

StellarSpace

AK840

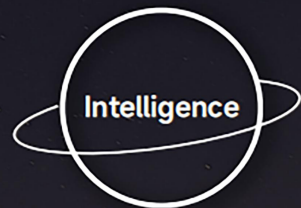
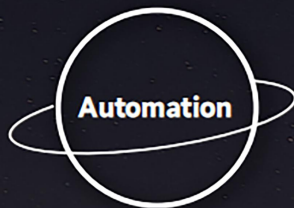
Generic Motion Controller



About StellarSpace

Since its inception, StellarSpace focus on general industrial areas, including automation, digitalization, and intelligence in the industrial sector.

We have variable cutting edge technologies covering hundreds of hardware products and software products, as well as multiple industrial solutions. We built leading level R&D capability for industrial automation products, including Program mable Logic Controllers (PLC), Drives, Motors, etc. We also produce other general industrial products. These solutions are extensively applied across light industry, heavy industry, high-end equipment manufacturing, and other applications. Our customer can be benifit from our smart, precise, and high efficiency industrail solutions, driving intelligent manufacturing while empowering industrial digital and intelligent transformation.



Product Overview

FBD | LD | ST | SFC | IL | CFC



CPU: quad core 64-bit Arm
cortex-A53, 1.4GHZ

Built on the native CoDeSys platform,
offering six programming methods

Modular and compact design: 12mm
expansion modules, space-saving

2xEthernet (default), supports
cloud-edge coordinated control

1xEtherCAT (default), 8 ~ 32 axis
synchronization (1*4ms, typical value:
1ms for 8-axis interpolation)



Supports multi-axis interpolation
& E-Cam functionality

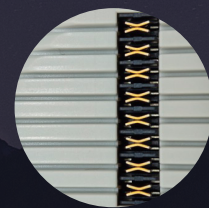
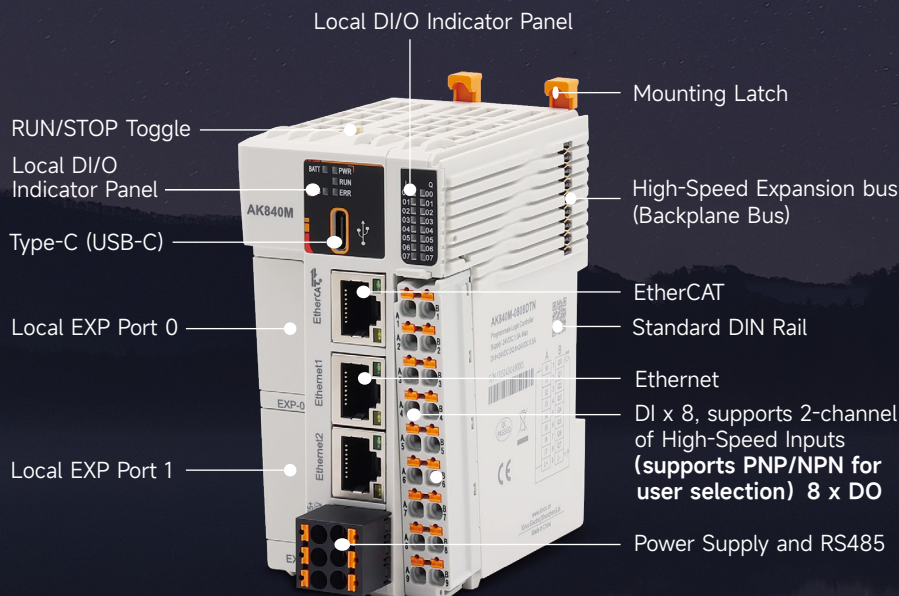
1xRS485, 1xType-C

Expansion capabilities (BD &
Backplane): supports CAN, serial
and I/O (up to 2+16 expansions)

8xDI, 8xDO, supports 2-channel of
high-speed counters (up to **200kHz**)

Large memory: program memory
32M, data memory 32M

AK840 Component Overview



Double-Sided 9-Pin Terminal Block: Nickel-gold dual-plating technology ensures reliable transmission and durability between modules.

