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VER1.0

Shanghai STEP Electric Co., Ltd.

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STEP Industrial Control OFFICIAL WEBSITE | ADTECH OFFICIAL WEBSITE | ADTECH WECHAT ACCOUNT (ADTECH) | STEP Group WECHAT OFFICIAL ACCOUNT | STEP Group OFFICIAL WEBSITE

Stock name: Xinshida
Stock Code: 002527

STEP ADTECH

Motion control card/device

Selection Manual

About STEP

Shanghai Step Electric Co., Ltd. was founded in 1995. It is a high-tech enterprise supported by the state and a national innovative enterprise. It was listed on the Shenzhen Stock Exchange in 2010 (stock code:

The stock name is Xinshida, stock code is 002527), a member of the National Elevator Standardization Technical Committee, a member of the National Robot Standardization General Group, and a vice president of the China Robot Industry Alliance.

Chairman, Vice Chairman of Shanghai Robotics Industry Association, Vice Chairman of Shanghai Intelligent Manufacturing Industry Association, and Intelligent Manufacturing Demonstration Unit of the Ministry of Industry and Information Technology.

With motion control technology as its core, STEP focuses on products such as smart elevators, servo drives, variable frequency speed regulation, robots and industrial controllers, and develops digitalization and intelligence.

Provide customers with high-quality comprehensive intelligent manufacturing solutions.

New Star products and solutions are widely used in 3C electronics, lithium batteries, semiconductors, photovoltaics, logistics, food and beverage, medical, automobiles, dispensing, lasers, machine tools, elevators,

Water pumps, HVAC, rubber and plastics, general energy saving, construction machinery, metal products, chemical products, furniture and other industries and sub-sectors, serving more than 110 countries and regions around the world.

Xinshida focuses on research and development, and has established research and development centers in Shanghai, Shenzhen, Xi'an, Hangzhou, Germany and Japan. It has a postdoctoral research workstation and a technical center laboratory with national

CNAS accredited qualification. Participated in the preparation and revision of many national technical standards and industry technical standards. So far, it has obtained more than 100 national authorized patents, invention patents, software copyrights, etc.

1200 items.

Based in Shanghai, STEP has developed a global strategy and has set up STEP Robotics, STEP Intelligent Technology, Singelina STEP Motor, Anhui STEP Line and other branches at home and abroad.

Cable, Xi'an New Time High-end Equipment Manufacturing Software Application, Yixin (Shanghai) International Trade, Shanghai Baijiang Intelligent, Shenzhen Zhongweixing, Hangzhou Zhishan Intelligent Control, Hong Kong International New Time, De

Guoxinshida Electric, Japan STEP JP Co., Ltd., Malaysia Singelina Automation and more than 20 other subsidiaries will set up more global businesses in the future to continue to expand the global

Ball market.

Corporate mission: To enable mankind to share the convenience and happiness of an intelligent society.

Corporate vision: To become an internationally renowned brand in the field of intelligent manufacturing.

Core values: customer-oriented, hard work first, teamwork, daring to act and take responsibility, truth-seeking and innovation.

Motion Control Business

Committed to becoming a world-leading motion control expert | intelligent ecological service provider

In the field of motion control, STEP implements a multi-brand strategy of "STEP", "ADTECH" and "SIGRINER", adopting multi-axis synchronization, bus control, platform control, multi-machine coordination

With its own core technologies such as synchronization, debugging-free, and self-adaptation, it provides upstream and downstream customers such as equipment manufacturers and system integrators with applications ranging from servo drive, motion control to integration.

Multi-level solutions from single-machine automation to intelligent manufacturing.

STEP SIGRINER ADTECH

Servo motion control system

PAC Motion Control System

Table of contents

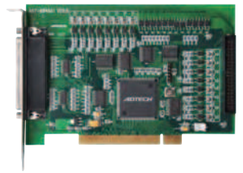
Motion Control Card Quick Selection Table

Control card type		ADT-8900 Series Popular				IO expansion card series	
Slot Type		PCI Card			PCI-E Card	PCI Card	
Control Type		pulse				IO expansion series	
Applications		General points				IO Expansion	
model		ADT-8920	ADT-8940	ADT-8960	ADT-8941	ADT-IO3224	ADT-IO7142
Appearance							
External Interface	Number of axes	2	4	6	4	—	—
	Pulse frequency	2M			2M	—	—
	Digital Input	24	40	32	40	32	67
	Digital Output	12	16	16	16	24	42
	Configurable I/O	—	—	16	—	—	—
	Encoder shaft	—	4	6	4	—	2
Speed Type	Symmetrical T-type	√			√	—	—
	Asymmetric T-type	—			—	—	—
	S-curve	√			√	—	—
Curve Planning	Coordinate System Group	1			1	—	—
	Cache directives	2M buffer area			2M buffer area	—	—
Motion Control	Linear interpo-lation	2 axis	2 ~ 4 axis	2 ~ 6 axis	2 ~ 4 axis	—	—
	Circular interpo-lation	√			√	—	—
	Continuous interpo-lation	√			√	—	—

Control card type		ADT-8900 Series Popular				ADT-632XE series high performance		
Slot Type		PCI Card				PCI	PCI	PCI-E
Control Type		pulse				EtherCat Bus Series		
Applications		Advanced point\trajectory motion				Advanced point\trajectory motion		
model		ADT-8949	ADT-8969	ADT-8989	ADT-89C9	ADT-6320E	ADT-6329E	ADT-6321E
Appearance								
External Interface	Number of axes	4	6	8	8+4	32	32	32
	Pulse frequency	5M						
	Digital Input	42	42	42	54	16*N		
	Digital Output	26	26	26	26	16*N		
	Configurable I/O	—	—	—	—	—	—	—
	Encoder shaft	4	6	8	8	—	8	—
Speed Type	Symmetrical T-type	√				√		
	Asymmetric T-type	√				√		
	S-curve	√				√		
Curve Planning	Coordinate System Group	2				4		
	Cache directives	10000 segments			5000 segments	5000 segments		
Motion Control	Linear interpo-lation	2 ~ 4 axis	2 ~ 6 axis	2 ~ 8 axis	2 ~ 8 axis	√		
	Circular interpo-lation	√				√		
	Continuous interpo-lation	√				√		

ADT-8900
Series Popular Motion Control Card

ADT-8900 Series Popular Motion Control Card
Eighteen years of craftsmanship, tens of thousands of tests
Use the most economical card to make the most stable equipment



ADT-8940（4-axis)

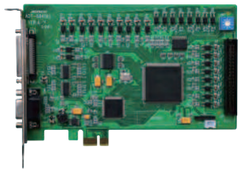
Stablize

- Sales have exceeded 1,000 for ten consecutive years, with cumulative shipments exceeding 20,000.
- Double-ended outlet design, strong anti-interference ability, accurate and reliable pulse receiving and sending count.
- Built-in rich software filtering functions to adapt to complex external starting methods or scenarios.

ADT-8960（6-axis)

Intelligent

- T/S type acceleration and deceleration, fast and smooth.
- 36 high-precision latch return to zero modes, adapting to various external hardware signal.
- Limit/origin/Z phase/emergency stop hardware intelligent stop, high-speed response, to ensure equipment safety.



ADT-8941（4-axis)

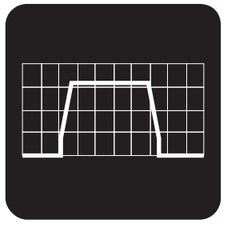
high speed

- PCI-E bus architecture supports data communication as fast as lightning, with quick and efficient response.
- Can accurately output 2M high-speed pulses, instantly releasing surging power and driving unlimited possibilities.
- The lowest command communication time can be as low as 10us, with extremely fast interaction, making each command one stepfaster and controlling the overall rhythm.

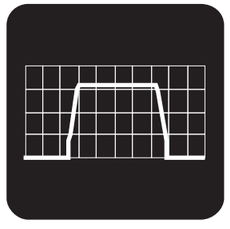
Product Selection Table

Series		ADT-8900 series			
Model Name		ADT-8920	ADT-8940	ADT-8941	ADT-8960
Applicable occasions		General point movement			
PC bus type		PCI	PCI	PCI-E	PCI
Hardware Configuration and performance	Number of axes	2轴	4轴	4轴	6轴
	Pulse maximum frequency	2M			
	Number of encoder axes	0	4轴	4轴	6轴
	Encoder feedback frequency	2M			
	Handwheel maximum input frequency	2M			
	ALM、RDY、INP、SVON	√			
	Universal digital input (including limit origin)	24	40	40	32
	Digital Output	12	16	16	16
	Configurable I/O	0	0	0	16
Point control	JOG Sports	√			
	PTP Sports	√			
	T-curve movement Sports	√			
	S-curve movement Sports	√			
	Speed change during movement	√	√	√	√
	Changing position during movement	√			
High-speed IO control	Hardware emergency stop	√	√	√	√
	Hardware limit	√			
	High-speed latch	—	√	√	—
Software trajectory control	Multi-axis linear interpolation	√			
	2-axis circular interpolation	√			
	2-axis circular interpolation	1			
	Cache space	—	√	√	√
Advanced Features	4-axis linkage	x			
	RTCP	x			
High-speed IO control	DA	x			
	Software trajectory control	x			
	Software limit	√			

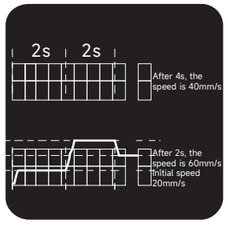
Typical performance introduction



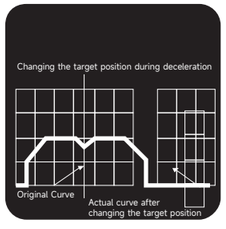
Symmetrical T-type acceleration and deceleration



Symmetrical S-shaped acceleration and deceleration

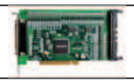


Online speed change

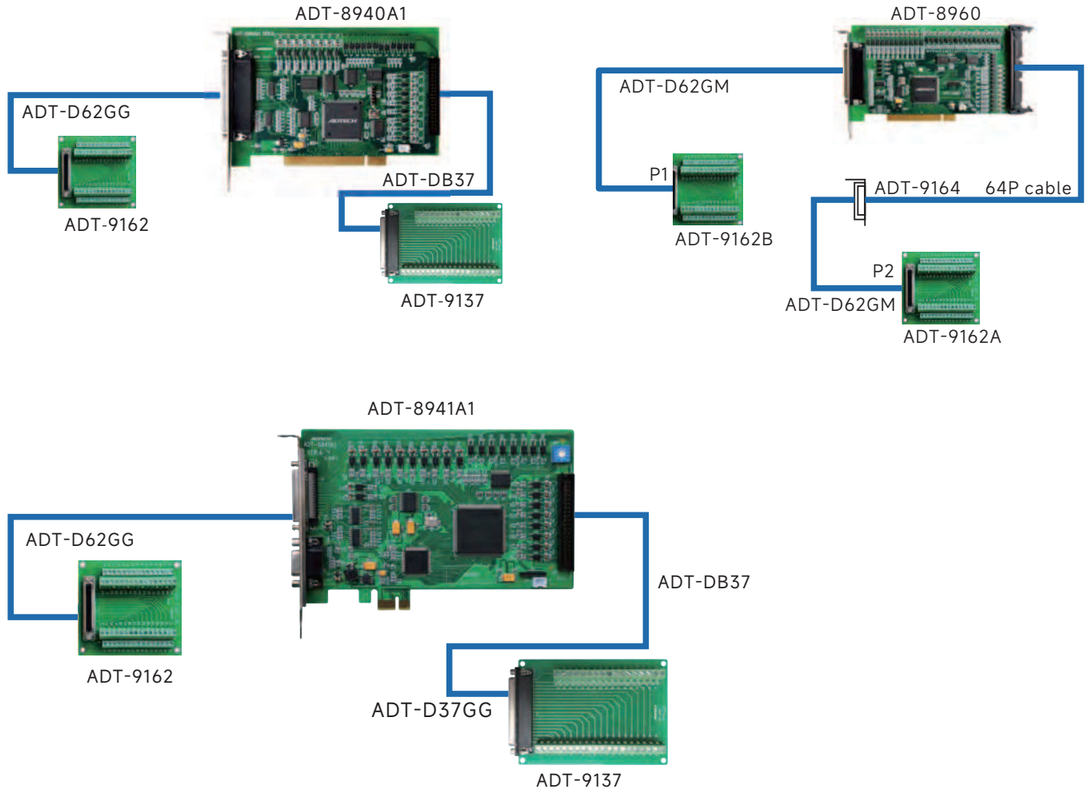


Changing the target position online

Product Configuration Table

Product Model	Name	Product Appearance	Size parameters (lengthxWidthxhighxquantity)
ADT-8940A1	Motion control card ADT-8940A1		160mm×107mm×1
	Terminal Blocks ADT-9162A		136mm×72mm×1
	Terminal Blocks ADT-9137		125mm×87.6mm×1
	Data transmission line ADT-D62GG		1.5M×1
	Flat Line DB37		280mm×1
	Data transmission line ADT-D37GG		1.5M×1
ADT-8960	Motion control card ADT-8960		193mm×109mm×1
	Terminal Blocks ADT-9162A		136mm×72mm×1
	Terminal Blocks ADT-9162B		136mm×72mm×1
	Data transmission line ADT-D62GM		1.5M×2
	Terminal Blocks ADT-9164		58mm×101mm×1
	Cable 64P,28AWG		270mm×1
ADT-8941A1	Motion control card ADT-8941A1		160×110mm×1
	Terminal Blocks ADT-9162A		136×72mm×1
	Terminal Blocks ADT-9137		125×87.6mm×1
	Data transmission line ADT-D62GG		1.5M×1
	Flat Line DB37		280mm×1
	Data transmission line ADT-D37GG		1.5M×1

Wiring Diagram



Application Areas

- Machine vision and automatic inspection equipment
- Industrial robot equipment
- Biological and medical automatic sampling equipment
- Advertising industry: CNC letter enclosing machine
- PCB processing and other industries
- Packaging and printing equipment: printing press, pad printing machine
- 3C manufacturing industry: AOI, SMT
- Engraving equipment
- Cutting equipment: diamond cutting machine, sponge cutting machine





Software Support

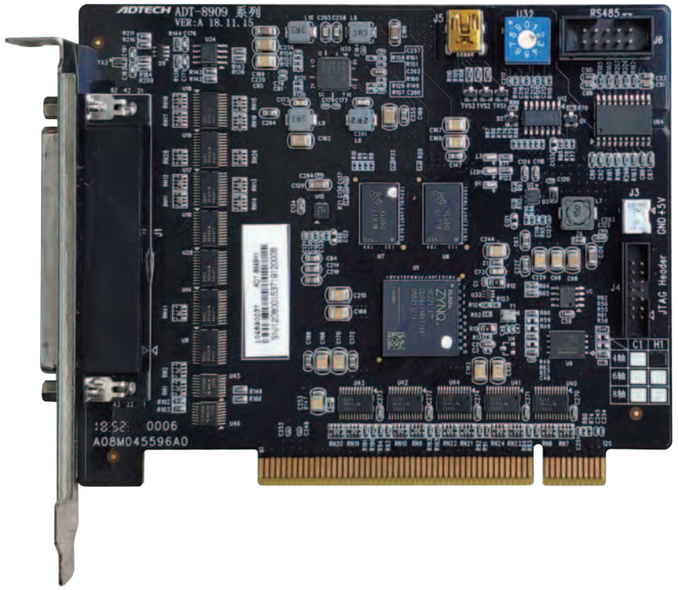
- Operating system: DOS, WindowsXP/Win7/Win8/Win10
- Programming environment: C/BC++/VC/VB/C#/C++Builder/ Delphi/LabVIEW/EVC
- Application examples for Open DOS and Windows

Application Environment

- Operating temperature: 0~60°C
- Storage temperature: -20~80°C
- Humidity: 5~95% without condensation

ADT-8909
series high performance motion control card

Work on tracks and deepen application
Use the most accurate cards to do the most core technology



High-end track

- Speed preview, continuous trajectory, 10,000-segment cache capacity.
- 1000-segment cache IO event control to meet the requirement of seamless insertion of IO control in continuous trajectory.
- 1~8 axis linear interpolation, 2D/3D arc interpolation, spiral interpolation, elliptical interpolation, NURBS, to meet various space trajectory control processes.

