Programmable Logic Controller

Product Catalog

KO01EN10-1110

Corporate Profile

Kinco Automation (Shanghai) Ltd. and its subsidiary, Kinco Electric (Shenzhen) Ltd., are private high-tech enterprises specialized in the research, development, and production of automation products. Kinco controls such companies as JAT Kinco Electric Shenzhen Ltd., and Kinavo Servo Motor (Changzhou) Ltd., and owns two well-known brands, eView and Kinco. Kinco has established full line of automation products such as industrial human-machine interfaces, AC servo systems, stepper systems, PLC and industrial fieldbus products with proprietary intellectual property rights. Kinco has become a leading supplier of machine automation solutions in China.

Undertaking the mission of "Providing automation solutions to global customers", Kinco focuses on the development of automation technology since its founding. Now Kinco has acquired technology and knowledge for control, drive, human-machine interface and system integration. By adopting international standards and following the trends in automation industry, we developed PLC products compatible with IEC-61131-3 standard, intellectual AC servo drives, leading HMI products in China and fieldbus products. Kinco is capable of making customized products/solutions/services fit the customer's needs best based on our technology platform.

Kinco has established R&D centers in Shenzhen, Shanghai, Beijing, Changzhou and Germany. We implement total quality management measures complying with ISO9001 standard throughout the marketing, R&D, production, and sales processes. We support our customers at home with a branch and distributor system covering mainland China. We appoint reliable partners to be distributors in overseas markets. Kinco is a customer-oriented company, always listening to customers' needs, cooperating with market leaders in emerging industries, providing first-rate automation solutions. Kinco products are widely used in industries such as textile machines, packaging machines, transportation systems and others. Kinco HMI is the No.1 domestic brands in China market. Kinco brand and products have been awarded by renowned media and organizations within the automation community.

Sticking to the business philosophy of "Caring people, pursuing excellence" and the value of "customer intimacy", Kinco advocates the corporate spirit of performance-oriented innovation, cooperation and efficiency. With the vision of "Automation creates wonderful life" in our minds, Kinco is always trying its best to be the partner of your every success and creates values for you.

Our Brand: Kinco® | eView®

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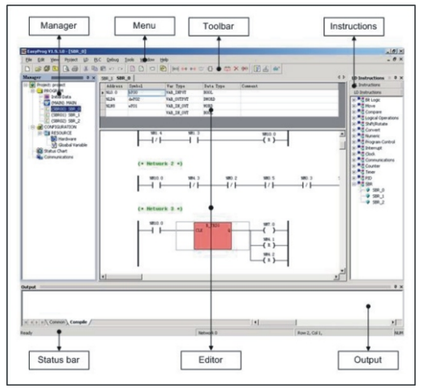
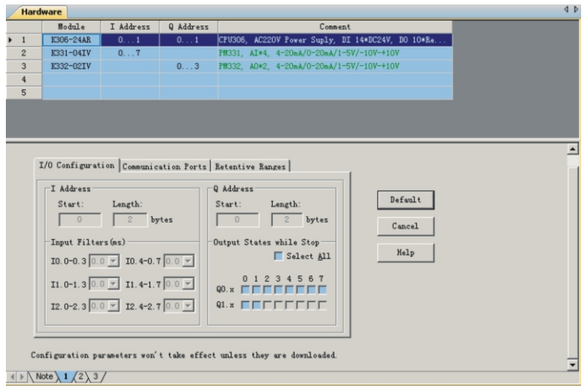
Kinco Builder

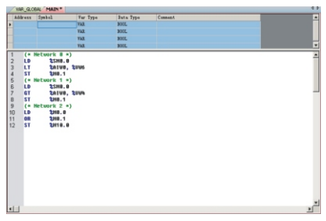
KincoBuilder is the programming software for the Kinco-K3. It complies with IEC61131-3 standard and is also compatible with PLC tradition. It supports IL (instruction list) and LD (ladder diagram) languages, and its project architecture complies with the IEC61131-3 software model.
Kinco-K3 provides 114 basic instructions and 420 expansion instructions. Meanwhile, it supports a number of special functions, such as interrupt (I/O interrupt, communication interrupt and time interrupt), and special I/O functions (high-speed counter, PTO/PWM output, etc.) Therefore, it is applicable to control applications in a diversity of fields.
With the debugging tool of KincoBuilder, the user can monitor online/force variables,update programs (three-level password protection), as well as view diagnostic messages and so on.The Windows style design enables a user to manage the program conveniently. With the engineering manager and toolbar, the user can perform quick operations such as adding, deletion,error checking, cross reference, printing, and backup of a file.

