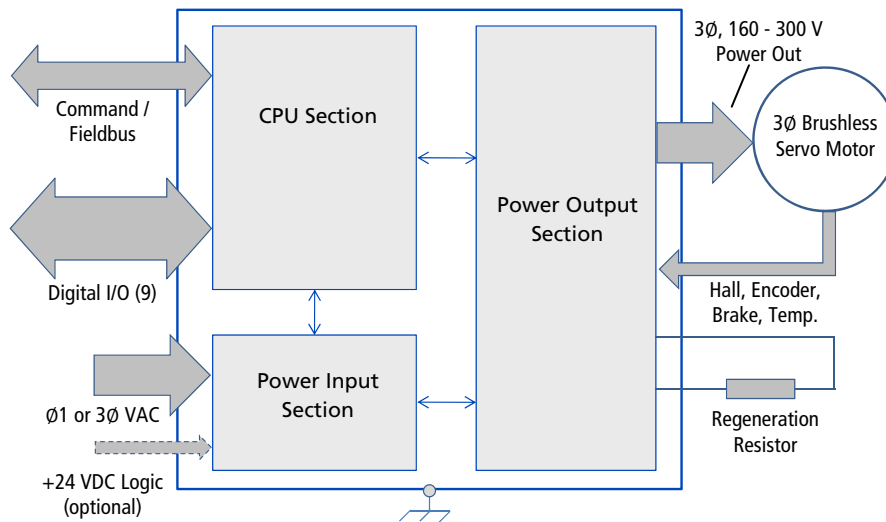


xDrive Digital Brushless Servo Drive



16 / 32 A xDrive Brushless Servo Drive

xDrive Digital Brushless Servo Drive Technology

Allied Motion's xDrive series are all-digital brushless servo drives that employ 200 MHz floating-point DSPs to close advanced high speed current, velocity and position loops.

To aid the DSP in the xDrive, a field-programmable gate array (FPGA) handles PWM generation, multiple high-speed encoders, analog-to-digital conversions and I/O tasks.

The xDrive's power section core is a high voltage, high efficiency three phase IGBT module that operates at 10 kHz, but a center-aligned PWM technique achieves a 20 kHz current ripple frequency in the motor.

xDrives are AC-fed so they incorporate an AC-to-DC power input section. It is designed to accept AC voltages from 60VAC up to 230 VAC, single- or three-phase, and output DC bus power as well as logic section voltages. A +24 VDC "keep-alive" port permits separately powering the xDrive's logic section, enabling motor position information to be retained with main AC power removed.

Advantages of xDrive Digital Brushless Servo Drives

Allied Motion's xDrive digital brushless servo drives offer a number of advantages for servo applications:

- All-digital design eliminates analog drift, simplifies drive setup / tuning
- Ability to handle a range of commands from analog ($\pm 10\text{VDC}$) to fieldbuses (CANopen)
- Handles various feedback devices including encoders and resolvers
- Optically-isolated programmable I/O (9 points) for limits integration and machine accessory control
- Full drive protection against system faults and failures
- Modern USB communications port simplifies communication and commissioning with a PC
- "Keep-alive" input permits mains power down with drive logic active
- A range of available power levels up to 4.4 kW continuous covers the majority of servo applications
- "Universal" AC power input circuits handle from 60 up to 230 VAC, single- or three-phase

xDrive Digital Brushless Servo Drive Applications

Below are just a few of the applications that can take advantage of the xDrive brushless servo drives:

- Medical CT scan and X-ray equipment
- Machine tool axis drives
- High speed converting / filling / packaging machines
- High speed printing machines
- Semiconductor fabrication, assembly and test systems
- Automated pharmaceutical dispensing systems
- Assembly / painting / transfer robots
- Precision adhesive and liquid gasket dispensing systems
- Purpose-built factory automation machinery

xDrive Digital Brushless Servo Drive

Model	DA-XDA-230-4-0	DA-XDA-230-8-0	DA-XDA-230-16-0
Continuous Current	4 A peak / 2.8 A RMS	8 A peak / 5.6 A RMS	16 A peak / 11.2 A RMS
Peak Output Current (2 sec)	8 A peak / 5.6 A RMS	16 A peak / 11.2 A RMS	32 A peak / 22.4 A RMS
AC Input	115 - 230VAC, 50/60 Hz, single- or three-phase		
Regeneration Absorption	External resistor connection port; up to 200 W continuous absorption		
Ambient Operating Temperature	0 - 45 °C (32 - 113 °F)		
Motor Feedback Types	Hall, Encoder+Commutation, High Speed Serial Encoder, Resolver		
Amplifier Type	PWM (10 kHz) 4-quadrant control		
Current Loop	DQ PI current loop, 100 µsec update time		
Velocity Loop	PID / PDF 100 µsec update time		
Position Loop	Proportional with feed forward, 200 µsec update time		
Digital I/O (programmable)	4 optically isolated inputs: programmable for end-of-travel limits, home, enable 5 high speed inputs: usable as programmable inputs, auxiliary encoder input, or step/dir command input 2 optically isolated outputs: programmable for fault, at-home, zero-speed, at-speed 3 high speed outputs: programmable for fault, at-home, zero-speed, at-speed, or encoder feedback		
Analog Output	0 - 5 VDC scalable to velocity, current, or other programmable parameters		
Analog I/O	2 inputs: ±10VDC 12 bit resolution		
Protection Features	Over voltage detection Over current detection Full short-circuit protection Encoder / Resolver / Hall Loss detection I ² T current foldback		
Logic Power	24 V Logic Power Keep Live Input 24VDC @ 0.25A available for user applications		
Communication Interface	USB optically isolated, 12 Mbit		