High-tech frontier

- 4-axis machining control algorithm, can be used for 4-axis dispensing system with rotating head.
- RTCP algorithm, true five-axis algorithm design, can be used for various five-axis processing platforms such as double swing head, cradle type, turntable + swing head, etc.

High-speed control

- A9 dual-core platform, 125us instruction cycle, to meet the high-frequency and high-precision trajectory smoothing design.
- 5M pulse frequency, 4M encoder feedback frequency, industry leading.
- 10MHz 1D/2D/3D high-speed position comparison, 10KHz high-speed position latch, sufficient to cope with most high-precision applications.

Standard and convenient

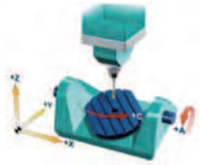
- Unified driver installation, unified software interface, unified hardware design, unified sample program, unified instruction document, seamless replacement of 4/6/8-axis hardware and software.
- Online firmware upgrade, you can enjoy the latest upgrades without leaving home.
- Rich video tutorials and smooth support channels.

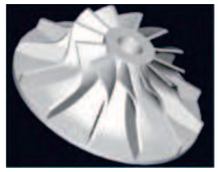
Selection Guide

Type		ADT-8909 Series							
Model		ADT-8949		ADT-8969		ADT-8989		ADT-89C9	
		C1	H1	C1	H1	C1	H1	C1	H1
Applicable occasions		Advanced point\trajectory motion							
Hardware Configuration and performance	Number of axes	4		6		8		8+4	
	Pulse maximum frequency	5M							
	Number of encoder axes	4		6		8		8	
	Encoder maximum feedback frequency	4M							
	Handwheel maximum input frequency	4M							
	ALM、RDY、INP、SVON	√							
	General purpose digital input	42		42		42		54	
	General purpose digital output	26		26		26		26	
	Signal filtering	√							
	Hardware emergency stop/limit	√							
Point control	Return to origin movement	√							
	JOG Sports	√							
	Point movement	√							
	T-type/S-type/E-type/C-type acceleration and deceleration	√							
	Changing speed/target position during motion	√							
	Master-slave follow	√							
High-speed IO control	High-speed position comparison output	2							
	High-speed latch	4		6		8		8	
	PWM control	2							
Trajectory Control	Number of coordinate system groups	2							
	Number of cache instructions	10000 segments						5000 segments	
	Multi-axis linear interpolation	√							
	2-axis circular interpolation	√							
	3-axis circular interpolation	√							
	Space arc/spiral	—	√	—	√	—	√	—	√
	NURBS (Spline) interpolation	—	√	—	√	—	√	—	√
	Speed Lookahead/Cache Interpolation	—	√	—	√	—	√	—	√
	Cache IO events	—	√	—	√	—	√	—	√
Advanced Features	4-axis linkage	√						—	
	RTCP	√						—	
Other	DA	2							
	Encryption	√							
	Software limit	√							

Marine propeller

4-axis/5-axis linkage





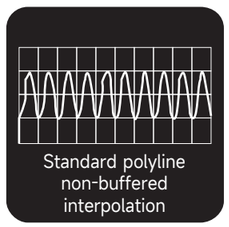
impeller

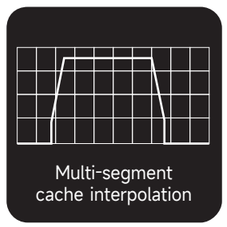
Large oil production machine crankshaft

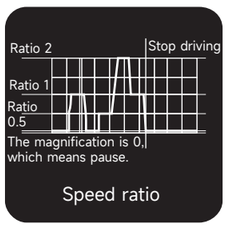
Marine propeller

Speed Lookahead and Cache Interpolation

Speed foresight and cache interpolation complement each other. The ultra-large cache space ensures automatic optimization and adjustment of the speed and trajectory of multi-segment dense interpolation under high precision and high speed, smooth speed, reduced vibration, and high efficiency under high precision.



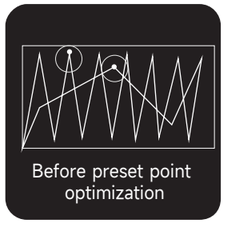


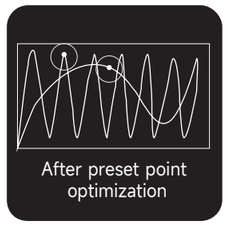


NURBS spline interpolation

It is widely used in hardware-level IO control and pulse output generator in the cache interpolation process of dispensing, flying shooting and other processes.

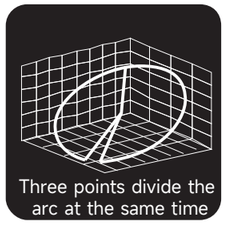
During normal driving, the sharp angle at the preset point is too
The speed and direction of the crossing suddenly change.
During normal driving, the sharp angle at the preset point is too
The speed and direction of the crossing suddenly change.

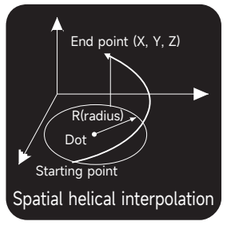


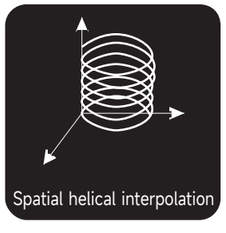


After trajectory optimization, the preset points will be smooth
Transition, speed jitter is relatively small,
Significantly reduce equipment vibration while ensuring accuracy
Confirm preset points and maintain production efficiency.

Space spherical arc interpolation/space helical interpolation

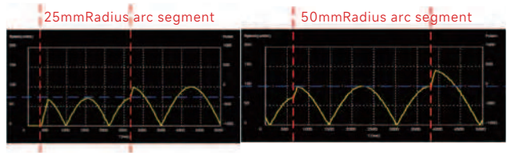




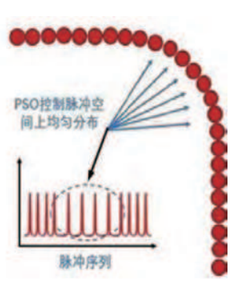


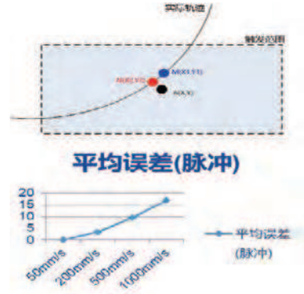
Typical performance description

Circular interpolation speed constraint
When the cache interpolation drive is high-speed, the speed constraint of the arc interpolation during the cache interpolation process can be further freely set to ensure the smooth transition of the arc interpolation at high speed, and further automatic optimization and adjustment of the speed and trajectory. The constraint speed can be freely set.



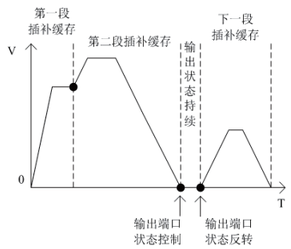
Maximum speed 70.710mm

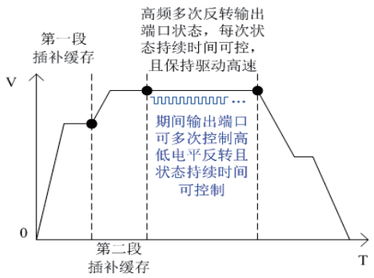




Cache IO events

It is widely used in hardware-level IO control and pulse output generator in the cache interpolation process of dispensing, flying shooting and other processes.

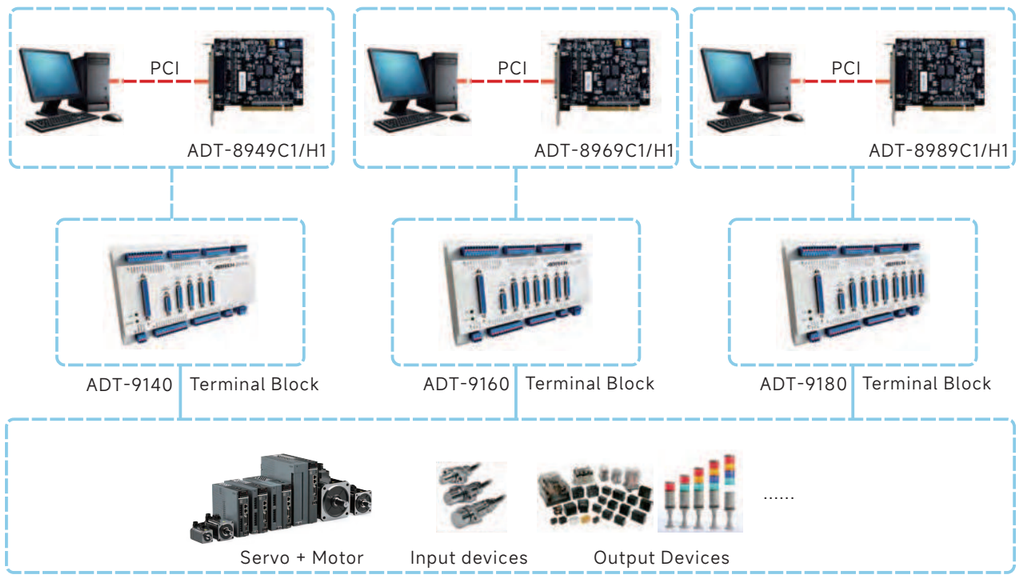




Product Configuration

Product Model	Name	Model Description	Size parameters
ADT-8909	Control Card ADT-8949 ADT-8969 ADT-8989		135mm×110mm×1
	Control Card ADT-89C9		140mm×102mm×1
	Terminal Blocks ADT-9140 ADT-9160 ADT-9180		258mm×157mm×41.6mm ×1
	Data transmission line ADT-D62GG		1.5M×1
	Terminal Blocks ADT-91C0		105mm×157mm×22.8mmx1
	Data transmission line ADT-D37GG		280mm×1
	Flat Line ADT-DB37		1.5M×1

Wiring Diagram



Application Areas

- Machine vision and automatic inspection equipment
- Industrial robot equipment
- Biological and medical automatic sampling equipment
- Advertising industry: CNC letter enclosing machine
- PCB processing and other industries
- Packaging and printing equipment: printing press, pad printing machine
- 3C manufacturing industry: AOI, SMT
- Engraving equipment
- Cutting equipment: diamond cutting machine, sponge cutting machine





Software Support

- Operating system: DOS, WindowsXP/Win7/Win8/Win10
- Programming environment: C/BC++/VC/VB/C#/C++Builder/ Delphi/LabVIEW/EVC
- Application examples for Open DOS and Windows

Application Environment

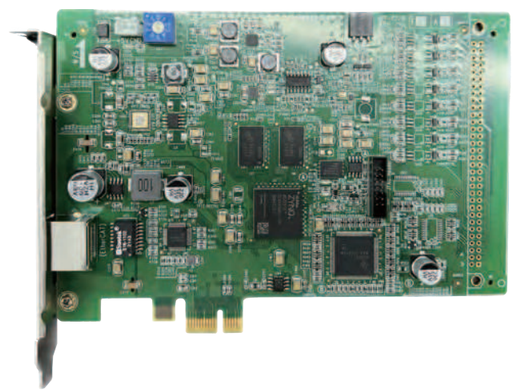
- Operating temperature: 0~60°C
- Storage temperature: -20~80°C
- Humidity: 5~95% without condensation

ADT-632XE

series high performance bus motion control card

Easy to use, fast response

Convenient replacement, simple wiring

Easy to adapt

- Simple and practical self-adaptive software that can quickly identify all bus servo, bus stepper, bus IO and ther modules of QXE, Panasonic and other brands that comply with the CIA402 protocol standard.
- Flexible configuration of PDO address, free debugging of master and slave stations in FreeRun mode.
- Provide SDO control interface, fully compatible with bus module standard system and custom protocol control unctions, and provide users with reading and writing of key flag bits such as control words and status words.

Easy to expand

- 1~64 nodes free model, free quantity, free sequence expansion to meet most equipment process requirements.
- Hardware expansion module with direct hardware connection, 8-channel encoder feedback, 4-channel high-speed output, 4-channel igh-speed input, worry-free process of integrating flying shooting, dispensing, welding and other trajectories with high-speed IO ontrol.

Easy to Compatible

- All point and trajectory control functions of the pulse card have highly consistent software interfaces.
- 4 sets of interpolation coordinate systems, while expanding more nodes, can meet the trajectory processing design of more parallel workstations.

High Response

- Up to 4 nodes with 250us communication cycle, on par with pulse-type motion control cards.
- 10MHz high-speed output, 10KHz high-speed input, the response performance is completely comparable to pulsetype motion control cards/controllers.
- No pulse frequency limitation, no pulse precision loss, speed/precision control is better than pulse control card/controller.

Selection Guide

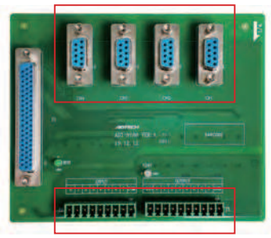
Series		EtherCAT Bus Card			
Model Name		ADT-6320E	ADT-6329E	ADT-6321E-A	ADT-6321E-F
PC bus type		PCI		PCI-E	
Applicable occasions		Advanced point\trajectory motion			
Hardware configuration and performance	Maximum number of nodes	32	32	32	32
	Communication cycle	250us~4ms			
	Number of encoder axes	——	8	——	8
	Encoder maximum feedback frequency	——	4MHz	——	4MHz
Point control	Return to origin movement	√	√	√	√
	JOG Sports	√	√	√	√
	Point movement	√	√	√	√
	Symmetrical T-curve movement	√	√	√	√
	Asymmetric T-curve movement	√	√	√	√
	S-curve movement	√	√	√	√
	E-index	√	√	√	√
	C Cosine Type	√	√	√	√
	Speed change during movement	√	√	√	√
	Changing position during movement	√	√	√	√
	Master-slave follow	√	√	√	√
High-speed IO control	High-speed position comparison output	——	4	——	4
	High-speed latch	——	4	——	4
	Hardware emergency stop	——	√	——	√
	Hardware limit	√	√	√	√
Trajectory Control	Number of coordinate system groups	2	4	2	4
	Multi-axis linear interpolation	√	√	√	√
	2-axis circular interpolation	√	√	√	√
	3-axis circular interpolation	√	√	√	√
	Speed Outlook	√	√	√	√
	Number of cache instructions	5000	5000	5000	5000
	Cache I/O events	1000	1000	1000	1000
	Space arc	√	√	√	√
	Helix	√	√	√	√
	NURBS (Spline) interpolation	√	√	√	√
Other	Software limit	√	√	√	√
	Encryption	√	√	√	√

Typical performance description

Standard and convenient hardware wiring solution
Stable and reliable EtherCAT bus communication protocol
Powerful adaptive software

Scan standard EtherCAT slave devices, flexibly configure PDO addresses, and enable master-slave debugging in FreeRun mode.