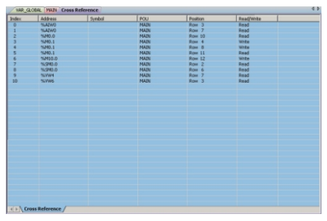


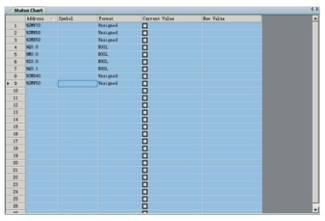
LD Editor and Online Monitoring



Hardware Configuration


IL Editor


Cross Reference Table


Variable Status Table

Data Type Supported by KincoBuilder

Category	Keyword	Description	Size in bits	Default Value
BOOL/bit string type	Bool	Boolean	1	false
	Byte	Bit string of length 8	8	0
	Word	16-bit string	16	0
	Dword	32-bit string	32	0
Numeric type	Int	Integer, signed	16	0
	Dint	Double integer, signed	32	0
	Real	Real	32	0.0

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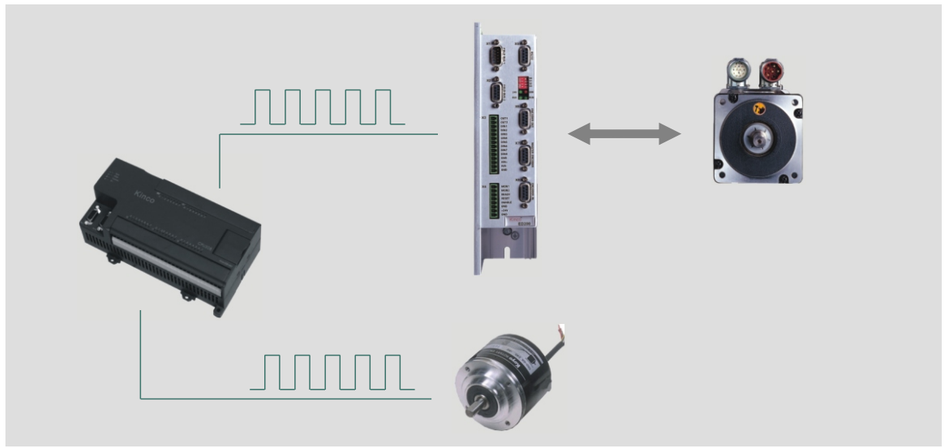
Advanced Function

High-speed Counter

(Taking CPU306 for example)
The Kinco-K3 provides six high-speed counters (HSC0~HSC5) up to a frequency of 30 KHz and support 12 different operation modes. All the counters have the same functions in the same operation mode. Each counter has its own inputs for clock, direction control, reset, and start, so these functions are supported. In addition, each counter has a 32-bit current value (i.e. starting value) and 32-bit preset value.

Pulse Output

The CPU has two built-in pulse generators with a frequency up to 20 KHz, which can generate PTO(Pulse Train Output) or PWM(Pulse-Width Modulation) wave output. The two pulse generators are assigned to Q0.0 and Q0.1 respectively. Q0.0 and Q0.1 are usually connected to the control end of a driver in a stepper motor or a servo system. The driver controls the motion of the motor and implements acceleration, deceleration, positioning, and homing functions.
A typical closed-loop control circuit is composed of a PLC, a motor driver, a stepper motor, and an encoder. As shown in the figure below:



The DC24V Sensor Supply

To facilitate users, all the Kinco-K3 CPU modules provide a DC24V sensor supply, which can supply DC24V for input points or other requirements. Its capacity is sufficient enough to ensure that it can supply power for all input points even when the CPU is connected with the maximum number of expansion modules.