AK840 Technical Specifications

Order model	AK840M-0808DTN		AK840M-0808DTP	
Supply power rated voltage	24V DC +/-20%			
Supply power rated power	6W(CPU unit only) / 20W(Full-load)			
Power protection	Overcurrent Protection Reverse Polarity Protection Surge Absorption			
Communication interfaces	1*EtherCAT Minimum synchronization cycle: 1ms, maximum number of synchronized axes: 32 axes Axis-control performance: 1ms, 8 axes synchronized motion control (typical MC: electronic cam)			
	2*Ethernet Both support Modbus TCP master/slave, with a maximum of 31 TCP slaves per channel Both support programs upload and download			
	1*RS485, Supporting Modbus RTU master/slave protocol, supporting up to 31 Modbus RTU slaves			
	1*USB OTG Supports firmware updates via USB drive (FAT32 format)			
Local I/O	8 × Digital inputs, supports PNP/NPN, supports 2-channel high-speed inputs, A/B phase and pulse/direction signals, with a maximum of 200KHz			
	8 × Digital outputs, supports NPN		8 × Digital outputs, supports PNP	
Local bus (backplane bus)	Specific K-bus backplane, up to 16 expansion modules (RP20)			
Motion Control	8 to 32 axes, 1ms to 4ms, supporting electronic gearing, electronic cam, interpolation, and other motion control functions			
Program Memory	32MB			
Data Memory	32MB			
Non-volatile Storage	1MB			
Dimensions (W × H × D) mm	57 X 80 X 108			

AK840 Unique Advantages



◆ CodeSys Platform

- IEC 61131-3 Compliance: supports multi-language hybrid programming (LD, ST, FBD, SFC, etc.)
- PLCOpen motion control function blocks: fully compliant with international standards for motion applications
- Custom library support: enables users to encapsulate and reuse process-specific libraries for efficient integration and deployment

◆ Flexible and Versatile Connectivity

- EtherCAT + Dual Ethernet + CAN + RS485: multiple interfaces to meet diverse automation needs

◆ High-Performance Control Platform

- Quad-core industrial CPU, Supports 1 ms synchronization for 8 axes, and 4 ms for 32 axes (typical)
- Built-in capabilities for advanced motion such as interpolation, rotary knife (cut-to-length), and flying shear control

◆ Minimalism and Compact Design

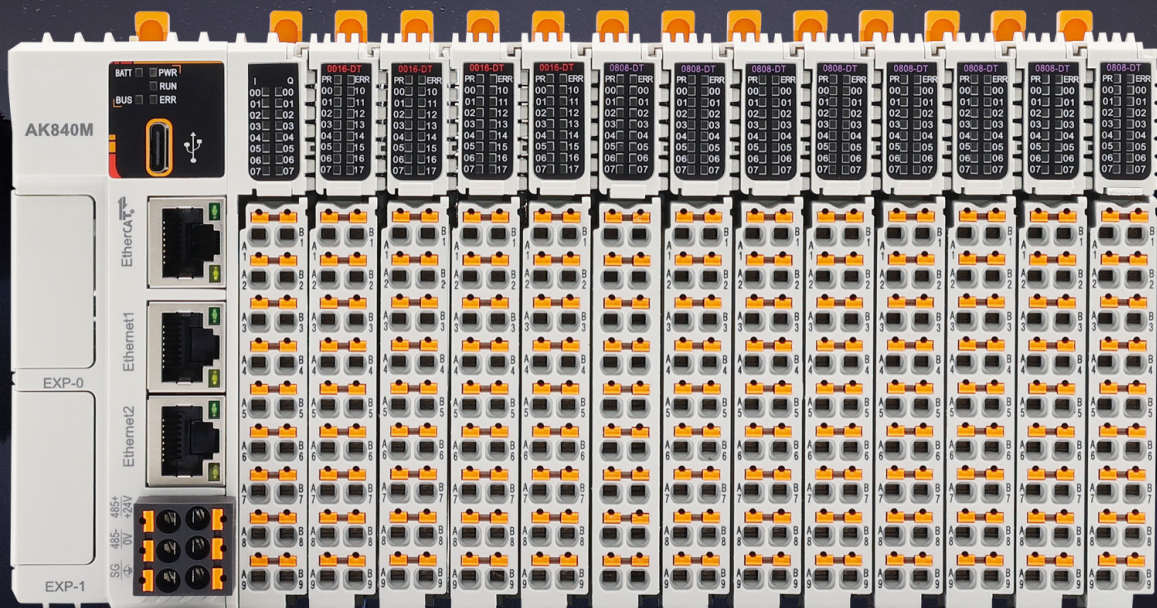
- Ultra-slim blade-style housing: just 12 mm, enabling high-density installation
- Double-sided edge clamping structure: enables cable-free modular expansion from both sides

◆ Dual Expansion Channels

- Modular miniaturized architecture
- Base unit comes with 8 DI / 8 DO
- Supports both software bus expansion and BD slot multi-function modules

◆ Flexible I/O Extension - Up to 16 Modules

- Backplane-free, dual-sided clip-on architecture
- Supports 24-bit high-precision analog signal acquisition
- Offers a wide range of functional modules