Rich hardware resource expansion



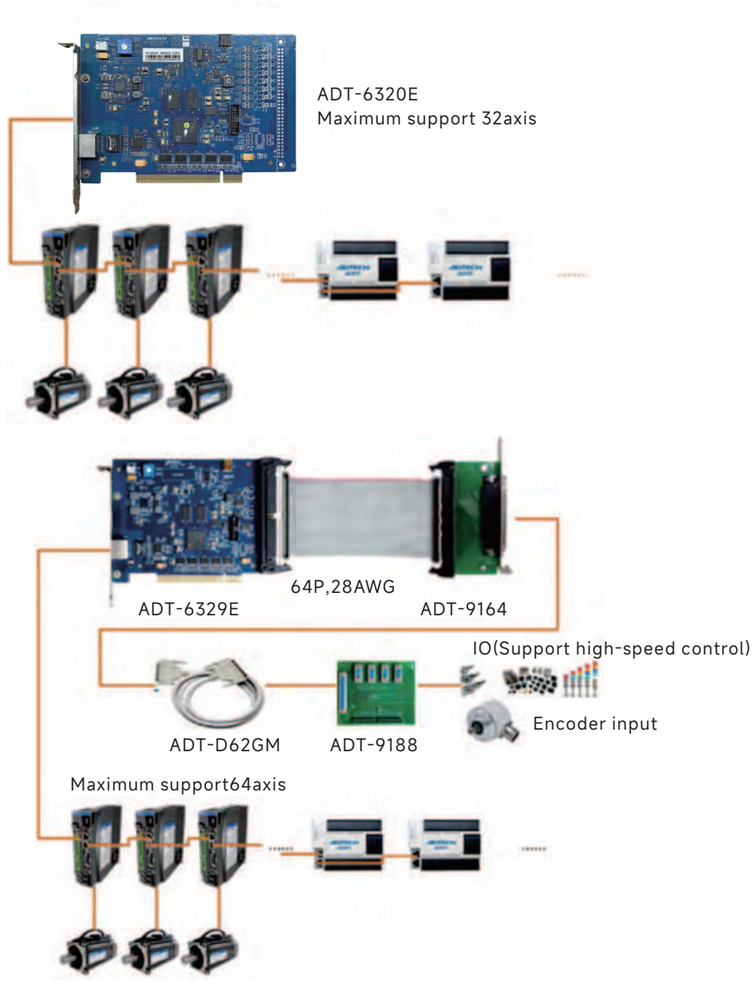
8-channel encoder feedback

8I+8O
Contains 4 high-speed outputs and 4 high-speed inputs.

Product Configuration

Product Model	Name	Model Description	Dimensions
ADT-6320E	Motion control card		163.4mm×129mm×1
ADT-6321E	Motion control card		160mm×129mm×1
ADT-6329E	Motion control card		187.28mm×129mm×1
Optional	Hardware resource expansion board ADT-9188		130mm×107mm×1
	Data transmission line ADT-D62GM		1.5M×1
	Terminal Blocks ADT-9164		58mm×101mm×1
	Cable 64P,28AWG		270mm×1
	IO Module ADT-ET1616A		142mm×96mm×51mm
	Network cable 100BASE-TX		最长100M
	SX Coupler SX-EC2-SA		117.07mm×35mm×81.6mm
	SL expansion module		116.82mm×18.9mm×83.12mm

Wiring Diagram



Application Areas

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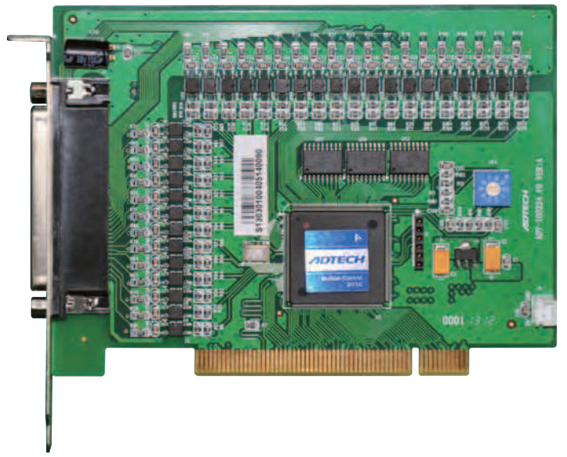
- 3C manufacturing industry: AOI, SMT
- Engraving equipment
- Cutting equipment: diamond cutting machine, sponge cutting machine

IO expansion card series

Clear functions and timely response

Use the most focused cards to provide the most powerful support

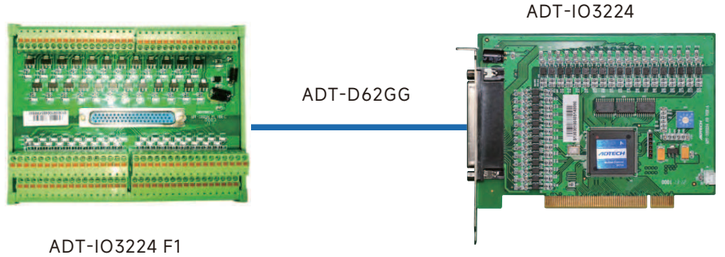


Product Model	ADT-IO3224
Digital Input	32
Digital Output twenty four	24
Basic function	high current design, single channel up to 1A.

Product Configuration

Product Model	Nme	Model Description	Size parameters
ADT-IO3224	IO xpansion Cards ADT-IO3224		145mm×110mm×1
	Terminal Blocks ADT-IO3224 F1		130mm×107.5mm×26mm×1
	Data transmission line ADT-D62GG		1.5M×1

Wiring Diagram

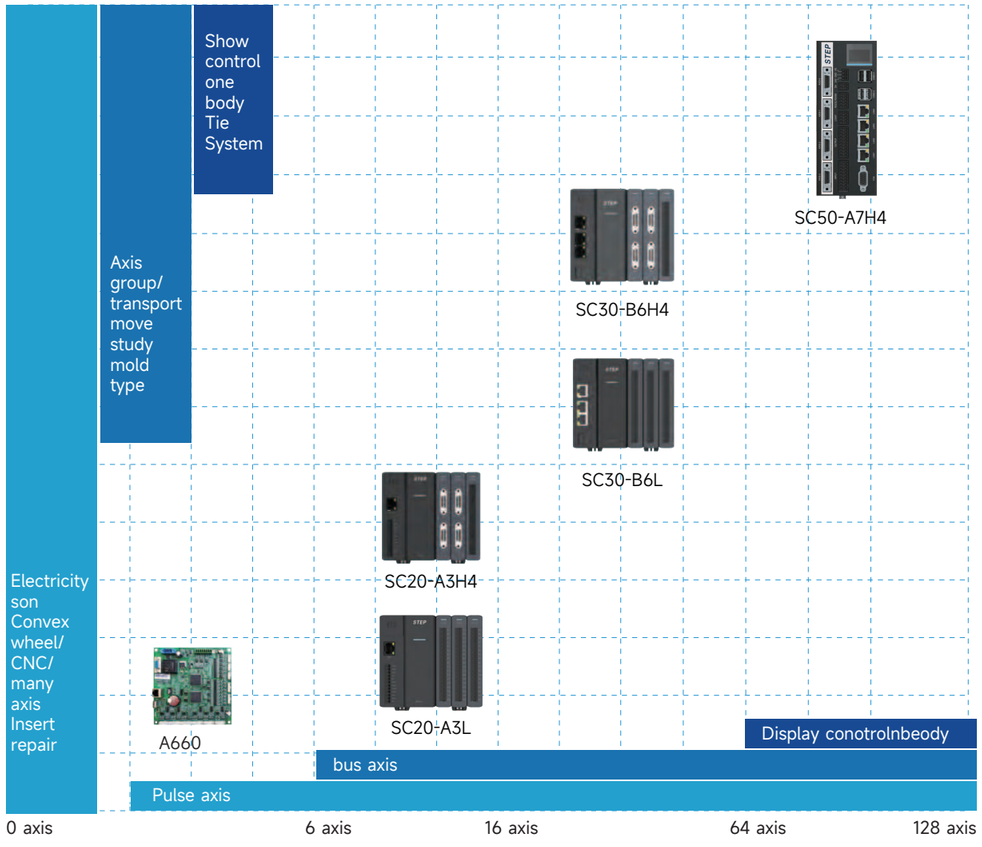


PAC Product Family

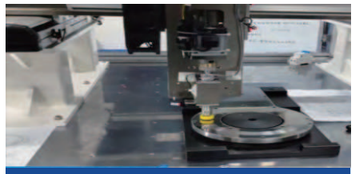
Product Family Overview

The STEP motion controllers include the A660 simple type, SC20 series basic type, SC30 series standard type, and SC50 series multi-function type. They are mainly used in the field of motion control and come with various general kinematic models such as CNC, electronic cam, electronic gear, axis group, robot algorithm, gantry, etc.

Achievement able



Typical industry applications


Machine tools: mirror polishing


Packaging: pillow packaging


Laser : Laser welder

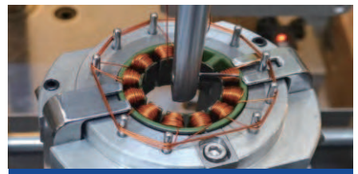

Warehousing: Palletizing and warehousing


SMT: SMD


Manufacturing: Label marking

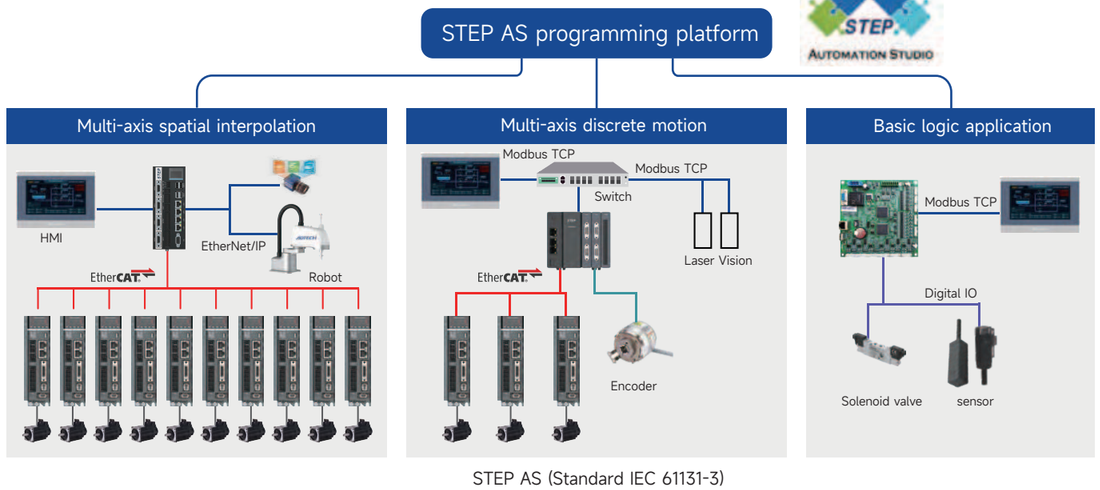

Medical: Filling


3C: Sorting


Electronics: Wire Winding

International standard programming, unified development platform

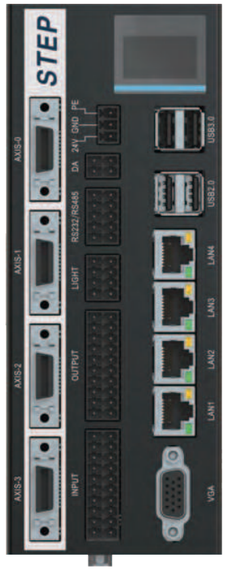
Based on the IEC61131-3 (PLCopen) international standard, it covers multi-axis spatial interpolation motion, multi-axis discrete motion, and basic logic control. It is combined with the STEP motion control file system to establish a unified standardized template to help enterprises achieve standardized management and development.



STEP AS (Standard IEC 61131-3)

SC50 Series PAC

Multifunctional motion controller



Features

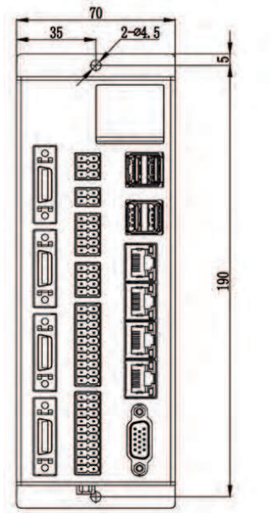
- **General programming:**
  Multi-platform programming supports CODESYS native software to complete application development, and developers can switch seamlessly.
- **Quick Start:**
  Using ladder diagrams, function blocks and ST language that comply with IEC 61131-3/PLCopen standards effectively reduces project development time and improves project development efficiency. STEP AS, the STEP control programming software, provides independent algorithm function blocks and industry process packages to shorten the equipment process development cycle.
- **Integrated display and control for a streamlined experience:**
  Integrating motion control, machine vision, human-computer interaction, and database, one device can realize the functions of five devices: traditional motion controller + PLC controller + vision controller + HMI display + industrial computer.
- **Intelligent Cloud:**
  A remote monitoring port is provided, which can realize remote monitoring and online program modification and update with the support of the intelligent gateway.
- **Powerful secondary development capabilities:**
  The Linux system architecture has powerful secondary development capabilities, providing secondary development of motion control, visual processes, and HMI interfaces, allowing users to use C++\python to develop related applications and customized plug-ins.

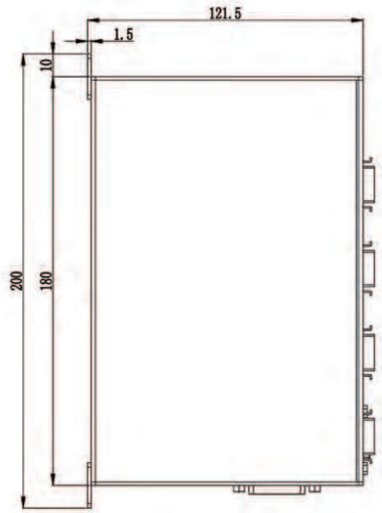
Naming Convention

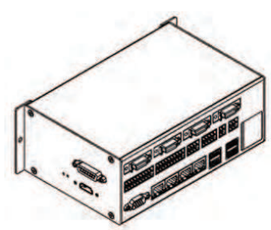
SC50-A7H4-A128

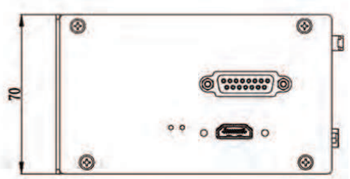
- STEP CONTROL
- 20: Basic PAC
  30: Standard PAC
  50: Multifunctional PAC
  80: Digital Intelligent PAC
- Series Type
- CPU frequency
  3:480MHZ
  6:1.0G
  7:2.0G
- L: Built-in common IO port (digital quantity)
  H: Built-in high-speed IO port (pulse axis)
- High-speed pulse quantity
  4: 4 pulse ports
  . . .
- Version A
  Version B
- Number of axes
  8: 8-axis
  16:16 axis
  32: 32 axis
  64: 64 axis
  128: 128 axis

Installation Dimensions

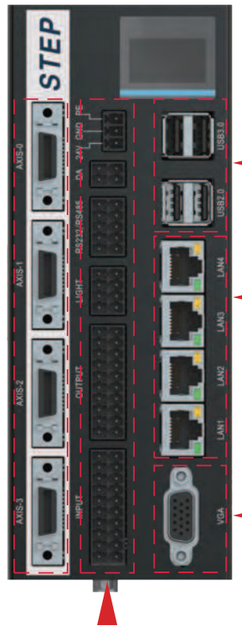








Hardware Configuration



4-channel pulse output and encoder feedback interface

2-way USB2.0, 2-way USB3.0

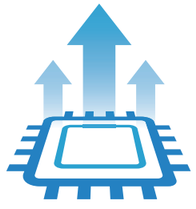
2 Ethernet ports, 2 EtherCat master ports

1 VGA, 1 HDMI video output port

1. 16-channel digital input, 16-channel digital output
2. 2-way analog output, 1-way hand wheel port
3. 4-way PWM light source

Performance

- ARM CORTEX-A53 quad-core performance processor, main frequency 2.0GHZ;
- 4MS communication cycle 128 axes, 500US communication cycle 8 axes;
- 4-channel high-speed pulse control, 32-channel local high-speed digital IO, 2-channel DA;
- Support multiple display modes such as VGA/HDMI/HMI;
- Support CAM, visual components and their light source control modules;