Soft-PID Function

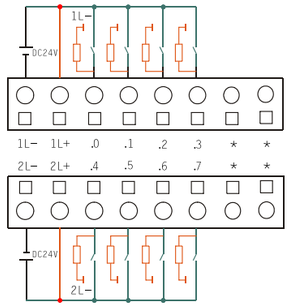
The Kinco-K3 provides soft-PID control function. You can call the PID function block conveniently in the program to implement the continuous PID control function. The PID function block can take the AI signal value directly as the PV value for the PID, and at the same time, sends the PID output value directly to the AO module for output.

Edge Interrupt Function

With the edge interrupt function, the Kinco-K3 can capture the rising/falling edge of the DI signals quickly (in nanoseconds), and respond immediately. Note: Only the first 4 DI channels on the CPU body(I0.0-I0.3) support the edge interrupt function.

Input/Output Multiplexing Function

Every channel of Kinco-K323-08DTX module can serve as both an input point and an output point. A special design is adopted inside the module so that each channel can occupy a DI address and a DO address .As for whether a channel is used as DI or DO, It does not need any additional configuration or operation and needs only to change the external wiring according to actual demands. As shown in the figure, the green part stands for the input circuit and the red part represents the output circuit. This module can maximize the utilization of the I/O resources, and avoid the waste of I/O points caused by separating DI and DO modules.



Real-time Clock Function

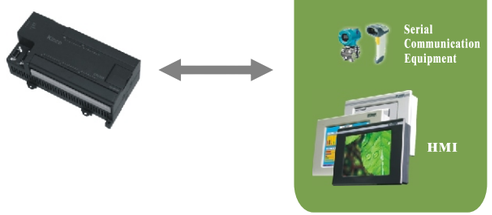
The system clock enables a user to set and read year, month, day, hour, second, and week.

Potentiometers

The CPU module is provided with two analog potentiometers with a resolution of 10 bits and adjusting range of 0 to 1023. User settings are sent to the internal registers SMW26 and SMW28 of the CPU for the calling by the program.

Communication Function

The Kinco-K3 CPU provides RS232/RS485 communication ports, and supports standard Modbus RTU protocol and free-protocol mode. Default, the CPU module uses Modbus RTU protocol and acts as a Modbus slave or master. The Kinco-K3 CPU can connect any HMI that supports the standard Modbus RTU protocol. Besides, free-protocol mode can be used for implementing user-defined communications with intelligent devices that use their own protocols. In addition, Max. 32 CPUs with RS485 port can be interconnected into a network.



Hardware Description

Structure

Part Name

1. I/O status LEDs
2. CPU status LEDs
3. Programming interface (RS232)/ Communication port (RS485)
4. Wiring terminal
5. 35mm DIN rail Clip
6. M4 mounting hole
7. Cover plate for terminal
8. Expansion port
9. Cover plate for expansion port

Module Arrangement

In each system, the CPU module is arranged in the leftmost end, and expansion modules are connected to the expansion interface on the right.

Left part of each expansion module, a cable slot is designed. The expansion cable can be put in the cable slot to ensure seamless interconnection between modules after installation.

CPU

CPU304

K304-14AT

AC85-265V power supply, provided with 14 I/O, DI8＊DC24V, DO6＊DC24V, a maximum output current of 0.75A for each channel, without expansion functions.

K304-14AR

AC85-265V power supply, provided with 14 I/O, DI8＊DC24V, DO6＊relay, a maximum output current of 3A for each channel, without expansion functions.

K304-14AX

AC85-265V power supply, provided with 14 I/O, DI8＊DC24V, DO3＊DC24V transistor /3relay, a maximum output current of 0.75A/3A for each channel, without expansion functions.

CPU304EX

K304EX-14AR

AC85-265V power supply, provided with 14 I/O, DI8＊DC24V, DO6＊relay, a maximum output current of 3A for each channel.

