AGD301

AGD301 series is a family of standalone, high performance 3-axis motion control units with integrated servo amplifiers, It is equipped with Ethernet, USB, CAN bus, RS232 and RS485 communication ports to interface with any host devices such as PC, PLC, HMI, etc. With 16 kHz sampling (profiler, position, velocity, optional force and current control loops) frequency, this product is ideal for any tightly coordinated motion systems, such as XYZ or XY-Theta stage, flexible-link gantry stages, Z-Theta or XZ-Theta pick and place modules, etc.

AGD301 can drive up to 3 voice coils, brushed or brushless servo motors or stepper motors, allowing very flexible configuration of the motors in the multi-axis system. It supports a very wide range of bus-voltage from 12Vdc to 90Vdc and each axis can supply up to 5.6Arms continuous current and 11.2Arms peak current concurrently. It is suitable to drive very small voice coil or brushed motors at 12Vdc, and is also capable drive 3 big motors with 0.5kW continuous power each.

Equipped with a plethora of I/Os: 27 isolated digital inputs, 18 isolated digital output, 4 analog inputs, 4 analog outputs and 8 bi-directional differential I/Os, this product is fully capable of handling standalone applications. The typical use case of this product is in 3D printers, security surveillance camera systems, mobile robots and factory automations.

AGD301 General Specifications

Description	AGD301-ET-2D05	AGD301-ET-2D09-001
Number of Axes	3	
Power Supply	12-90 VDC	
Logic Power (optional)	12-36VDC	
Continuous Current	5.6 Arms per axis	9 Arms per axis (limited to 20 Arms for 3 axes in total)
Peak current	11.2 Arms per axis	18.2 Arms per axis
Isolated inputs[1]	27	
Isolated outputs[2]	17	
Bi-Directional Differential I/Os (RS422)	8	
Analog inputs2[3]	4 (12-bit)	4 (16-bit)
Analog outputs	4 (16-bit)	
PT100/PT1000 Inputs[4]	3	
Brake output[5]	3	
Hall sensors inputs[6]	3	
Regeneration Output	1	
Encoder Port	3 Ports (each port is software configurable as AquadB, Sin/Cos 1Vpp, Absolute BiSS-C or EnDat2.2).	
Motor Types	Voice Coil, Brushed, Brushless or 2-Phase Open/Closed Loop Steppers (with micro stepping) (Rotary and Linear motors)	
Communication	Ethernet, RS232, CAN, USB, RS485	
Control Sampling rate	16 kHz sampling rate for current, velocity and position control loops	
Operational Modes	Position, Velocity, optional Force or Current modes	
Motion Modes	Point to Point, Repetitive, Jog, ECAM, Gearing, Joystick, Handwheel, Pulse & Direction, Gantry, CNC sequential contour (G-codes), Vector and Tracking motion modes. Motion parameters, such as speed, acceleration, deceleration, and target position can be all modified on-the-fly.	

Features	Encoder Error Mapping: 1D, 2D or 3D, Auto-Loop Shaping (auto-tuning), Frequency Domain System Identification and Modelling, Flexible Gain Scheduling, Position Lock and Event, Ultra-Precision Mode (UPM), Input-Shaping, Profile-Shaping, Machine Vibration Control, Spring and Friction Compensation, Complex-Kinematics (robot kinematics), etc.
Programming Interfaces	Standalone User Program – script-based program executed in the controller (up to 8 multi-threading programs with priority setting for each thread). IDE integrated in PCSuite Windows .Net API – available in NuGet Manager. Standard TCP/IP communication – ASCII string commands or binary CAN format.

[1] *Note 1: Digital isolated input can be configured as NPN or PNP, in groups of 3 or 4.*
[2] *Note 2: Digital isolated output can sink up to 500mA or source up to 300mA.*
[3] *Note 3: 16-bit analog inputs available in some product options. Consult your sales channel.*
[4] *Note 4: Hardware switch to select between PT100 and PT1000.*
[5] *Note 5: Brake output up to 48VDC, 3A each.*
[6] *Note 6: Part of general purpose -inputs with internal 5V power supply.*

Ordering Information

Product Part Number	Description	Optional Accessories	Accessories Description
AGD301-ET-2D05	3-axis Drive – 90Vdc, 5.6 Arms continuous current	AGD301-ET-CK	AGD301-ET Connector Kit
AGD301-ET-2D09-001	3-axis Drive – 90Vdc, 9 Arms continuous current, with 16-bit analog input		