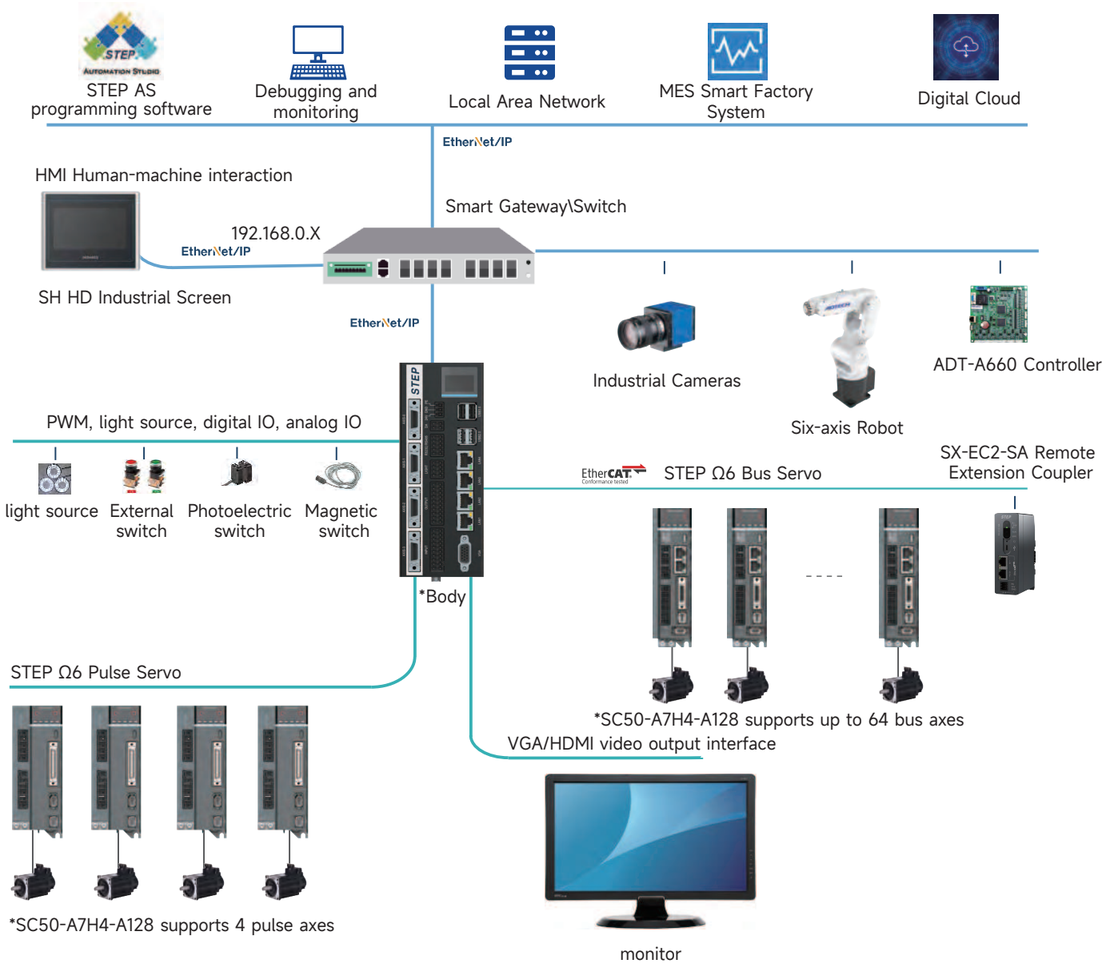
Product Ordering Information

Coding	Product Model	Descri Dpetisocnription	Certification
200SC5003	SC50-A7H4-A08	Standard version, CODESYS platform, supports 8-axis bus servo, supports 4 local pulses, 16 digital inputs, 16 digital outputs,CE 1 hand wheel, 4 USB, 4 network ports, 2 DA, 4 PWM, 2 485, 1 232, VER: A	CE
200SC5004	SC50-A7H4-A16	Standard version, CODESYS platform, supports 16-axis bus servo, 4 local pulses, 16 digital inputs, 16 digital outputs,CE 1 hand wheel, 4 USB, 4 network ports, 2 DA, 4 PWM, 2 485, 1 232, VER: A	CE
200SC5005	SC50-A7H4-A32	Standard version, CODESYS platform, supports 32-axis bus servo, 4 local pulses, 16 digital inputs, 16 digital outputs,CE 1 hand wheel, 4 USB, 4 network ports, 2 DA, 4 PWM, 2 485, 1 232, VER: A	CE
200SC5006	SC50-A7H4-A64	Standard version, CODESYS platform, supports 64-axis bus servo, 4 local pulses, 16 digital inputs, 16 digital outputs,CE 1 hand wheel, 4 USB, 4 network ports, 2 DA, 4 PWM, 2 485, 1 232, VER: A	CE
200SC5007	SC50-A7H4-A128	Standard version, CODESYS platform, supports 128-axis bus servo, supports 4 local pulses, 16 digital inputs, 16 digital outputs,CE 1 hand wheel, 4 USB, 4 network ports, 2 DA, 4 PWM, 2 485, 1 232, VER: A	CE

Specifications

Detailed parameters \ Model			SC50
Processor frequency			4 cores 64-bit, main frequency 2.0G
Memory capacity			4GB
Hard disk capacity			64GB
Expandable hard disk			128GB
Power-off data retention			256K
Power Input			DC24V, 3A
Industrial Bus			EtherCAT/Modbus
Power indicator			RGB three-color power indicator
Display Interface			HDMI/VGA
Module Structure	Native Integration I0 Interface	Digital DI/DO	16 inputs, 16 outputs
		Analog AO	2 analog outputs
		Handwheel	1 hand wheel input
		Local pulse number	4-way pulse + encoder feedback interface
	Light source control interface	LGHT light source	4-way
	Commu-nication interface	USB interface	2 USB2.0/2 USB3.0
		TYPE-C	support
		LAN Ethernet	2 100M / 2 1000M
		Modbus Serial Port	1-way RS232/2-way RS485 RS232: 115200 (upper limit) RS485: 115200 (upper limit)
		EtherCAT bus I0 module	256
	Motion Control	EtherCAT maximum number of axes	128
		CNC+PLCOpen (electronic convex、Axle group, etc.)	support
Installation Method			Vertical installation
weight			<500g
Power consumption			20W
Operating ambient temperature			-20~60°C
Operating ambient temperature			10-90%，非冷凝
Operating ambient temperature			-25-80°C
Use Altitude			0-2KM (no limit)
			> 2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level			IP20
Pollution degree			IE33
Atmospheric pressure			86-106Kpa
EMC anti-interference level			Implementation of EN61000-6-X standard
computing/Internet			support
Develop software			STEP Automation Studio(Codesys)
programming language			Comply with IEC61131 international standard, support ST, LD, SFC, CFC

System Topology

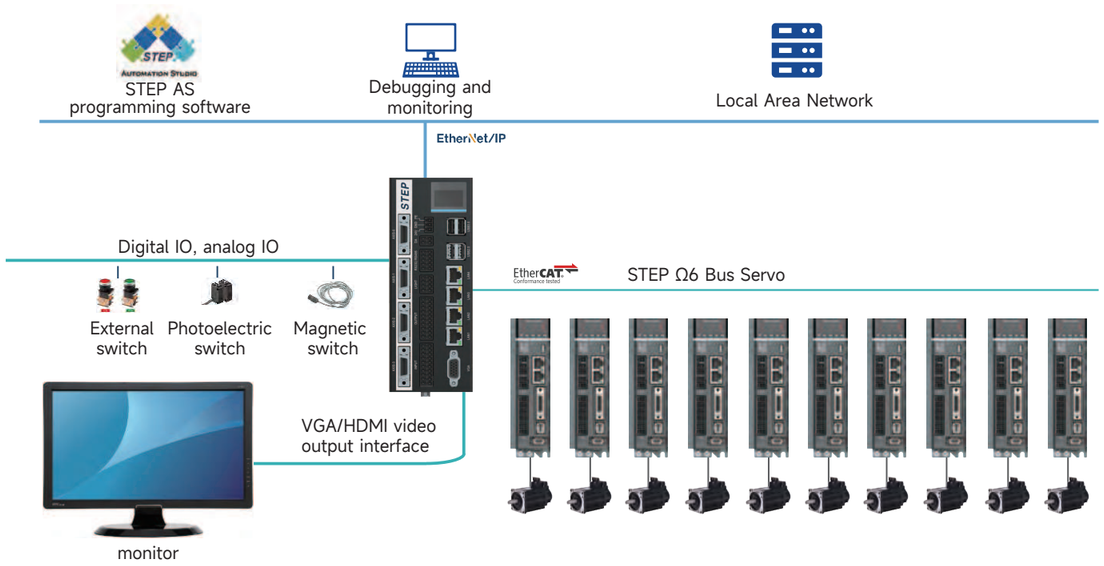


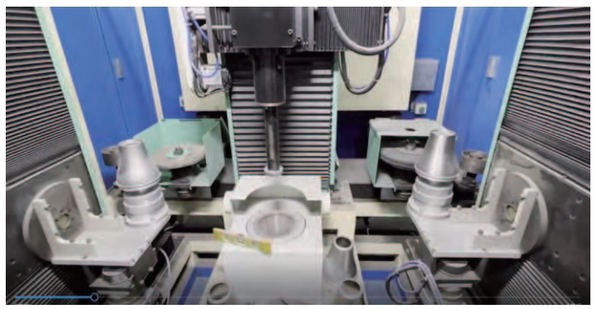
SC50 Application Solution

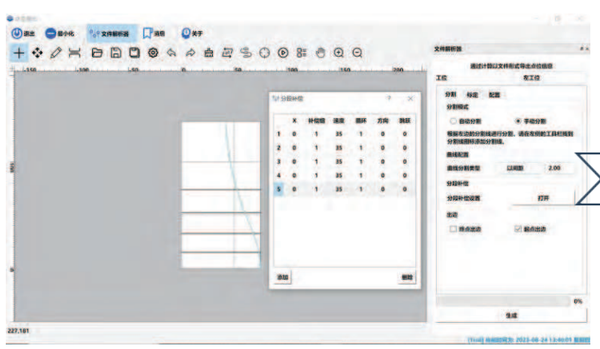
CAM software map trajectory compilation

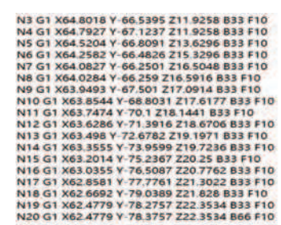
Solution Overview

Hardware configuration: SC50 multi-function motion controller + SH7070E high-definition industrial touch screen + STEP Omega 6 bus servo driver + display;









SC30 Series PAC

Standard motion controller

Features

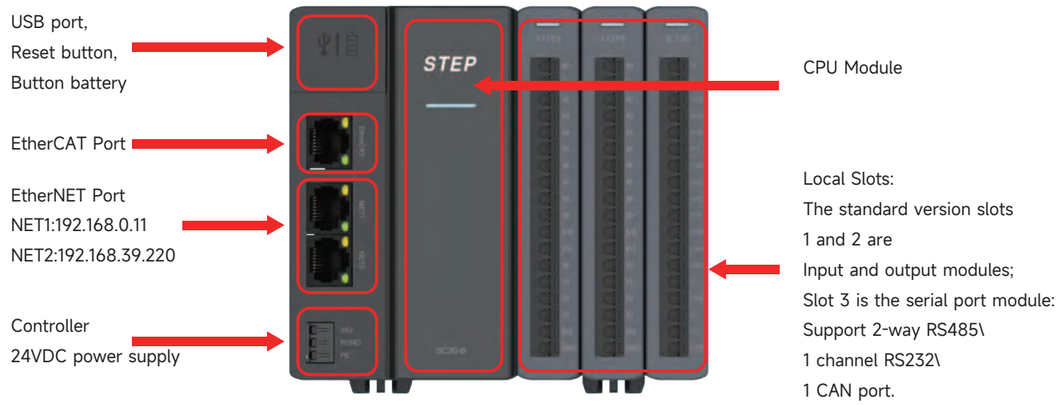
General programming:
Multi-platform programming, supporting CODESYS native software to complete application development, developers can switch without obstacles.
Quick start:
Using ladder diagrams, function blocks and ST language that comply with IEC 61131-3/PLCopen standards effectively reduces project development time and improves project development efficiency. STEP AS, the
STEP control programming software, provides independent algorithm function blocks and industry process packages to shorten the equipment process development cycle.
Exclusive self-developed system:
Adopting the classic Linux operating system, the real-time kernel is tailored for the industrial control industry based on the source code to form a new file system, providing an efficient and stable operating environment for the controller.
Intelligent cloud:
A remote monitoring port is provided, which can realize remote monitoring and online program modification and update with the support of the intelligent gateway.

Naming convention

SC30 - B6 H4 - B64

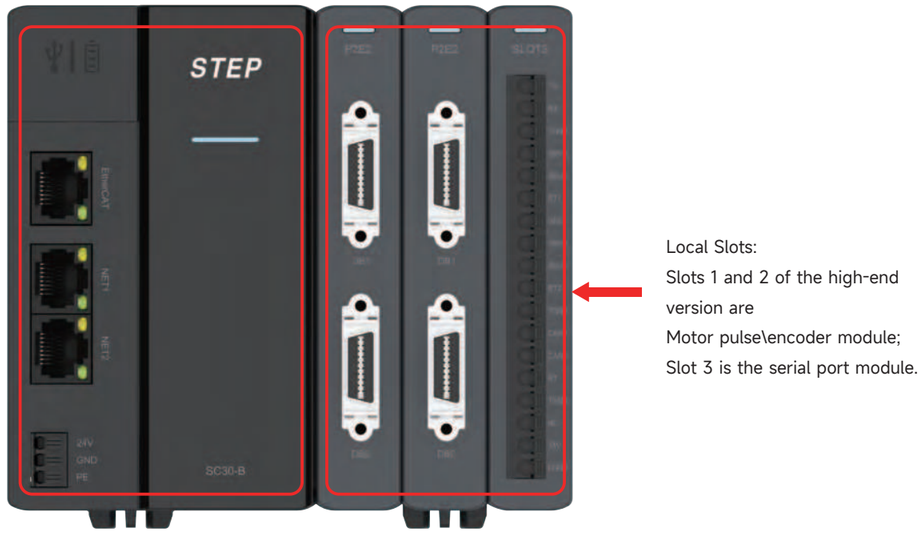
- SC30: STEP CONTROL
- B: 20: Basic PAC; 30: Standard PAC; 50: Multifunctional PAC; 80: Digital Intelligent PAC
- 6: Series Type
- H: CPU frequency — 3:480MHZ; 5: 667MHz; 6:1.0G; 7:2.0G
- 4: L: Built-in common IO port (digital quantity); H: Built-in high-speed IO port (pulse axis)
- B: High-speed pulse Pulse — 4: 4 pulse ports; ...
- 64: Version A; Version B
- Number of axes — 8: 8-axis; 16:16 axis; 32: 32 axis; 64: 64 axis; 128: 128 axis

Hardware Configuration



SC30-B5L/SC30-B6L controller body configuration

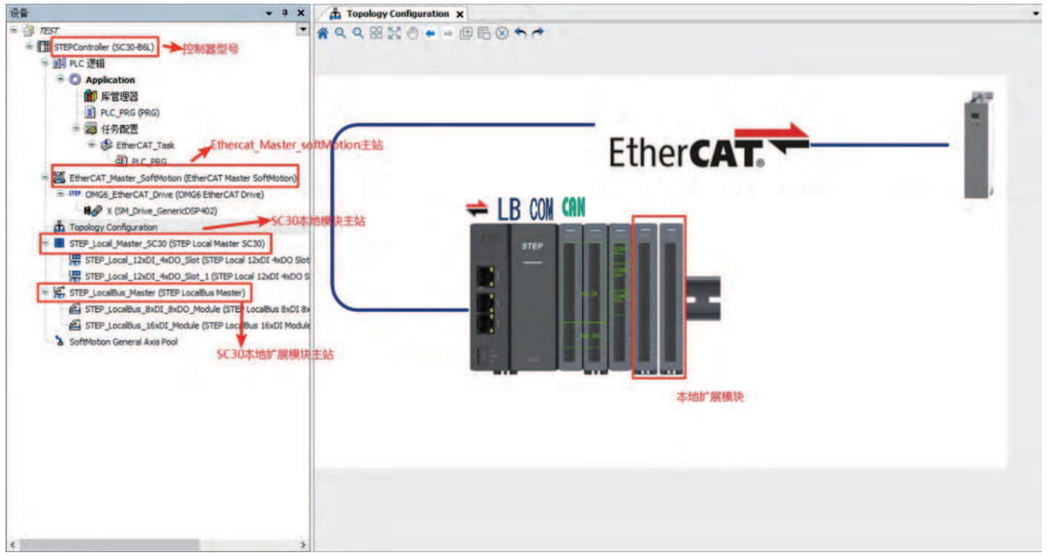
- Comes with 24-channel common digital DI, 8-channel DO
- Comes with 1 RS232, 2 RS485, 1 CAN
- Comes with 1 EtherCAT bus port supporting up to 64 bus axes, 2 NET Ethernet ports



