ADLINK
LEADING EDGE AI COMPUTING

APC Series

Software-Defined Motion Controller



Highlights

- Software-Defined Integration: Consolidates motion control, PLC, and PC computing into one platform, efficiently upgrading traditional IPCs into dedicated smart manufacturing controllers
- Real-Time Performance: Powered by SuperCAT RTOS to manage up to 128 axes @1ms, running high-performance algorithms for precise, time-deterministic process control
- Rapid Deployment & Debugging: Features the Windows-compliant MotionCreatorPro 2, empowering users to easily diagnose process issues through comprehensive API and EtherCAT kernel logs

Key Features

- CiA402 EtherCAT compliant: Supports line, star, and tree topologies
- Flexible configuration: Configurable CPU cores and interfaces (LAN, COM, USB) for both RTOS and Windows
- Dual Master Support: Dual EtherCAT Masters with DC synchronization
- High-precision contouring: Built-in 2D/3D error compensation
- Advanced semiconductor control: Customizable soft-landing via position, velocity, and torque control for bonding, sorting, and probing
- Simplified debugging: Built-in API and kernel logs for easy maintenance
- Hardware-free simulation: Rapid development and testing via simulated axes and I/O
- Flexible machine modularization: User-defined I/O mapping and addressing
- Real-time processing: Executes user algorithms; synchronizes tasks with the EtherCAT cycle in RTOS
- Modulo encoder support: Optimized for coating processes and AOI alignment

System Requirements

- Operating System: Windows 10/11 64-bit
- Processor: x86 Atom, Core i, or Xeon
- Network Interface: 100/1000BASE-T Ethernet port

Ordering Information

- **APC-C47**
- **APC-M47**
- **SuperCAT License:**
  SuperCAT 16 axes classic (P/N: 91-27019-3010)
  SuperCAT 32 axes ultimate (P/N: 91-27019-1010)

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Specifications

Function		Mainstream APC-C47	Premium APC-M47
Control Mode	Soft Landing		V
	HM (Homing Mode)	V	V
	PT / PVT Motion Mode		V
Motion	Speed & Position Override	V	V
	Linear / Circular / Helical Interpolation	V	V
	E-Gear / Gantry	V	V
	Point-table for Continuous Movement		V
	Linear & Rotary Coordinates Supported	V	V
	Backlash & Pitch Error Compensator	V	V
	2D Position Error Compensation		V
	2D / 3D Dynamic Error Compensation		V
Application	Contouring Synchronized DO Control		V
	Position Comparion Trigger Output	V	V
	Position Latch Function	V	V
	User RTOS Application Dev. Environment		V
	User Task Framework (by API supported)	V	V
	Interrupt Control	V	V
Utility & GUI	Sampling Function	V	V
	API & RTOS Log and Viewer	V	V
	EtherCAT Utility & Diagnostic Tools	V	V
	IO Address Mapping		V
	Simulation Axis and IO	V	V
	Master Jitter Measurement Tools	V	V
Hardware Architecture	CPU	Intel® Core™ i5-12500E	Intel® Core™ i9-14900
	Expansion Slots	2x PCIe x16 (Support PICe Gen4 x8 signal) 4x PCIe x4 (Support 3x PCIe Gen4 x4 and 1x PCIe Gen3 x4 signal) 1x PCI	2x PCIe x16 slots (Gen5, single x16 card in PCIe1 or two x8 cards in PCIe1 and PCIe4, PCIe1 supports riser card x8/x8) 2x PCIe x4 (Gen4) 3x PCIe x1 (Gen3)
	IO Interface	**USB**	**USB**
		6x USB 3.0 (rear I/O) 2x USB 3.0 (via header) 4x USB 2.0 (via header) 1x USB 2.0 (vertical TypeA, internal)	5x USB 3.2 Gen2 1x USB 3.2 Gen2x2 (Connector type: Type 2x USB 3.1 via header) 2x USB 2.0 via header 2x vertical USB 2.0 connectors
		Serial Port	**Serial Port**
		1x RS-232/422/485 (via header) 1x RS-232/485 (via header) 4x RS-232 (COM1 by DB9/M, others via headers)	2x RS-232/422/485 (rear I/O) 4x RS-232 pin headers
		M.2	**M.2**
		1x M.2 E-key 2230 (PCIe Gen3 x1, USB 2.0, CNVi) 1x M.2 M-key 2242/2280 (PCIe Gen4 x4 NVMe/SATA Auto Detect)	1x M.2 (Key M, up to 25110) with PCIe x4 Gen4 1x M.2 (Key E, 2230) with PCIe x1, USB 2.0 and CNVi 1x M.2 (Key B, 3042/3052) with PCIe x1, USB 3.2 Gen1, USB 2.0 and SIM1x SIM socket connected to M.2 Key B
		SATA	**SATA**
		4x SATA3.0 connectors	8x SATA3.0
	Power	450W	750W

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