CPU

CPU306

K306-24DT

DC24V power supply, provided with 24 I/O, DI14＊DC24V, DO＊10DC24V, a maximum output current of 0.75A for each channel

K306-24AT

AC85-265V power supply, provided with 24 I/O, DI14＊DC24V, DO10＊DC24V, transistor output, a maximum output current of 0.75A for each channel.

K306-24DR

DC24V power supply, provided with 24 I/O, DI14＊DC24V, DO10＊DC24V, relay output, a maximum output current of 3A for each channel.

K306-24AR

AC85-265V power supply, provided with 24 I/O, DI14＊DC24V, DO10＊relay, a maximum output current of 3A for each channel

CPU306EX

K306EX-24AT

AC85-265V power supply, provided with 24 I/O, DI14＊DC24V, DO10＊DC24V, two serial communication port (RS232/RS485, RS485).

K306EX-24AR

AC85-265V power supply, provided with 24 I/O, DI14＊DC24V, DO10＊relay, two serial communication port (RS232/RS485, RS485).

CPU

CPU308

K308-40AR

AC85-265V power supply, provided with 40 I/O, DI24＊DC24V, DO16＊relay, a maximum output current of 3A for each channel.

K308-40AT

AC85-265 power supply, provided with 40 I/O, DI24＊DC24V, DO16＊DC24V, transistor output, a maximum output current of 0.75A for each channel.

K308-40AX

AC85-265V power supply, provided with 40 I/O, DI24＊DC24V, DO8＊DC24V transistor /8relay, a maximum output current of 0.75A/3A for each channel.

Expansion I/O Module

DI PM321

K321-08DX

DI8*DC24V

K321-16DX

DI16*DC24V

Expansion I/O Module

DO PM322

K322-08DT

DO8＊DC24V, a maximum output current of 0.75A for each channel

K322-08XR

DO8＊relay, a maximum output current of 3A for each channel

K322-16DT

DO16＊DC24V, transistor output, a maximum output current of 0.75A for each channel

K322-16XR

DO16＊relay, a maximum output current of 3A for each channel

Product Overview

Expansion I/O Module

DI/DO PM323

K323-08DTX

DIO8＊DC24V/8＊DC24V Input/output multiplexing, a maximum output current of 0.75A for each channel

K323-08DR

DI4＊DC24V, DO4＊relay, a maximum output current of 3A for each channel

K323-16DR

DI8＊DC24V, DO8＊relay, a maximum output current of 3A for each channel

Expansion I/O Module

AO PM332

K332-02IV

AO2*IV,0~20mA/4~20mA/ -10V~10V/1~5V optional

AI/AO PM333

K333-03IV

AI 2*IV，4~20mA/0~20mA/ 1~5V/-10~10V optional
AO 1*IV，4~20mA/0~20mA/ 1~5V/-10~10V optional

K333-04IV

AI 2*IV，4~20mA/0~20mA/ 1~5V/-10~10V optional
AO 2*IV，4~20mA/0~20mA/ 1~5V/-10~10V optional

Expansion I/O Module

AI PM331

K331-04IV

AI4*IV, 4-20mA/0-20mA/ 1~5V/-10~10V optional

K331-04RD

AI4＊RTD (Pt100/Cu50, 2-wire or 3-wire)