SC30-B5H4/SC30-B6H4 controller body configuration

- Comes with 4 pulse axes and encoder feedback interface, including axis enable, axis alarm and other servo standard IO
- Comes with 1 RS232, 2 RS485, 1 CAN
- Comes with 1 EtherCAT bus port supporting up to 64 bus axes, 2 NET Ethernet ports

Software Configuration



Product Ordering Information

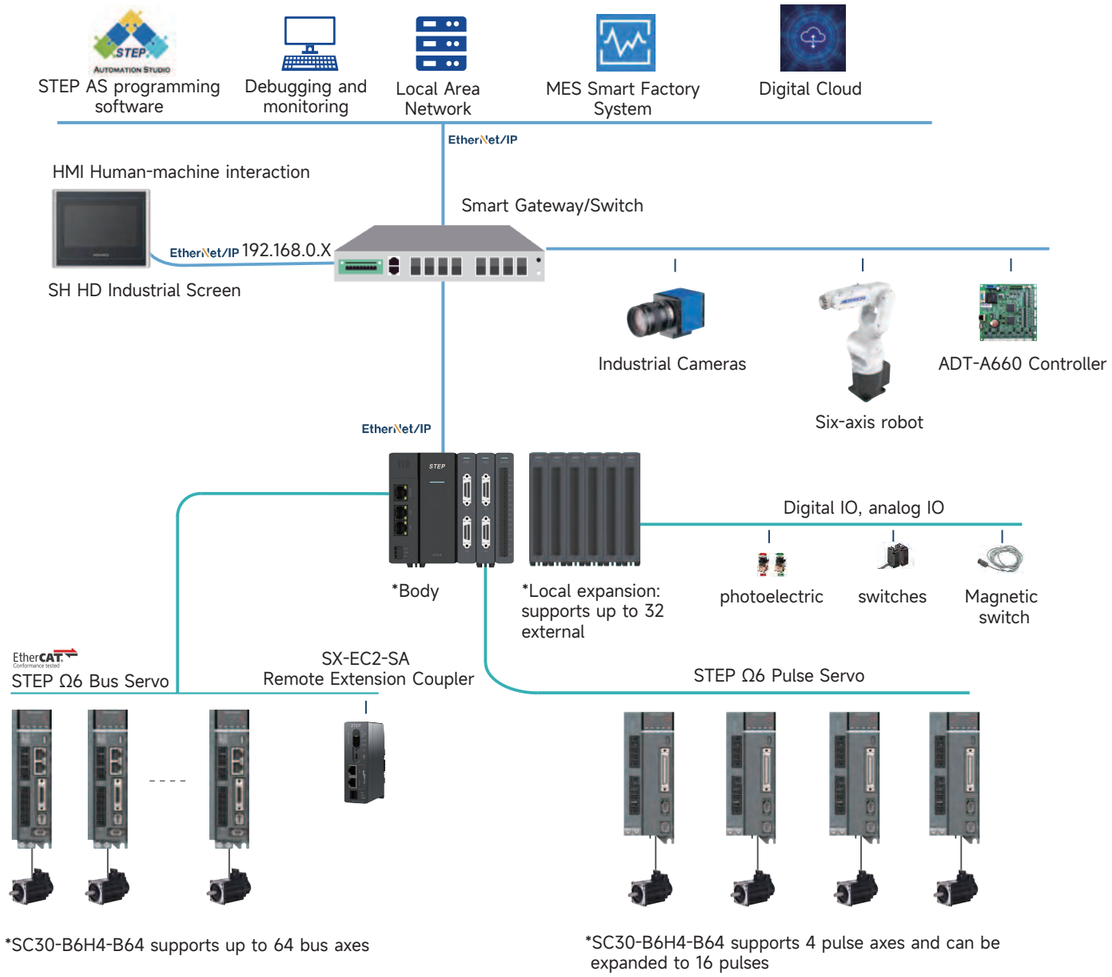
Coding	Product Model	Describe	Certification
200SC3036	SC30-B5L-B32	Standard CODESYS platform, supports 32-axis bus servo. 24-channel DI, 8-channel DO	CE
200SC3035	SC30-B5H4-B32	Standard CODESYS platform, supports 4 pulse Axis, 32-axis bus servo	CE
200SC3030	SC30-B6L-B08	Standard CODESYS platform, supports 8-axis bus servo. 24-channel DI, 8-channel DO	CE
200SC3026	SC30-B6L-B16	Standard CODESYS platform, supports 16-axis bus servo. 24-channel DI, 8-channel DO	CE
200SC3027	SC30-B6L-B32	Standard CODESYS platform, supports 32-axis bus servo. 24-channel DI, 8-channel DO	CE
200SC3028	SC30-B6L-B64	Standard CODESYS platform, supports 64-axis bus servo. 24-channel DI, 8-channel DO	CE
200SC3029	SC30-B6H4-B08	Standard version of CODESYS platform, supports 8-axis bus servo. 4-axis pulse axis and encoder feedback	CE
200SC3023	SC30-B6H4-B16	Standard version of CODESYS platform, supports 16-axis bus servo. 4-axis pulse axis and encoder feedback	CE
200SC3024	SC30-B6H4-B32	Standard CODESYS platform, supports 32-axis bus servo. 4-axis pulse axis and encoder feedback	CE
200SC3025	SC30-B6H4-B64	Standard version of CODESYS platform, supports 64-axis bus servo. 4-axis pulse axis and encoder feedback	CE

Specifications

Detailed parameters \ model		SC30-B5H4	SC30-B6H4	SC30-B5L	SC30-B6L
Processor frequency		667MHz	1GHz dual core	667MHz	1GHz dual core
RAM capacity		1G			
FLASH capacity		8G			
Power-off data retention		256K	1M	256K	1M
Power Input		DC22-28V Max 1A			
mold piece Knot Stru-cture	Maximum number of expansion points	16000			
	Number of local expansion modules	32			
	Maximum number of remote EtherCAT nodes supported	>128			
	Integrated pulse axis	Differential: 4 pulse outputs, 4 encoder inputs		none	
	Integrated DI/DO	none		24 DI，8 DO	
	Integrated serial port	1 CAN、1 RS232、2 RS485			
tran-sport move cont-rol syst-em	Maximum number of bus axes	32 axes	64 axes	32 axes	64 axes
	Maximum number of pulse axes	4 (integrated) + 16 (STEP LBUS expansion)		16 (STEP LBUS expansion)	
	1ms with axis number	6	20	6	20
	Number of axes for linkage interpolation	/	16	/	16
	EtherCAT axis control minimum cycle	/	500us	/	500us
	CNC+PLCOpen (electronic cam, axis group, etc.)	support			
interface		RS232: 115200 (upper limit) RS485: 115200 (upper limit) CAN: 100K USB: 2.0			
Industrial Bus		EtherCAT/Modbus/CANopen			
Wiring method		Module port/DIN rail			
Installation Method		DIN rail			
weight		<0.5kg			
Power consumption		About 35W			
Operating ambient temperature		-20-60°C			
Operating environment humidity		10-90%, non-condensing			
Storage temperature		-20-80°C			
Use Altitude		0-2KM			
		> 2KM (ambient temperature decreases by 0.5°C every 100m)			
Protection level		IP20			
Pollution degree		IE33			
Atmospheric pressure		86-106Kpa			

System topology

EtherNet/IP One Network: No need to convert multiple protocols, the host computer/HMI can directly access PLC variable names through EtherNet/IP tag communication.. Variable access and data exchange between different devices çan be achieved through EtherNet/P tag communication.



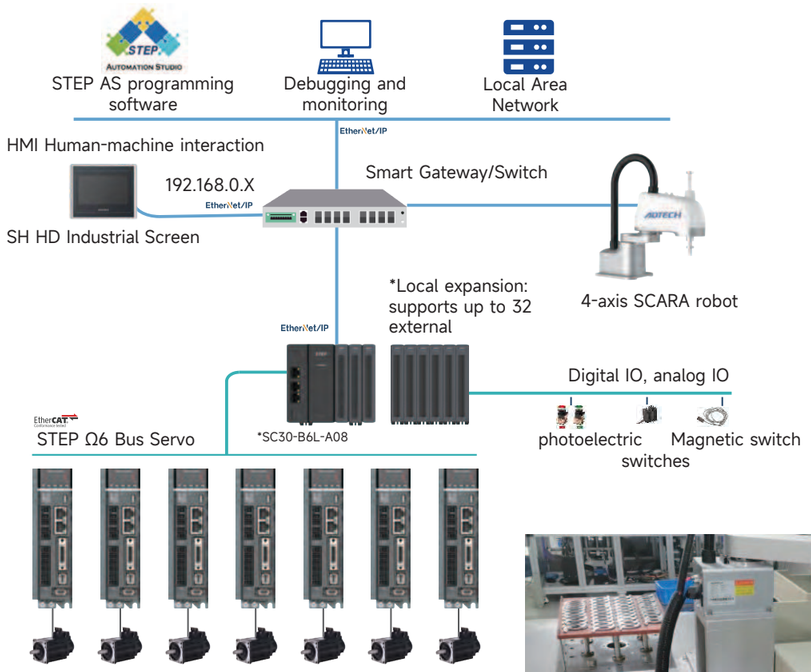
*SC30-B6H4-B64 supports up to 64 bus axes

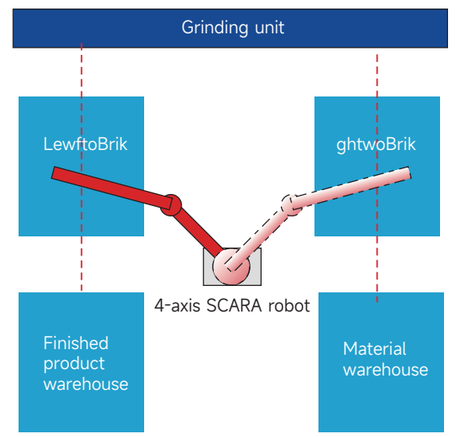
*SC30-B6H4-B64 supports 4 pulse axes and can be expanded to 16 pulses

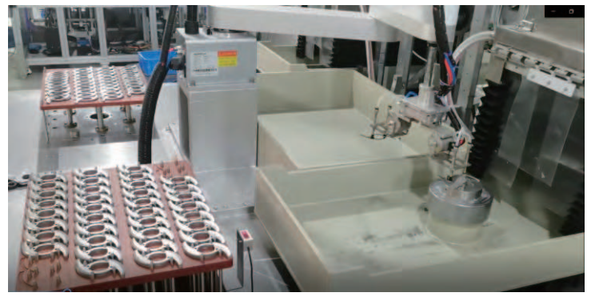
SC30 Application

Cooperating with SCARA

Introduction:
Hardware：**SC30** COntroller **+SH7070E** HMI+Ω6 Servo System+SCARA;







Solution Process

- One-stop connection: Solve the information interaction problem between different devices, optimize the rhythm, and improve work efficiency.
- Teaching and demonstration in one: robots work together to load and unload materials;
- Grinding process: Linked interpolation, independently developed grinding process to solve the problem of blade angle control.

Action Flow

- The robot takes the material from the material bin to the right station to grind the front of the tool.
- After the front side of the tool is ground at the right station, the robot takes the material to the left station to grind the back side of the tool.
- After the back grinding of the tool at the left station is completed, the robot takes the tool and places the finished product.

SC20 Series PAC

Basic motion controller

SC20-A3L-B□□

SC20-A3H4-B□□

Features

General programming:
Multi-platform programming supports CODESYS native software to complete application development, and developers can switch seamlessly.

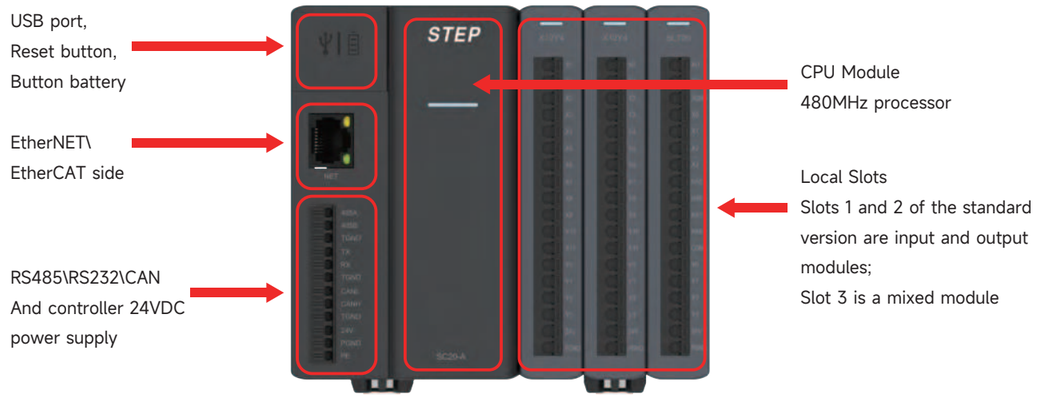
Quick Start:
Using ladder diagrams, function blocks and ST language that comply with IEC 61131-3/PLCopen standards can effectively reduce project development hours and improve project development efficiency. STEP AS, the STEP operation and control programming software, provides independent algorithm function blocks and industry process packages to shorten the equipment process development cycle.