AK840 Network Architecture

FBD | LD | ST | SFC | IL | CFC

Structural Graphical

200kHz High-Speed Input

Backplane bus

DI: PNP/NPN

DO: PNP, NPN, Relay

AI: 4-20mA, 1-5V, 0-20mA, 0-10V, 0-5V, -5-5V

AO: 4-20mA, 1-5V, 0-20mA, 0-10V, 0-5V, -5-5V

TC: J, K, T, E, S

RTD: PT100, PT1000, Cu50, Cu100, KTY84, NTC10K

RS485

RS232

DI

DO

CANopen

RS485

RS232

TF-Card

DI

DO

Modbus

Modbus
RTU

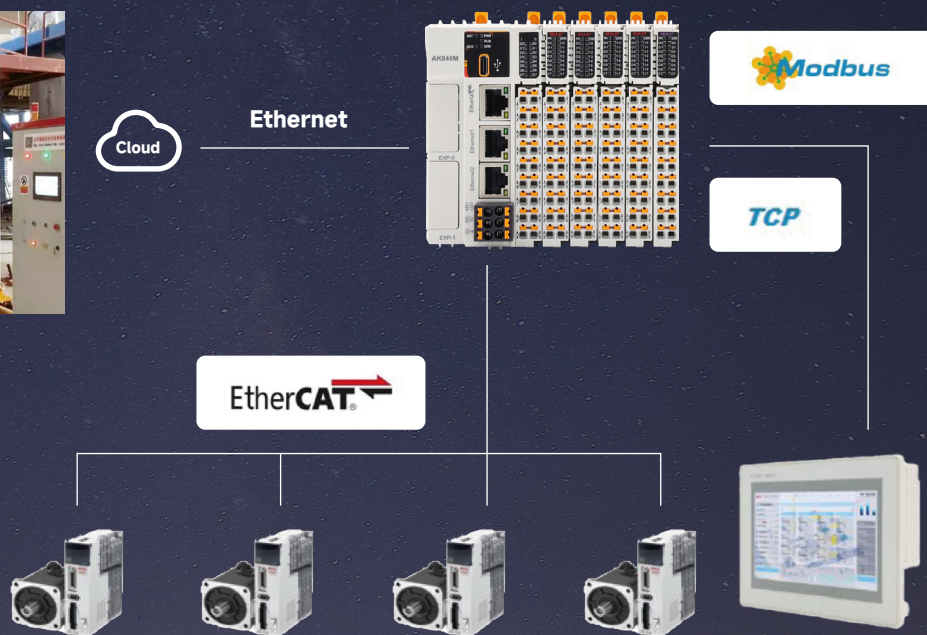
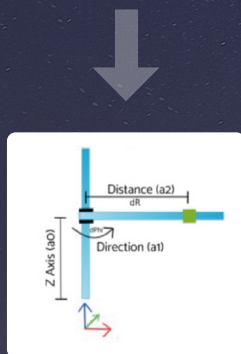
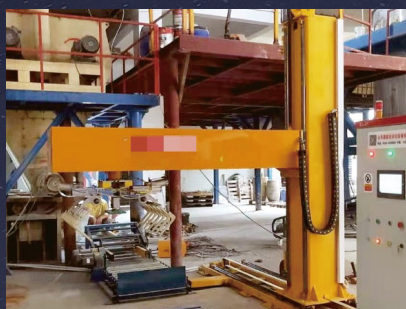
Cloud

AK840 Applications

● Stacking machine

Applications:

- The AK840 controller, paired with the F2 series Human-Machine Interface (HMI), delivers a three-axis palletizer solution. It offers user-friendly parameter configuration along with essential monitoring and alarm functionalities
- With its dual Ethernet interface, the AK840M supports both on-site operational control (via HMI) and remote cloud data access, ensuring seamless integration between local automation and cloud connectivity



● High-speed packaging machine & coating machine



Packaging industry:

- Efficient coordination for enhanced productivity: high-speed film feeding, precise film cutting, and synchronized sealing ensure smooth operation
- High-speed color mark detection: supports 120–150 packs per minute with stable performance at high speed
- 1 ms synchronous control: guarantees sealing accuracy within ± 0.5 mm, increasing product yield

Battery production: coating machines

- ± 0.05 mm high-precision coating: ensures consistent cell quality and uniform electrode surface
- 95 m/min high-speed synchronous coating: boosts production capacity by up to 25%
- Intelligent tension control (± 0.3 N): prevents electrode deviation and web breakage, ensuring stable throughput and higher yield



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