Expansion Bus Power Modules

PS380

K380

Supply voltage: AC85~265V
Capability for expansion bus:
+5V≤1300mA
+24V≤250mA

CPU Module

	CPU304		
	K304-14AT	K304-14AR	K304-14AX
CPU	16-bit industrial		
Execution speed	Typical Bool instruction time: <1 μ S Word operation time: <96 μ S Arithmetic operation time for integers: <130 μ S Arithmetic operation time for floating points: <300 μ S		
DI points	8*DC24V		
DO points	6*DC24V	6*relay	3*DC24V+3*relay
User program memory	EEPROM, 8KB		
Program backup	Permanent storage, without the need of battery /1000 instructions		
Memory area	Variable storage area (V area): 2KB System storage area (SM area): 300 bytes Internal storage area (M area): 32 bytes		
Data retention characteristic	Configure with the programming software: V area, C (counter) area		
Retention mode and period	Adopt super capacitors and support a retention period of not less than 144 hours upon power failure under normal temperature.		
Data backup characteristic	Perform backup operations VB1648 ~ VB1775 according to user instructions, 128 bytes in total		
Backup mode and time	EEPROM(writing operation for 1 million times) permanent backup		
Floating points	Supported; the whole V area can be used for floating points		
Programming language supported	Ladder Drawing (LD), Instruction List (IL)		
Instruction set	Basic instructions: 55; expansion instructions: 251		
Password protection	Yes		
Max. I/O	Digital data: 14 in total (DI8, DO6); Analog data: None		
Counter	64		
Operation mode of counter	Addition, subtraction		
Counter range	-32768~32767		
Counting value retention function	Yes		
Timer	64 1 ms time base: 4 10 ms time base: 16 100 ms time base: 44		
High-speed counter	2 single/dual-phase high-speed counters Where, single-phase counter with a maximum frequency of 20KHz dual-phase counter with a maximum frequency of 10KHz		
Pulse output	2, PTO (Pulse Train Output)/PWM (Pulse Width Modulation output); Maximum output frequency: 20 KHz		
Analog potentiometer	—		
Interruption function	Timing interruption: 2, 1ms resolution; Timer interruption: T2/T3, 1ms resolution; Edge interruption: 4, rising edge or falling edge optional; High-speed interruption, communication interruption		
Real-time clock	—		
Number of connectable expansion modules	—		
COM port	1, RS232 or Rs485; Supported working modes:programming,Modbus-RTU(slave),Free protocol		
Equipment connected with COM port	RS232/RS485: PC (for programming), third-party HMI panel, third-party serial communication equipment (for example, instruments, bar code reader, etc.)		
Input power supply	AC85~265V		
Sensor load power supply	DC24V, max. 300 mA		
Dimensions (L×W×H)	97×114×70 mm		

	CPU304EX
	K304EX-14AR
CPU	16-bit industrial
Execution speed	Typical Bool instruction time: <0.5 μ S Word operation time: <48 μ S Arithmetic operation time for integers: <65 μ S Arithmetic operation time for floating points: <150 μ S
DI points	8*DC24V
DO points	6*relay
User program memory	FRAM, 8KB/about 1,200 steps
Program backup	Permanent storage, without the need of battery
Memory area	Variable storage area (V area): 4KB System storage area (SM area): 300 bytes Internal storage area (M area): 32 bytes
Data retention characteristic	Configure with the programming software: V area, C (counter) area
Retention mode and period	Adopt super capacitors and support a retention period of not less than 144 hours upon power failure under normal temperature.
Data backup characteristic	Perform backup operations VB3648~VB3902 according to user instructions, 255 bytes in total
Backup mode and time	FRAM, 255 bytes in total (writing operation for 10 billion times), Permanent backup
Floating points	Supported; the whole V area can be used for floating points
Programming language supported	Ladder Drawing (LD), Instruction List (IL)
Instruction set	Basic instructions: 55; expansion instructions: 252
Password protection	Yes
Max. I/O	Digital data: 78 in total (64 DI and 64 DO respectively); Analog data: 16 in total (16 AI and 16 AO respectively)
Counter	128
Operation mode of counter	Addition, subtraction
Counter range	-32768~32767
Counting value retention function	Yes
Timer	128 1 ms time base: 4 10 ms time base: 16 100 ms time base: 108
High-speed counter	6 high-speed counters where, single-phase counters: 6, with a maximum frequency of 30 KHz where, dual-phase counters: 4, with a maximum frequency of 20 KHz
Analog potentiometer	2, 10-bit resolution, values corresponding to internal registers
Interruption function	Timing interruption: 2, 1ms resolution; Timer interruption: T2/T3, 1ms resolution; Edge interruption: 4, rising edge or falling edge optional; High-speed interruption, communication interruption
Real-time clock	Yes, with an error not greater than 2 minutes/month under a temperature of 25℃ The user can use the software to set/read: year, month, day, hour, minute, second, week. Standby batteries are used to supply power for the real-time clock upon power failure. Under normal temperature, the accumulative retention period of the real-time clock upon power failure is up to 50,000 hours.
Number of connectable expansion modules	4; regardless of types
COM port	1, RS232 or RS485; Supported working modes: Programming, Modbus-RTU (slave), Free protocol
Equipment connected with COM port	RS232/RS485: PC (for programming), third-party HMI panel, third-party serial communication equipment (for example, instruments, bar code reader, etc.)
Input power supply	AC85~265V
Sensor load power supply	DC24V, max. 500 mA
Dimensions (L×W×H)	125×114×70 mm

