AXL

Agile Motion and Robot Controllers for Plug and Play Solution Development

Infinitely Easy | Amazingly Intelligent

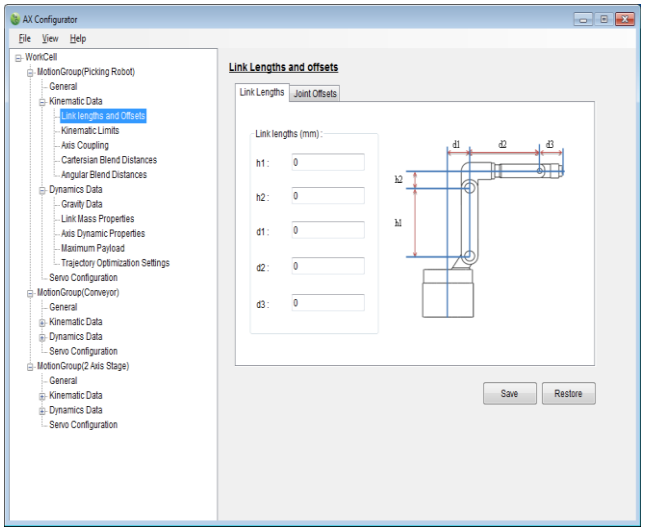
Agile Planet

Agile Motion Controllers

AX line of intelligent motion controllers support integrated robot and motion control, plug and play with servo drives over EtherCAT, and a choice of software development environments ranging from Microsoft Visual Studio to Rockwell Automation RSLogix5000.

AX controllers are specifically designed to reduce redundancies and inefficiencies associated with the deployment of motion control solutions. The plug and play provided by EtherCAT and the choice of software development tools benefit customers by reducing machine design, development, and factory acceptance time while meeting the customer demand of a unified solution that lowers user life cycle costs.

Four Easy Steps to Solution Creation



AX controllers come with a powerful configuration utility that allows developers to configure the various axes of motion. Axes can be configured as individual axes, groups of axes for synchronized motion, or as kinematically linked axes. All robot geometries, including articulated robot arms with up to seven axes, are supported. The AX Configurator also supports the specification of mass properties of the controlled mechanism, which results in optimal motion plans that reduce cycle time and wear and tear.

Select Your EtherCAT Servo Drive → **Configure Your Motion and Robot Axes using AX Configurator** → **Select your Software Development Environment** → **Develop and Deploy Your Application**

AX Controller Software Specifications (Configurable using AX Configurator)				
	AX-50	**AX-100**	**AX-RLX**	**AX-PC** (desktop PC)
Number of Axes	Up to 16	Up to 16	Up to 16	64 Axis and above. Depends upon processing power of selected CPU
Robot Geometry Support	None.	SCARA, 4 and 6 axis Delta, 4, 5, 6 and 7 axis Articulate, Cartesian.	SCARA, 4 and 6 axis Delta, 4, 5, 6 and 7 axis Articulate, Cartesian.	SCARA, 4 and 6 axis Delta, 4, 5, 6 and 7 axis Articulate, Cartesian.
Multi Robot Control	Not Applicable	Up to 1 robot can be configured.	Up to 2 robots can be configured.	Up to 4 robots can be configured.
Motion Axes Capability	Indexing and Time Coordination	Indexing and Time Coordination	General Motion Not Available	Indexing, Camming, Gearing
Point to Point Motion Interpolation	Yes	Yes	Yes	Yes
Linear Interpolation	No	Yes, for Robot	Yes, for Robot	Yes, for Robot
Circular Interpolation	No	Yes, for Robot	Yes, for Robot	Yes, for Robot
Trajectory Ramp Forms	Trapezoid, S-Curve and Jerk Delimited	Trapezoid, S-Curve and Jerk Delimited	Trapezoid, S-Curve and Jerk Delimited	Trapezoid, S-Curve and Jerk Delimited
Trajectory Blending	Yes	Yes	Yes	Yes
Move Type	Absolute and Incremental	Absolute and Incremental, Frame Shifts	Absolute and Incremental, Frame Shifts	Absolute and Incremental, Frame Shifts
Load Based Trajectory Optimization	No	No	No	Yes
Velocity Feedforward	Yes	Yes	Yes	Yes
Torque Feedforward	No	No	No	Yes
Position Repeatability	As low as 0.01 mm (hardware dependent)	As low as 0.01 mm (hardware dependent)	As low as 0.01 mm (hardware dependent)	As low as 0.01 mm (hardware dependent)
Interference Zones	Not Applicable.	Cubic and Axis for Robot	Cubic and Axis for Robot	Cubic and Axis for Robot
Interference Zone Monitoring	Not Applicable	Tool Path	Tool Path	Tool Path
Speed Adjustment	Percentage for PTP motion	Percentage for PTP motion and Absolute for Linear and Circular	Percentage for PTP motion and Absolute for Linear and Circular	Percentage for PTP motion and Absolute for Linear and Circular
Feedback Data	Actual Axis and Position and Speed, Torque, Following Error, and User Definable	Actual Axis and TCP Position and Speed, Torque, Following Error, and User Definable	Actual Axis and TCP Position and Speed, Torque, Following Error, and User Definable	Actual Axis and TCP Position and Speed, Torque, Following Error, and User Definable
Collision Detection	No	No	No	Yes
Multi Arm Collision Avoidance	No	No	No	Yes
Master Slave Relationship (for example conveyor tracking)	No	No	Yes	No
Robot Operating Modes	Not Applicable	Automatic (Play) and Manual (Teach)	Automatic (Play) and Manual (Teach)	Automatic (Play) and Manual (Teach)
Brake Release	Through Software.	Through Software.	Through Software.	Through Software
Servo Drive and IO Interface	EtherCAT Servo Drive with CANOpen Profile. EtherCAT Digitial IO.	EtherCAT Servo Drive with CANOpen Profile. EtherCAT Digitial IO.	EtherCAT Servo Drive with CANOpen Profile. EtherCAT Digitial IO.	EtherCAT Servo Drive with CANOpen Profile. EtherCAT Digitial IO.
Applications Programming Interface and Operating System				
Operating System	Windows CE 6.0	Windows CE 6.0	Not Applicable	Windows CE 6.0 Standalone or Windows CE 6.0 and Windows 7 on Same Computer
C and C++	Yes. Using Visual Studio 2008.	Yes. Using Visual Studio 2008.	Not Available	Yes. Using Visual Studio 2008.
Rockwell Automation Software	Add on Instructions and tags for RSLogix 5000	Add on Instructions and tags for RSLogix 5000	Add on Instructions and tags for RSLogix 5000	Not Available
Rockwell Automation Controller	Guard Logix, Control Logix and Compact Logix	Guard Logix, Control Logix and Compact Logix	Guard Logix and Control Logix	Not Available
Rockwell Automation Connectivity	Real time Enet/IP between AX controler and Rockwell PAC/PLC		Logix backplane communication AX-RLX and PLC CPU	Not Available