Naming convention

SC20-A3H4-B08

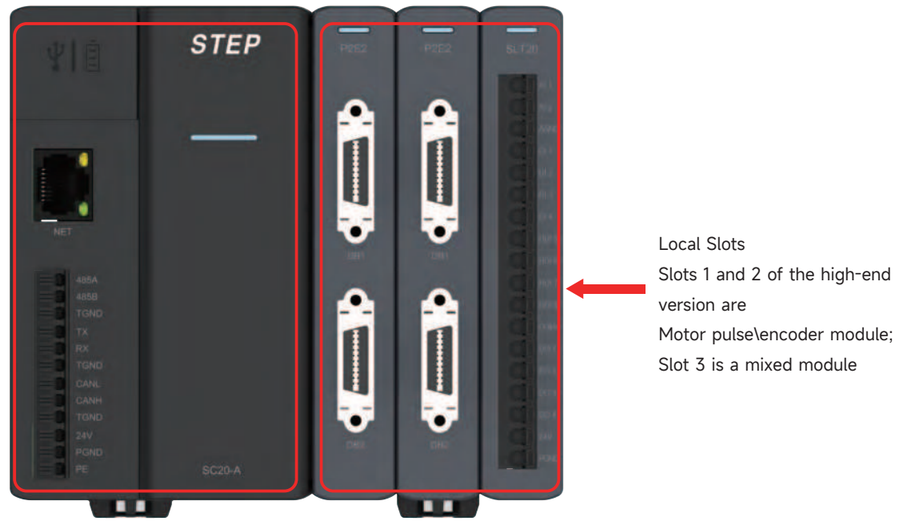
- SC20: STEP CONTROL
- A3: Series Type
  - 20: Basic PAC
  - 30: Standard PAC
  - 50: Multifunctional PAC
  - 80: Digital Intelligent PAC
- 3: CPU frequency
  - 3:480MHZ
  - 6:1.0G
  - 7:2.0G
- H: Built-in high-speed IO port (pulse axis)
  - L: Built-in common IO port (digital quantity)
- 4: High-speed pulse quantity
  - 4: 4 pulse ports
  - ...
- B: Version A / Version B
- 08: Number of axes
  - 8: 8-axis
  - 16:16 axis
  - 32: 32 axis
  - 64: 64 axis
  - 128: 128 axis

Hardware Configuration



SC20-A3L controller body configuration

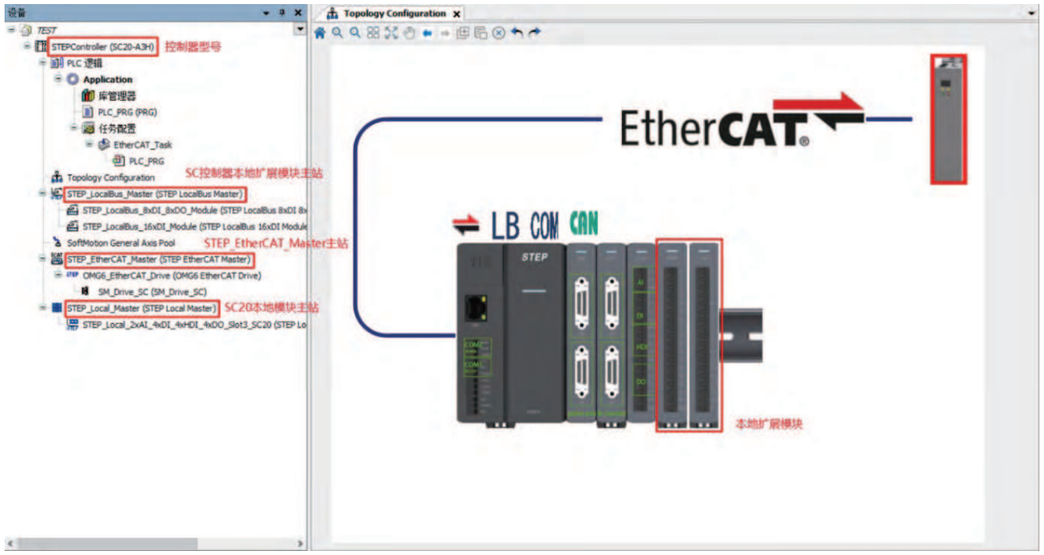
- Comes with 28-channel common digital DI, 4-channel high-speed HDI, 12-channel DO, 2-channel analog voltage input
- Comes with 1 RS232, 1 RS485, 1 CAN
- Comes with 1 Ethernet port, supports EtherCAT bus protocol, supports up to 16 bus axes



SC20-A3H4 controller body configuration

- Comes with 4-channel ordinary digital DI, 4-channel high-speed HDI, 12-channel DO, 2-channel analog voltage input
- Comes with 4 pulse axes and encoder feedback interface, including axis enable, axis alarm and other servo standard IO
- Comes with 1 RS232, 1 RS485, 1 CAN
- Comes with 1 Ethernet port, supports EtherCAT bus protocol, supports up to 16 bus axes

Software Configuration



Product Ordering Information

Coding	Product Model	DescriDpetisocnription	Certification
200SC2008	SC20-A3L-B08	Standard version of CODESYS platform, supports 8-axis bus servo. 32-channel DI, 12-channel D0, 2-channel AI, VER: B	CE
200SC2010	SC20-A3L-B16	Standard version of CODESYS platform, supports 16-axis bus servo. 32-channel DI, 12-channel D0, 2-channel AI, VER: B	CE
200SC2007	SC20-A3H4-B08	Standard CODESYS platform, supports 8-axis bus servo. 4-axis pulse servo, 8-channel DI, 4-channel D0, 2-channel AI, VER: B	CE
200SC2009	SC20-A3H4-B16	Standard version of CODESYS platform, supports 16-axis bus servo. 4-axis pulse servo, 8-channel DI, 4-channel D0, 2-channel AI, VER: B	CE

Specifications

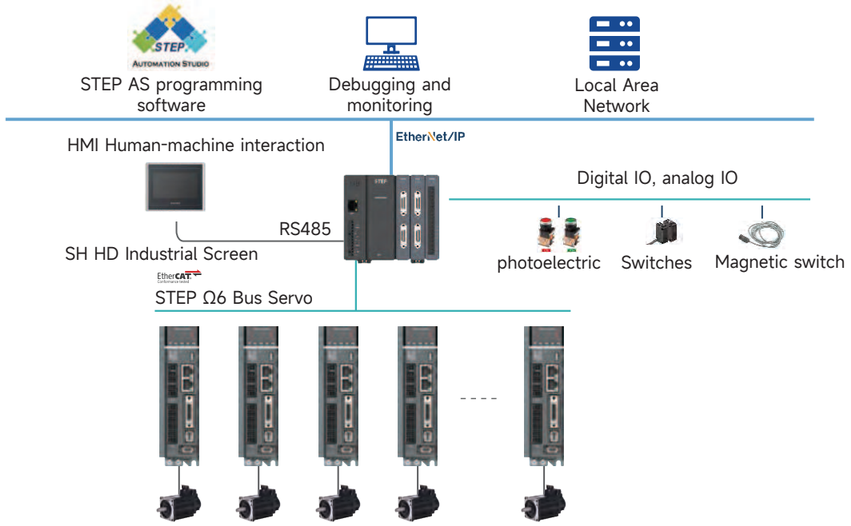
Detailed parameters \ model		SC20-A3H4	SC20-A3L
Processor frequency		480MHz	480MHz
RAM capacity		32M	32M
FLASH capacity		16M	16M
Power-off data retention		32K	32K
Power Input		DC22-28V max 1A	DC22-28V max 1A
Modules structure	Maximum number of expansion points	512个	512个
	Number of local expansion modules	8个	8个
	Maximum number of remote EtherCAT nodes supported	16个	16个
	Integrated pulse axis	Differential: 4 pulse outputs, 4 encoder inputs	none
	Integrated DI/DO	4 HDI, 4 DI, 4 DO	28 DI, 4 HDI, 4 DO
	Integrated AI/AO	2 AI	2 AI
	Integrated serial port	1 CAN、1 RS232、1 RS485	1 CAN、1 RS232、1 RS485
Sports control	Maximum number of bus axes	16 axes	16 axes
	Maximum number of pulse axes	4 (integrated) + 6 (STEP LBUS expansion)	6 (STEP LBUS extension)
	1ms with axis number	16	16
	Number of axes for linkage interpolation	6	6
	EtherCAT axis control minimum cycle	120us	120us
	CNC+PLCOpen(electronic cam, Axle group, etc.)	support	support
Interface		RS232: 115200 (upper limit) RS485: 115200 (upper limit) CAN: 100K USB: 2.0	RS232: 115200 (upper limit) RS485: 115200 (upper limit) CAN: 100K USB: 2.0
Industrial Bus		EtherCAT/Modbus	EtherCAT/Modbus
Wiring method		Module port/DIN rail	Module port/DIN rail
Installation Method		DIN rail	DIN rail
Weight		<0.5kg	<0.5kg
Power consumption		<35w	<35w
Operating ambient temperature		-20-60°C	-20-60°C
Operating ambient temperature		10-90%, non-condensing	10-90%, non-condensing
Storage temperature		-20-80°C	-20-80°C
Use Altitude		0-2KM	0-2KM
		＞2KM (ambient temperature decreases by 0.5°C every 100m)	＞2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level		IP20	IP20
Pollution degree		IE33	IE33
Atmospheric pressure		86-106Kpa	86-106Kpa
EMC anti-interference level		Implementation of EN61000-6-X standard	Implementation of EN61000-6-X standard
Edge computing/Internet		support	support
Develop software		STEP Automation Studio(Codesys)	STEP Automation Studio(Codesys)

SC20 Application Solution

Application of medicine patch synthesis die-cutting machine

Solution Overview

Hardware configuration: SC20 basic motion controller + SH7070E high-definition industrial touch screen + STEP Ω6 bus servo driver.



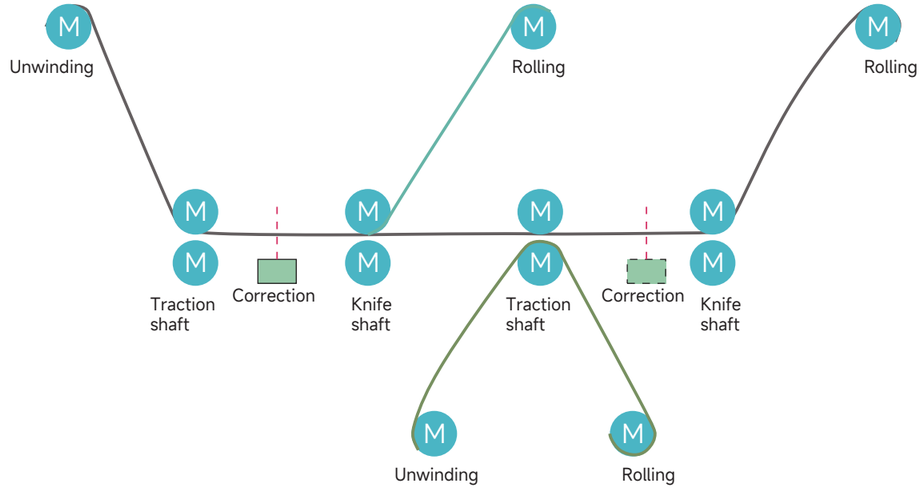
*SC20-A3H4-B16 supports up to 16 bus axes

Process Model

■ Adopting the tension control algorithm and deviation correction algorithm of Xinshida rewinding and unwinding to achieve accurate and stable tension control without tension sensor.

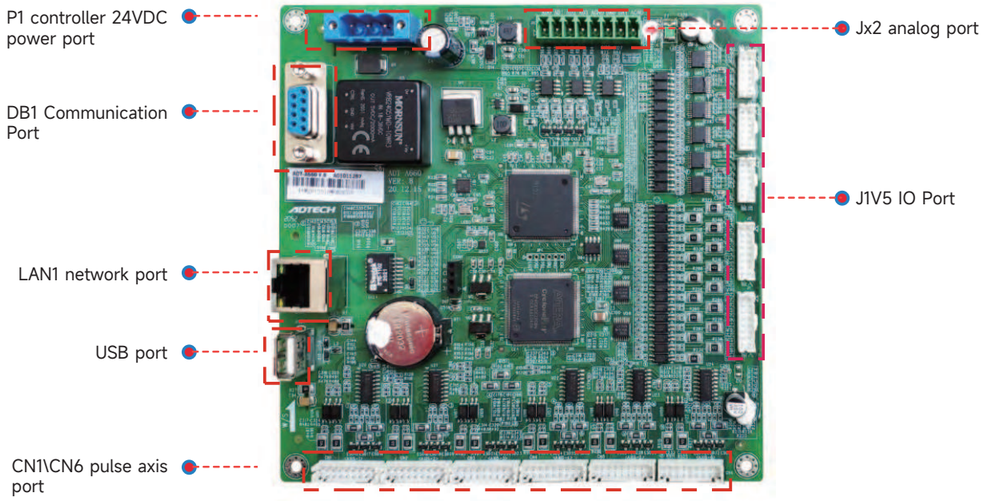
■ The reeling and winding speed is 60m/min, the tension fluctuation is controlled within 5%, and the precise positioning is within 0.05mm.

■ According to the characteristics of the material, the correction detection is combined in the automatic operation to achieve the correction compensation of the die-cutting process.



A660 Simple PAC

Codesys platform develops pulse type PAC



Features

High cost performance

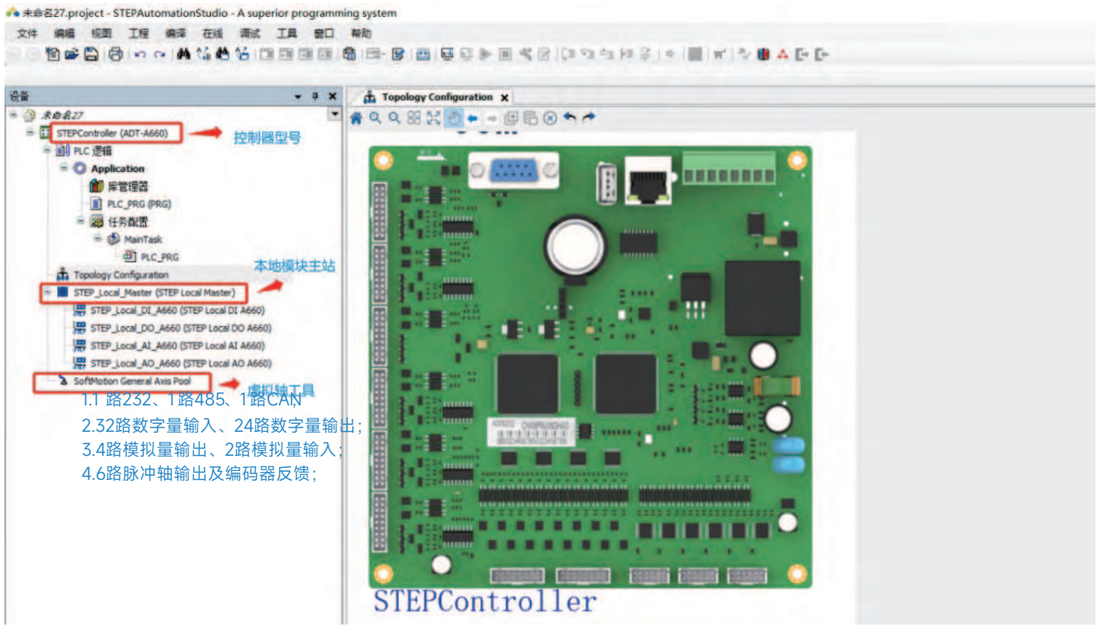
Suitable for fewer axes, At the same time, there are also application scenarios that require point motion, interpolation motion, and synchronous motion. For example: gantry module, three-axis module, six-axis handling, CNC simple grinding and other fields.

Ultra-high integration

The main body has 6 pulse axes, 4 DA, 2 AD, 32 DI, and 24 DO; it supports MODBUS and Ethernet/ip communications.