	CPU306			
	K306-24DT	K306-24AT	K306-24DR	K306-24AR
CPU	16-bit industrial			
Execution speed	Typical Bool instruction time: <0.5 μ S Word operation time: <48 μ S Arithmetic operation time for integers: <65 μ S Arithmetic operation time for floating points: <150 μ S			
DI points	14*DC24V			
DO points	10*DC24V		10×relay	
User program memory	FRAM, 8KB/about 1,200 steps			
Program backup	Permanent storage, without the need of battery			
Memory area	Variable storage area (V area): 4KB System storage area (SM area): 300 bytes Internal storage area (M area): 32 bytes			
Data retention characteristic	Configure with the programming software: V area, C (counter) area			
Retention mode and period	Adopt super capacitors and support a retention period of not less than 144 hours upon power failure under normal temperature.			
Data backup characteristic	Perform backup operations VB3648~VB3902 according to user instructions, 255 bytes in total			
Backup mode and time	FRAM, 255 bytes in total (writing operation for 10 billion times), permanent backup			
Floating points	Supported; the whole V area can be used for floating points			
Programming language supported	Ladder Drawing (LD), Instruction List (IL)			
Instruction set	Basic instructions: 55; expansion instructions: 252			
Password protection	Yes			
Max. I/O	Digital data: 88 in total (64 DI and 64 DO respectively); Analog data: 16 in total (16 AI and 16 AO respectively)			
Counter	128			
Operation mode of counter	Addition, subtraction			
Counter range	-32768~32767			
Counting value retention function	Yes			
Timer	128 1 ms time base: 4 10 ms time base: 16 100 ms time base: 108			
High-speed counter	6 high-speed counters where, single-phase counters: 6, with a maximum frequency of 30 KHz where, dual-phase counters: 4, with a maximum frequency of 20 KHz			
Pulse output	2, PTO (Pulse Train Output)/PWM (Pulse Width Modulation output);Maximum output frequency: 20 KHz			
Analog potentiometer	2, 10-bit resolution, values corresponding to internal registers			
Interruption function	Timing interruption: 2, 1ms resolution; Timer interruption: T2/T3, 1ms resolution; Edge interruption: 4, rising edge or falling edge optional; High-speed interruption, communication interruption			
Real-time clock	Yes, with an error not greater than 2 minutes/month under a temperature of 25℃ The user can use the software to set/read: year, month, day, hour, minute, second, week. Standby batteries are used to supply power for the real-time clock upon power failure. Under normal temperature, the accumulative retention period of the real-time clock upon power failure is up to 50,000 hours.			
Number of connectable expansion modules	4; regardless of types			
COM port	1,RS232 or Rs485; Supported working modes: Programming, Modbus-RTU (slave), Free protocol			
Equipment connected with COM port	RS232/RS485: PC (for programming), third-party HMI panel, third-party serial communication equipment (for example, instruments, bar code reader, etc.)			
Input power supply	DC24V±20%	AC85~265V	DC24V±20%	AC85~265V
Sensor load power supply	DC24V, max. 500 mA			
Dimensions (L×W×H)	125×114×70 mm			

