Entry	AZ/AZX
MC1XAZ02	1	10	Side-Entry	µZ

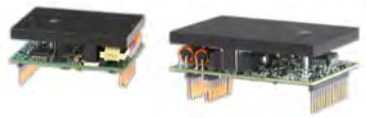
PCB mount AxCent™ Servo Drive Models Extended Environment

Example model number: AZXBH15A8

Operating Mode	Control Modules
Current	AZXB
Encoder Velocity Duty Cycle	AZXBE
Hall Velocity Duty Cycle	AZXBH
Torque Mode PWM	AZXBDC

Combine to form model number

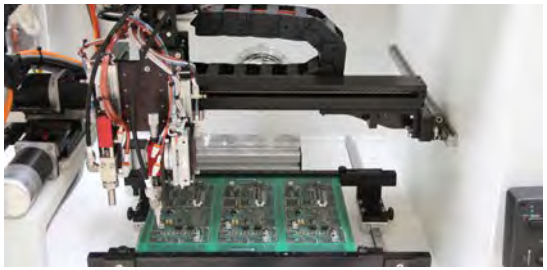
Power Modules	Supply (VDC)	Peak Current (A)	Cont. Current (A)	Dimensions (mm)
8A8	10-80	8	4	64 x 51 x 23
15A8	10-80	15	7.5	64 x 51 x 23
25A8	10-80	25	12.5	76 x 51 x 23
40A8	10-80	40	20	76 x 51 x 23

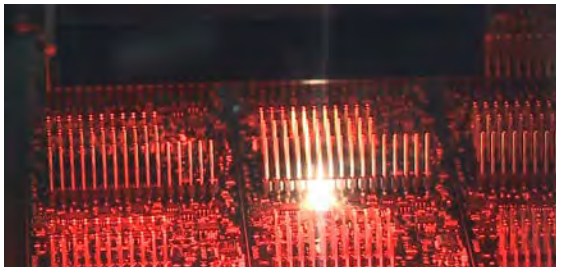


Custom Servo Drive and Controls Capabilities

ADVANCED Motion Controls has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system.

Equipped with on-site engineering labs and in-house manufacturing for quick-turn customs capabilities, *ADVANCED* Motion Controls utilizes our years of expertise to decrease your costs and time-to-market while increasing system quality and reliability.





Two on-site full SMT production lines, and four on-site engineering labs will design and support OEM solutions as if they were standard products!

ADVANCED Motion Controls has extensive experience in designing affordable custom products optimized for OEM's specific needs. Whether a simple modification to a standard product or a completely custom design, we can support and sell custom solutions as if they were standard products.

Examples of Customized Products and Options

- Optimized Footprint
- Private Label Software
- OEM Specified Connectors
- No Outer Case
- Increased Current Resolution
- Increased Temperature Range
- Custom Control Interface
- Integrated System I/O
- Tailored Project File
- Silkscreen Branding
- Optimized Base Plate
- Increased Current Limits
- Increased Voltage Range
- Conformal Coating
- Multi-Axis Configurations
- Reduced Profile Size and Weight

cULus CE RoHS

Custom products are built on the same equipment and with the same people as if they were production units, enabling rapid development and fast delivery, as well as making it easy to make changes before the product is released to production.

ISO9001 CERTIFIED

An ISO 9001:2008 certified online documentation workflow insures accuracy and consistency throughout design, manufacturing, testing, and support of all products.

Advantages to a custom solution with *ADVANCED* Motion Controls:

- **Reduce project development time and cost**
- **Simplify integration of motor, controller, power supply, feedback**
- **Precisely match sizing requirements**

Feel free to contact our Applications Engineering department for more information on custom solutions!

ADVANCED MOTION CONTROLS

Designed & Built in USA

ADVANCED MOTION CONTROLS

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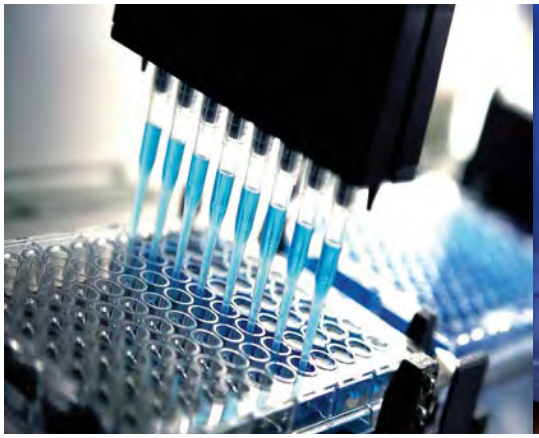

Partnering with *ADVANCED* Motion Controls

- **Superior performance and product offering**
- **Fast delivery to meet your needs**
- **Worldwide factory trained technical and sales support**
- **Engineering support available to you on-site**
- **Close collaboration with, and an extension of, your engineering team**
- **Diverse industrial experiences and knowledge allows us to improve your systems**
- **Proud of providing you with the most optimized solutions**
- **Passionate about your success**

Providing motion control solutions to OEMs is our focus...

Everything's possible