Detailed parameters \ model			A660
Processor frequency			480MHz
RAM capacity			32M
FLASH capacity			16M
Power-off protection data size			32K
Power Input			DC24V, 1A
Industrial Bus			Modbus、Ethernet/ip
Power indicator			Three-color indicator light
Modules structure	Native Integration IO Interface	Digital DI/DO	32 inputs, 24 outputs
		Analog AO	4 analog voltage outputs, 2 analog voltage inputs
		Local pulse number	6-channel pulse output + encoder feedback interface
	Commu-nication interface	USB interface	1 USB2.0
		LAN Ethernet	100M
		Modbus Serial Port	1-channel RS232/1-channel RS485/1-channel CAN RS232:115200 (upper limit) RS485:115200 (upper limit) CAN:100K USB:2.0
	Commu-nication interface	Pulse axis, encoder feedback	6-axis
		CNC+PLCOpen(Electric Sub-cam, shaft group, etc.)	support
Installation Method			Flat surface fixation
weight			<500g
Power consumption			<30W
Operating ambient temperature			-20~60°C
Operating environment humidity			10-90%, non-condensing
Operating ambient temperature			-20-80°C
Use Altitude			0-2KM (no limit)
			> 2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level			IP20
Pollution degree			IE33
Atmospheric pressure			86-106Kpa
EMC anti-interference level			Implementation of EN61000-6-X standard
Edge computing/Internet			support
Develop software			STEP Automation Studio(Codesys)
Programming language			Comply with IEC61131 international standard, support ST,LD, SFC, CFC

软件组态



产品订货信息

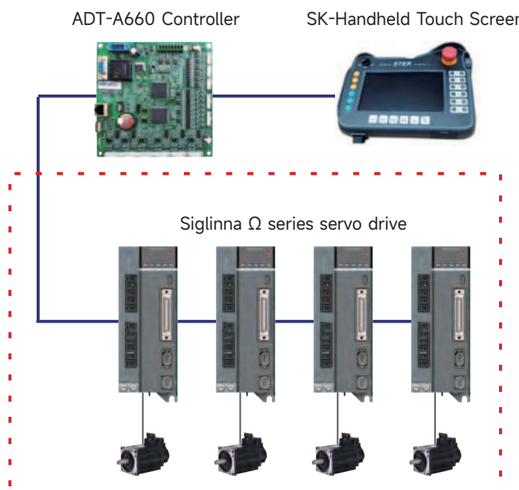
Coding	Product Model	Descri Dpetisocnription	Certification
200A66002	ADT-A660-A00	Standard version of CODESYS platform, six-axis pulse, 32 inputs, 24 outputs, VER: B	CE
Accessory code	Product Model	Descri Dpetisocnription	Certification
L06011038	ADT-A660-18P	A660 controller pulse signal cable, 200mm, 18 cores, 26AWG, one end is an 18PIN double-row plug, pin spacing 2.0mm with a buckle, model: A2004HB-2X09P, the other end is a swing line, and the line body is labeled.	CE
L06011039	ADT-A660-16P	A660 controller output signal cable, 200mm, 16 cores, 26AWG, one end is a 16PIN double-row plug, pin spacing 2.0mm with a buckle,model: A2004HB-2X08P, the other end is a swing line, and the line body is labeled.	CE
L06011040	ADT-A660-12P	A660 controller output signal cable, 200mm, 12 cores, 26AWG, one end is a 12PIN double-row plug, pin spacing 2.0mm with a buckle,model: A2004HB-2X06P, the other end is a swing line, and the line body is labeled.	CE

A660 Application Solution

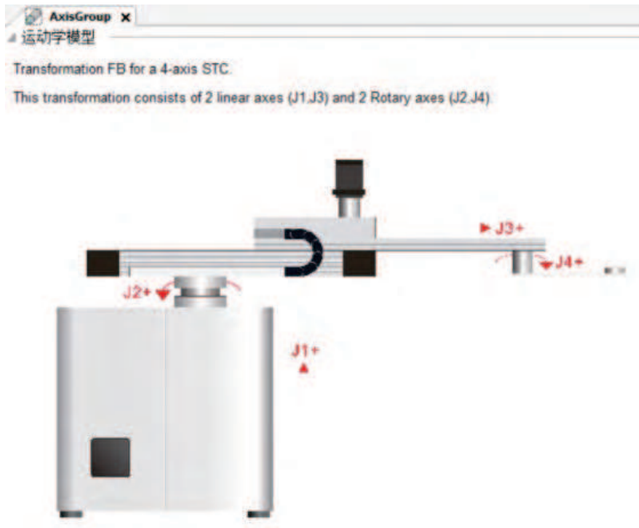
Non-standard robotic arm industry application solutions

Solution Overview :

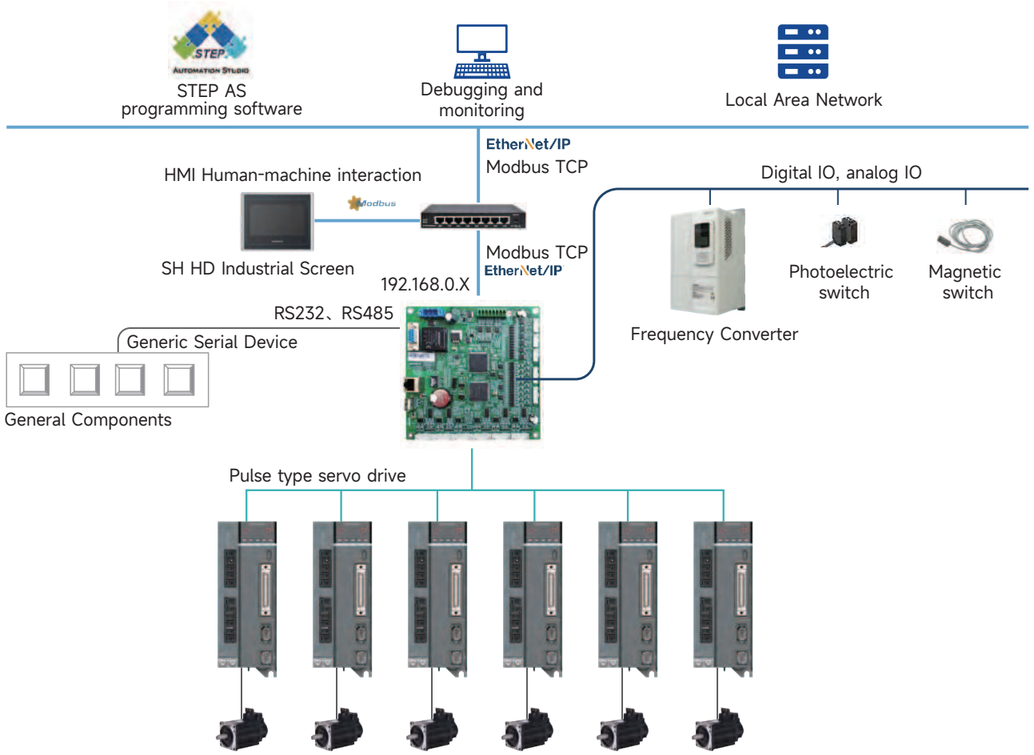
Hardware configuration: A660 motion controller + SK7070 high-definition industrial touch screen + Singelina Ω series pulse servo driver.



- Self-developed kinematic model multi-axis linkage interpolation to improve work efficiency.
- Equipped with trajectory caching, prediction and interference warning to achieve fast and accurate positioning and path optimization.
- Equipped with touch screen teaching, easy to operate.



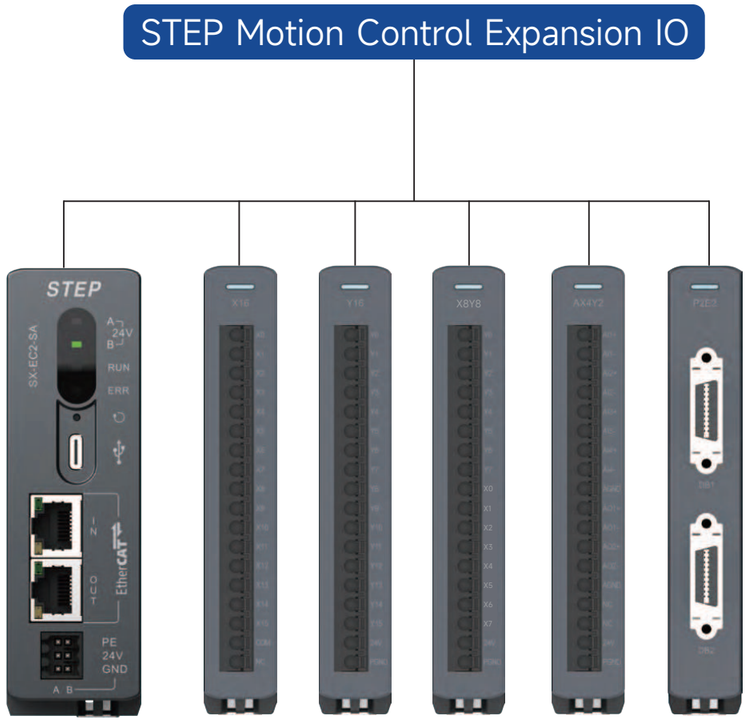
系统拓扑



STEP Motion Control IO Expansion Module

Product Family Overview

STEP motion control IO expansion modules include SL series Local io expansion IO modules.



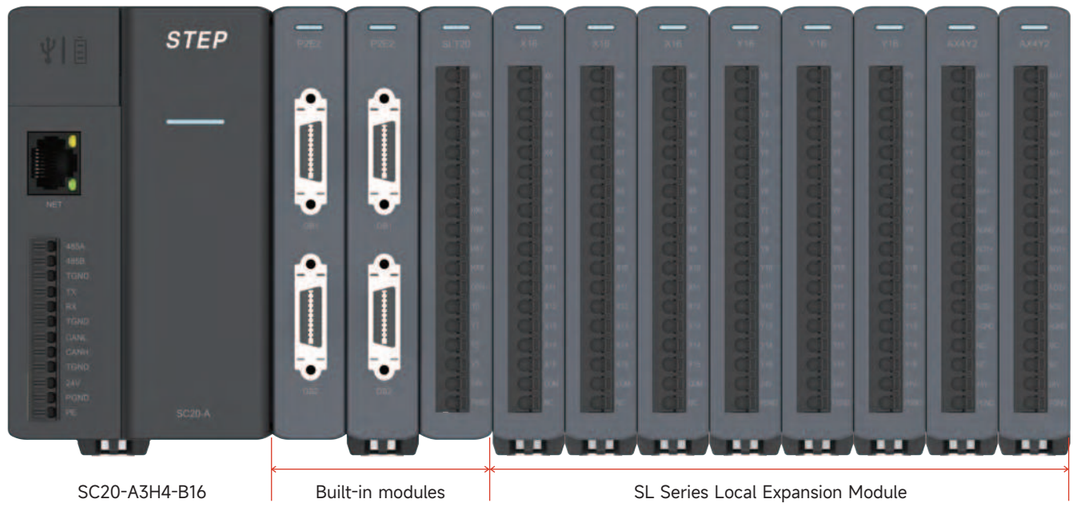
SL series Local io expansion module

SC expansion module

As an important part of STEP motion control, SC expansion module provides customers with different types of expansion IO, including digital input, digital output, digital input and output, analog input and output, pulse shaft encoder feedback and other expansion modules, meeting the application needs of most industries.

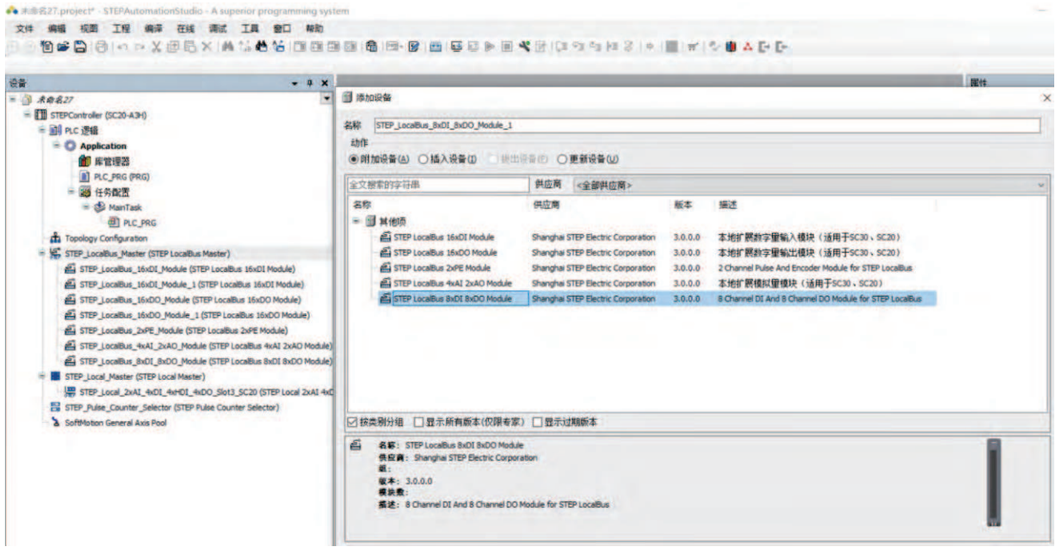
Dual-purpose design: Reduce customer inventory
It can be used as a local expansion IO when used alone, and can be used as an Ethercat remote expansion IO when used with an SX coupler.

Local expansion IO topology diagram

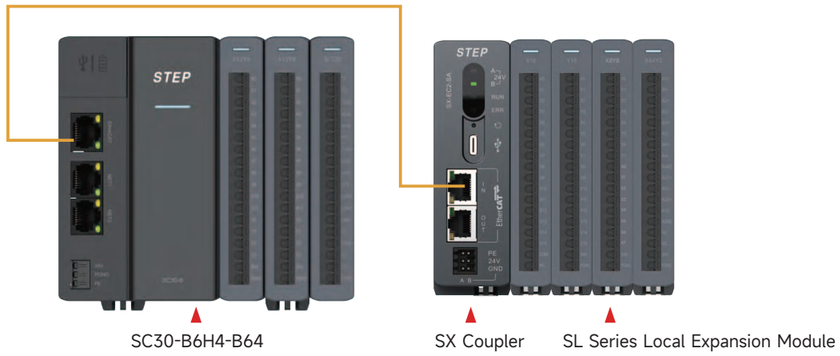


Note: A660 does not support this type of local expansion module;
SC20 supports up to 8 local expansion modules;
SC30 supports up to 32 local expansion modules;
The SC50 does not support this type of local expansion;
The SC80 does not support this type of local expansion.

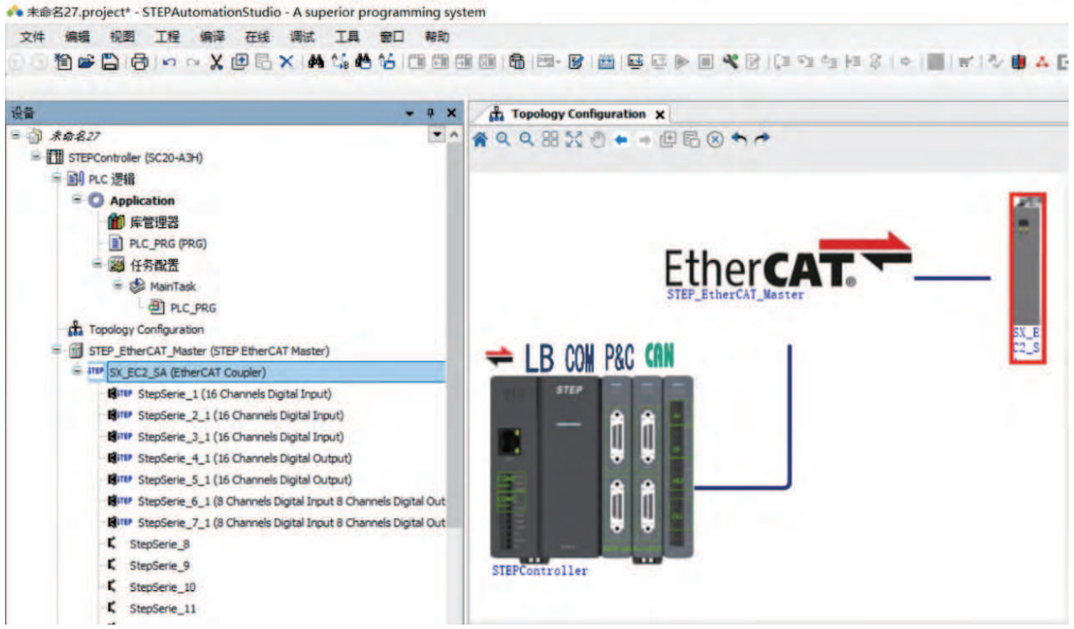
Software Configuration



Coupler IO topology diagram



Software Configuration



SX Coupler

Naming convention

■ Model and nameplate

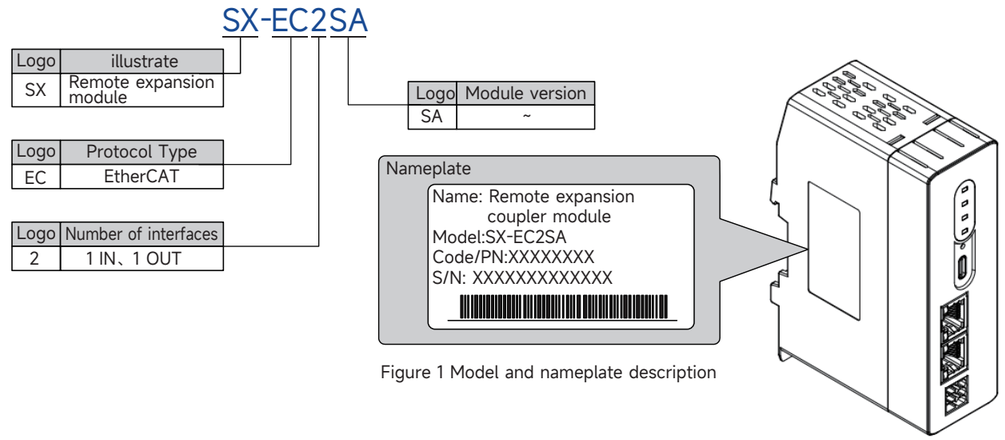


Figure 1 Model and nameplate description

Structure Name

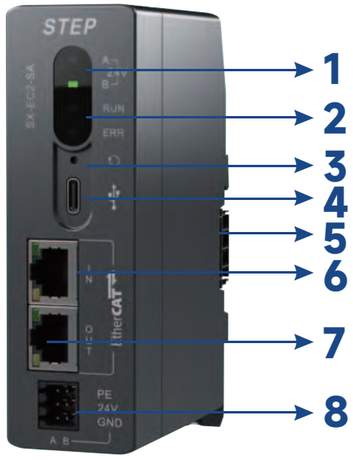
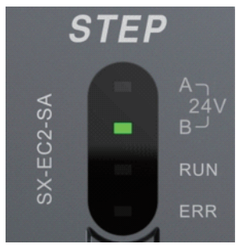