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	CPU306EX	
	K306EX-24AT	K306EX-24AR
CPU	16-bit industrial	
Execution speed	Typical Bool instruction time: <0.5 μ S Word operation time: <48 μ S Arithmetic operation time for integers: <65 μ S Arithmetic operation time for floating points: <150 μ S	
DI points	14×DC24V	
DO points	10×DC24V	10×relay
User program memory	FRAM, 32KB/about 4,000 steps	
Program backup	Permanent storage, without the need of battery	
Memory area	Variable storage area (V area): 4KB System storage area (SM area): 300 bytes Internal storage area (M area): 32 bytes	
Data retention characteristic	Configure with the programming software: V area, C (counter) area	
Retention mode and period	Adopt super capacitors and support a retention period of not less than 144 hours upon power failure under normal temperature.	
Data backup characteristic	Perform backup operations VB3648~VB3902 according to user instructions, 255 bytes in total	
Backup mode and time	FRAM, 255 bytes in total (writing operation for 10 billion times), Permanent backup	
Floating points	Supported; the whole V area can be used for floating points	
Programming language supported	Ladder Drawing (LD), Instruction List (IL)	
Instruction set	Basic instructions: 114; expansion instructions: 420	
Password protection	Yes	
Max. I/O	Digital data: 264 in total (256 DI and 256 DO respectively); Analog data: 64 in total (32AI and 32 AO respectively)	
Counter	256	
Operation mode of counter	Addition, subtraction	
Counter range	-32768~32767	
Counting value retention function	Yes	
Timer	256 1 ms time base: 4 10 ms time base: 16 100 ms time base: 236	
High-speed counter	6 high-speed counters where, single-phase counters: 6, with a maximum frequency of 30 KHz where, dual-phase counters: 4, with a maximum frequency of 20 KHz	
Pulse output	2, PTO (Pulse Train Output)/PWM (Pulse Width Modulation output); Maximum output frequency: 20 KHz	
Analog potentiometer	2, 10-bit resolution, values corresponding to internal registers	
Interruption function	Timing interruption: 2, 1ms resolution; Timer interruption: T2/T3, 1ms resolution; Edge interruption: 4, rising edge or falling edge optional; High-speed interruption, communication interruption	
Real-time clock	Yes, with an error not greater than 2 minutes/month under a temperature of 25℃ The user can use the software to set/read: year, month, day, hour, minute, second, week. Adopt super capacitors and support a retention period of not less than 144 hours upon power failure under normal temperature.	
Number of connectable expansion modules	15; regardless of types	
COM port	2, RS232 or RS485; Supported working modes: Programming, Modbus-RTU (master/slave), Free protocol	
Equipment connected with COM port	RS232/RS485: PC (for programming), third-party HMI panel, third-party serial communication equipment (for example, instruments, bar code reader, etc.)	
Input power supply	AC85~265V	
Sensor load power supply	DC24V, max. 500 mA	
Dimensions (L×W×H)	125×114×70 mm	

	CPU308		
	K308-40AT	K308-40AR	K308-40AX
CPU	16-bit industrial		
Execution speed	Typical Bool instruction time: <0.5 μ S Word operation time: <48 μ S Arithmetic operation time for integers: <65 μ S Arithmetic operation time for floating points: <150 μ S		
DI points	24 ×DC24V		
DO points	16 ×DC24V	16×relay	4×DC24V+12×relay
User program memory	FRAM, 32KB/about 4,000 steps		
Program backup	Permanent storage, without the need of battery		
Memory area	Variable storage area (V area): 4KB System storage area (SM area): 300 bytes Internal storage area (M area): 32 bytes		
Data retention characteristic	Configure with the programming software: V area, C (counter) area		
Retention mode and period	Adopt super capacitors and support a retention period of not less than 144 hours upon power failure under normal temperature.		
Data backup characteristic	Perform backup operations VB3648~VB3902 according to user instructions, 255 bytes in total		
Backup mode and time	FRAM, 255 bytes in total (writing operation for 10 billion times), permanent backup		
Floating points	Supported; the whole V area can be used for floating points		
Programming language supported	Ladder Drawing (LD), Instruction List (IL)		
Instruction set	Basic instructions: 114; expansion instructions: 420		
Password protection	Yes		
Max. I/O	Digital data: 280 in total (256 DI and 256 DO respectively); Analog data: 64 in total (32 AI and 32 AO respectively)		
Counter	256		
Operation mode of counter	Addition, subtraction		
Counter range	-32768~32767		
Counting value retention function	Yes		
Timer	256 1 ms time base: 4 10 ms time base: 16 100 ms time base: 236		
High-speed counter	6 high-speed counters where, single-phase counters: 6, with a maximum frequency of 30 Khz where, dual-phase counters: 4, with a maximum frequency of 20 KHz		
Pulse output	2, PTO (Pulse Train Output)/PWM (Pulse Width Modulation output); Maximum output frequency: 20 KHz		
Analog potentiometer	2, 10-bit resolution, values corresponding to internal registers		
Interruption function	Timing interruption: 2, 1ms resolution; Timer interruption: T2/T3, 1ms resolution; Edge interruption: 4, rising edge or falling edge optional; High-speed interruption, communication interruption		
Real-time clock	Yes, with an error not greater than 2 minutes/month under a temperature of 25℃ The user can use the software to set/read: year, month, day, hour, minute, second, week. Standby batteries are used to supply power for the real-time clock upon power failure. Under normal temperature, the retention period of the real- time clock upon power failure is not less than 180 days.		
Number of connectable expansion modules	15; regardless of types		
COM port	2, RS232 or RS485; Supported working modes: Programming, Modbus-RTU (master/slave), Free protocol		
Equipment connected with COM port	RS232/RS485: PC (for programming), third-party HMI panel, third-party serial communication equipment (for example, instruments, bar code reader, etc.)		
Input power supply	AC85~265V		
Sensor load power supply	DC24V, max. 500 mA		
Dimensions (L×W×H)	200×114×70 mm		