AX Controller Hardware Specifications			
	AX-50/AX-100	**AX-RLX**	**User Supplied AX-PC (Minimum)**
Hardware Specifications			
Main Board	Intel Atom D425 processor, 1.8 GHz	AMD LX800 500 MHz x86	Dual core CPU that is sufficient to run Windows 7 32 bit or Windows 7 64 bit
Chipset	Intel ICH8M chipsets		
Main Memory	1 GB unbuffered non-ECC	- 512 MB DDR-333 - Cache... 128K L1 / 128K L2 - Battery-backed – 512 KB SRAM - One CF sockets...Type 1&2 w DMA	- Minimum required as per Windows 7 configuration
Expansion	1x mini-PCIe socket		User selectable
I/O Interface (Front and Rear)	- ATX power on/off switch - HDD access/ power status LEDs - 4 x COM ports COM2: RS232/422/485 COM1, COM3 & COM4: RS232 - x USB2.0 port - 1 x VGA - +12V DC power input - 1 x DB15 male digital input & output 4 x Digital Input (Source type) - Input Voltage (Dry Contact): Logic 0: Close to GND Logic 1: Open - Input Voltage: Logic 0: 3V max Logic 1: +5V ~ +30V 4x Digital Output (Sink type) - Output Voltage: 3.6V ~ 5V Sink current: 200 mA max. per channel - 2 x Intel GbE LAN port (one reserved for EtherCAT)	- Serial...One isolated COM1 RS232/422/485 jumper selectable - VGA Port - Keyboard...USB - Mouse.....USB - USB Host.....Two USB 2.0/1.1 High Speed - 2 x 10/100M LAN ports (one reserved for EtherCAT)	- 2 x GbE LAN Ports (one reserved for EtherCAT) - USB, COM, etc. ports are user selectable as per requirements
Storage	2 GB Compact Flash Card with software preloaded	2 GB Compact Flash Card with software preloaded	Minimum HDD required to support User configuration. Minimum 100 MB Needed for AX programming software and tools
Power Requirements	- DC to DC power designed for on-board support of +12V DC - 1 x optional 12V, 60W power adapter	- 5VDC - 7Watt Draw	User selectable
Dimension	185mm (W) x 131mm (D) x 54mm (H) (7.28” x 5.2” x 2.13”)		User selectable
Construction	Aluminum chassis with fanless design	Single slot ControlLogix module with Fanless design	User selectable
Environment	- Operating temperature: Ambient with air flow: -5°C ~ 55°C (According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14) - Storage temperature: -20°C ~ 80°C - Relative humidity: 10% to 93% (non-Condensing) - Shock protection: 20G, half sine, 11ms, IEC60068-2-27 - Vibration protection Random: 0.5Grms @5~500 Hz according to IEC68-2-64 Sinusoidal: 0.5Grms @5~500 Hz according to IEC68-2-6	- Temperature: Non-operating: -40°C to +80°C, Operating: 0°C to +60°C - Humidity: 5 - 95% non-condensing - Vibration: 2g @ 10 - 500Hz - Shock: Non-operating: 50g, Operating: 30g	User selectable
Certifications	CE Approval FCC Class A	CE Approval	

ABOUT AGILE PLANET

Agile Planet is the easiest, fastest and most cost-effective means of developing and deploying new robot and motion control solutions through its intelligent control software platform and custom engineering services. Agile Planet's unified robot/motion control allows for the industry's first and only true plug-n-play capability, greatly reducing cost and providing the fastest time-to-market.

Our Customers

Our products benefit machine builders, OEMs, and system integrators by helping them reduce their product development time while increasing the performance and maintainability of their products.

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