Figure 1 Structure description

1. Power status indicator: monitor the power status
2. Operation status indicator: monitor the operation status
3. Reset button: used to reset the system
4. Type-C interface: for firmware update
5. IO connector: used to connect the subsequent expansion modules
6. EtherCAT interface: bus expansion input port
7. EtherCAT interface: bus expansion output port
8. Power interface: coupler 24V power port

Model	Classification	Describe
SX-EC2SA	Remote expansion coupler module	Support EtherCAT bus communication protocol

Status indicator

Remote expansion module	LED	Color	State	Describe
	24V-A	Green	Destroy	The module is not powered
			Always on	The module is powered normally
	24V-B	Green	Destroy	Local expansion module 24V No power supply
			Always on	Local expansion module 24V Normal power supply
	RUN	Green	Destroy	No power or ECAT INIT state
			Flash	ECAT Safe-OP status
			Double flash	ECAT Pre-OP Status
			Always on	ECAT OP Status
	ERR	Red	Destroy	ECAT OP Status
			Flash	Network disconnection, ECAT mode Block sync error
			Double flash	ECAT communication watchdog timeout

Specifications

Project	Specification
Rated voltage	24V DC
Voltage tolerance range	20.4V DC~28.8V DC
Operating ambient temperature	5°C~+55°C
Storage temperature	-20°C~+80°C
Operating ambient temperature	10%RH~90%RH non-condensing
Storage environment humidity	10%RH~90%RH non-condensing
Use Altitude	0-2KM (no limit)
	> 2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level	IP20
Pollution degree	IE33
Atmospheric pressure	86Kpa~106Kpa
Usage Environment	There should be no corrosive gas and no severe dust.
EMC anti-interference level	Implementation of EN61000-6-X
weight	<0.5kg

LAN port parameters

Project	Specification
Port Definition	IN/OUT
Communication interface	Industrial Ethernet
Communication speed	100Mbps
Destroy Physical Layer	100BASE-TX
Transmission distance	100m (The maximum specification is 100m. In some environments, anti-interference measures such as installing ferrite cores are required. In addition, it is recommended to install the hub near the control panel and use it within 10m)
Communication Cable	Twisted pair cable (shielded: STP): Category 5e or higher
Communication Protocol	EtherCAT
Number of slave connections	Depends on the main controller
Topology	Linear topology
Communication	Full Duplex
LED Indicator	When a connection is established between devices on the network cable, the green light is on; Destroy ECAT OP Status Flashes green when communicating with the device

Installation Dimensions

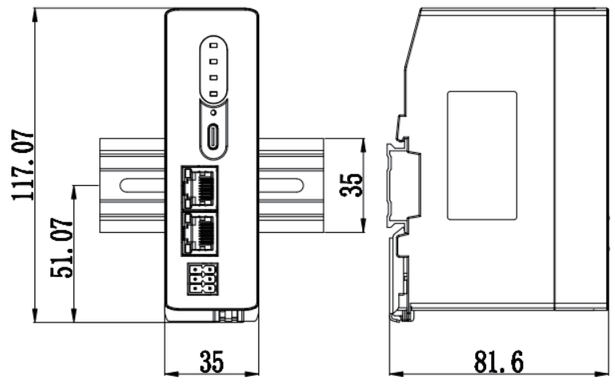
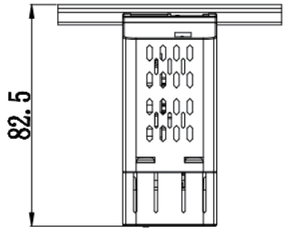


Figure 3 Installation dimensions (unit: mm)



Note: The module is installed using the national standard C45 guide rail snap-on style.

SL expansion module

Naming convention

■ Model and nameplate

SL-X8Y8 A01

Logo	illustrate
SL	SC expansion module

Logo	Input Interface
X8	8 digital inputs
X16	16 digital inputs
A	Analog input and output
P	Pulse axis and encoder feedback

Logo	Output Interface
Y8	8-channel digital output
Y16	116 digital outputs

Logo	Module version
01	~

Logo	Signal Type
A	NPN Type
C	NPN\PNP type

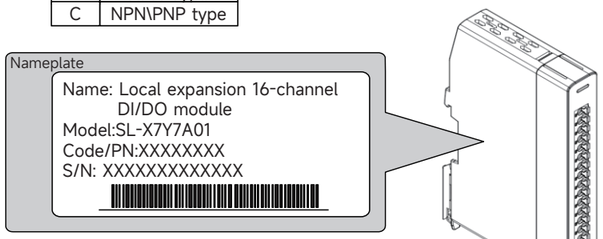


Figure 1 Model and nameplate description

Model	Classification	Describe
SL-X8Y8A01	Digital input/output module	8-point DI, 8-point D0 module; low level is effective
SL-X16C01	Digital Input Modules	16-point DI module; low/high level effective
SL-Y16A01	Digital Output Modules	16-point D0 module; low level is effective
SL-AX4Y2A01	Analog input and output modules	4-channel AD, 2-channel DA, 0~10V analog voltage signal
SL-P2A01	Pulse shaft encoder feedback	2-way pulse axis and encoder feedback, 5V differential

■ Module structure name

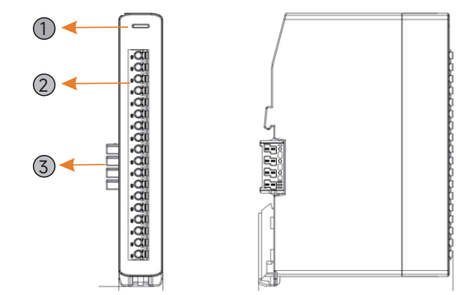


Figure 2 Schematic diagram of digital input and output module interface

■ Installation dimensions

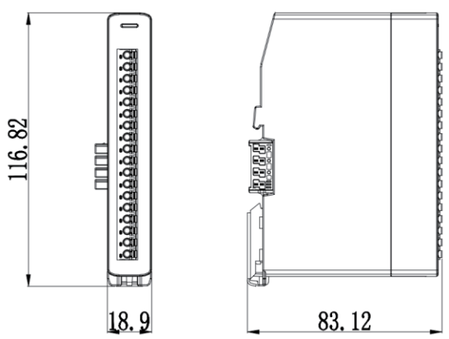


Figure 3 Installation dimensions (unit: mm)

Note: The module is installed using the national standard C45 guide rail snap-on style.

Serial number	Interface Name	Function Definition
①	Module LED status light	Blue: Normal communication, flashing: Communication is being established; Red: Abnormal communication
②	Input and output I0 indicator light	Corresponding to the input and output signal indications of each channel, the input and output valid indicator lights are on, otherwise they are off
③	I0 Connector	Connect to the front module, local expansion module connection port Isolation

Specifications

Detailed parameters \ Model	SL-X16C01
Input Channels	16-way PNP or NPN
Voltage ON/Current ON	>15V/2mA
OFF voltage/OFF current	<5/1mA
Input filter time	100us
I/0 refresh mode	Synchronous I/O refresh or free-running refresh
Internal I/O sharing	16-way PNP, NPN input
Input voltage	DC22-28V Max 1A
0N/OFF response time	> 0.01ms (less than 10K)
Insulation method	Optocoupler Isolation
I/0 power supply mode	5V control power bottom bus, 24V terminal power supply
Operating ambient temperature	20~60°C
Operating environment humidity	10~90%, non-condensing
Storage temperature	-20~80C
Use Altitude	0-2KM
	> 2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level	IP20
Pollution degree	IE33
Atmospheric pressure	86-106Kpa
EMC anti-interference level	Implementation of EN61000-6-X standard

Detailed parameters \ Model		SL-AX4Y2A01
Number of input channels		4
Number of output channels		2
Supply voltage		22VDC~28VDC
Module input specifications	Input Type	Voltage Type
	Voltage input impedance	10KΩ
	Voltage input range	0-10V
	Resolution	12-bit
	Conversion time	40uS
	Accuracy	0.005V
	Limit voltage	+15V
	Isolation method	No isolation between channels
Module output specifications	Output Type	Voltage Type
	Voltage output load	1KΩ-1MΩ
	Voltage output range	0-10V
	Accuracy	0.005V
	Resolution	12-bit
	Conversion time	40uS
	Output short circuit protection	none
	Isolation method	No isolation between channels

Specifications

Model / Detailed parameters	SL-X8Y8A01
Input Channels	8 NPN inputs
Output Channel	8 NPN outputs
Rated input voltage	24VDC
Input resistance	4.7KΩ
Operating load voltage range	DC22-28V
Maximum load current	0.5A
Maximum surge current	1A
Maximum voltage drop at 0N	1V or less
Protection function ON/OFF response time	>0.01ms (less than 10K)
Insulation method	Optocoupler Isolation
Circuit Protection	Overcurrent, overvoltage, short circuit
Public terminal mode	Common anode connection, NPN
I/0 refresh mode	Synchronous I/O refresh or free-running refresh
Operating ambient temperature	-20~60°C
Operating environment humidity	10~90%, non-condensing
Storage temperature	-20~80°C
Use Altitude	0-2KM
	>2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level	IP20
Pollution degree	IE33
Atmospheric pressure	86~106Kpa
EMC anti-interference level	Implementation of EN61000-6-X standard

Specifications

Model / Detailed parameters	SL-Y16A01
Output Channel	Route 16
Operating load voltage range	12V~24V
Maximum load current	0.5A
Maximum surge current	0.8A
Power consumption	<2W
I/O refresh mode	Synchronous 1/0 refresh or free running refresh
Internal I/O sharing	16 NPN outputs
Input voltage	DC22-28V Max 1A
ON/OFF response time	>0.01ms (less than 10K)
Insulation method	Optocoupler Isolation
I/O power supply mode	5V control power bottom bus, 24V terminal power supply
Protection function	Short circuit, over current, reverse connection protection
Operating ambient temperature	-20~60°C
Operating environment humidity	10~90%, non-condensing
Storage temperature	-20~80°C
Use Altitude	0-2KM
	>2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level	IP20
Pollution degree	IE33
Atmospheric pressure	86~106Kpa
EMC anti-interference level	Implementation of EN61000-6-X standard

Specifications

Detailed parameters \ Model		SL-P2A01
Encoder feedback	Encoder input channel	2-way
	Encoder wiring method	A/B/Z three-phase differential pulse input/5V
	Insulation method	Optocoupler Isolation
	Maximum pulse frequency	4M bps
Pulse axis output	Pulse output channel	2-way
	Pulse axis wiring method	Pulse+direction pulse+pulse A+B 5V differential output
	Control circuit voltage	5VDC
Operating ambient temperature		-20~60°C
Operating environment humidity		10~90%, non-condensing
Storage temperature		-20~80°C
Use Altitude		0-2KM
		>2KM (ambient temperature decreases by 0.5°C every 100m)
Protection level		IP20
Pollution degree		IE33
Atmospheric pressure		86~106Kpa
EMC anti-interference level		Implementation of EN61000-6-X standard

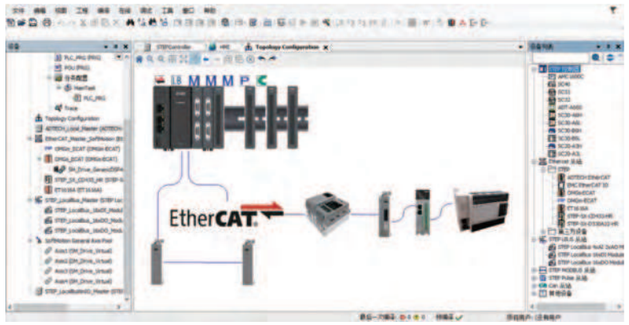
Product Ordering Information

Coding	Product Model	Describe	Terminal type	Certification
Extension modules				
100SL0011	SL-X16C01	High and low level 16-channel digital input module, can be used with SC20/SC30 as a local expansion module; can be used with SX coupler as a remote expansion plug-in.	Direct plug-in wiring	CE
100SL0007	SL-Y16A01	Low-level 16-channel digital output module, can be used with SC20/SC30 as a local expansion module; can Support complex operations be used with SX coupler as a remote expansion plug-in.	Direct plug-in wiring	CE
100SL0010	SL-X8Y8A01	Low-level 8-way digital input and 8-way output module, can be used with SC20/SC30 as a local expansion module; can be used with SX coupler as a remote expansion plug-in.	Direct plug-in wiring	CE
100SL0013	SL-AX4Y2A01	0~10V, 4 analog voltage inputs, 2 analog voltage outputs, can be used with SC20/SC30 as local expansion Module use; can be used as a remote extension plug-in when used with an SX coupler.	Direct plug-in wiring	CE
100SL0012	SL-P2A01	5V differential signal, 2-way pulse output and encoder feedback, can be used with SC20/SC30 as a local expansion module; can be used with SX coupler as a remote expansion plug-in.	SM-SCSI-20 Male	CE
100SX0005	SX-EC2-SA	Ethercat remote expansion coupler can be used with SC series controllers as remote expansion.		CE
E29011266	IO连接器	Right angle, black, the upper end is connected to the expansion module, and the right side corresponds to the subsequent expansion module.		CE

Software Platform

STEP AS Operation Control Development Software

STEP Automation Studo (STEPAS) is the standard software used to develop and apply SC series programmable controller products.
It is developed based on the CODESYS AP V3 platform, providing a complete configuration, programming, debugging and monitoring environment for the SC series programmable controllers, and can flexibly and freely handle the powerful IEC 61131-3 language.
It also provides the functions required for solutions such as UI configuration, PLC Open Motion library, and process packages.



Motion function library

- SASMotion
- CNC+Robotics
- PLCOpenpart1/2/4 (Electronic cam + shaft group)
- PSO high-end laser/dispensing
- Flying Shoot

Programming language

- Support IEC61131-3 languages: ST (Structured Text), LD (ladder diagram), FBD (functionBlock diagram) SFC (Sequential Function Chart), CFC (Continuous Function Chart)
- Linux C/C

Bus expansion

- EtherCAT
- CANopen
- Modbus
- PROFINET

Communication Library

- FTP
- Socket
- HTTP
- Serial Port

Visual interface operation

- Support cross-platform web design
- Local display interface design
- Associate Motion function blocks

Simulation function

- Offline simulation run
- Servo Simulation
- 3D Motion

Software integration capabilities

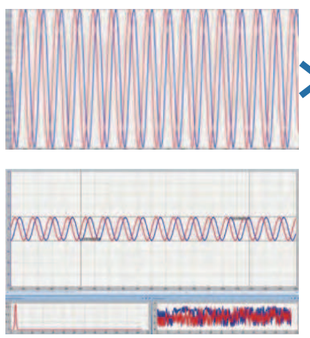
- Process Integration
- Project Wizard
- Library function integration
- Visualization Configuration
- STEP device library, customizable
- Visual interface
- Language editor integration

Watch/Trace debugging

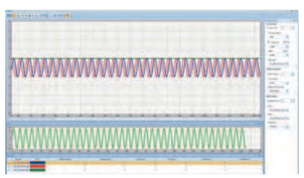
- Axis trajectory tracking
- Variable state tracking
- Support complex operations

STEP Trace

STEP Trace not only supports debugging and tracing display of system variables, but also supports mathematical operations and analysis between waveforms, such as average value, effective value analysis, FFT frequency domain analysis, etc.



FFT Processing



Mathematical operations on targets