Expansion I/O Module

K321-xxDX

Features:

- 8/16 input channels, totally classified into two groups, and 4/8 channels in each group;
- Each group can either be connected to source input (common cathode) or to sink input (common anode);
- Rated input voltage: DC24V, with a valid voltage range of 15~30V;
- Photoelectric isolation between field signals and internal circuit;
- Independent LED indication for each channel.

Electric parameters	K321-08DX	K321-16DX
Number of input channels	8(4 channels/group)	16(8 channels/group)
Input type	Source/sink	
Rated input voltage	DC24V ("1" for DC15~30V)	
Rated input current	4.1mA@24VDC	
Maximum input voltage of logic "0"	5V@0.7mA	
Minimum input voltage of logic "1"	15V@2.5mA	
Input filter delay	5ms	
Current loss of expansion bus	5V ＜70mA	＜101mA
	24V -	
Isolation between input and internal logic circuit * Mode * Voltage	Photoelectric coupler 1500VAC/one minute	
Status indication	A green LED indicates signal "1" of each channel	
Occupied address space		
DI image area	1 byte	2 byte
DO image area	-	-
Dimensions and weight		
Dimensions (L×W×H)	114×50×70mm	114×75×70mm
Net weight	125g	150g

K322-xxDT

Features:

- 8/16 transistor output channels, totally classified into2/4 groups, and four channels in each group;
- Rated power supply voltage: DC24V;
- Rated output voltage: DC24V; Maximum output current of each channel: 750mA, source type;
- Power input protection;
- Inductive load output protection;
- Short circuit protection (protected if the output current is greater than 3A);
- Parallel connection of channels in the same group;
- Photoelectric isolation between field signals and internal circuit.

K322-xxXR

Features:

- 8/16 relay output channels, totally classified into two groups, and four channels in each group;
- Maximum power supply voltage: DC30V/AC270V;
- Maximum output current of each channel: 3A (DC30V/AC270V);
- Independent LED indication for each channel.

Electric parameters	K322-08DT	K322-08XR	K322-16DT	K322-16XR
Number of output channels	8 (4 channels/group)		16 (4 channels/group)	
Output type	Source	—	Source	—
Rated power supply voltage	DC24V	Maxium DC30V/AC270V	DC24V	Maxium DC30V/AC270V
Rated output voltage	DC24V			
Maximum output current	750mA@24VDC	3A(DC30V/AC270V)	750mA@24VDC	3A(DC30V/AC270V)
Output sink current	Maximum: 0.5μA	—	Maximum: 0.5μA	—
Output impedance	Maximum: 0.2Ω	—	Maximum: 0.2Ω	—
Output delay * ON delay * OFF delay	0.3—5μS 5μs	5ms (typical value) 3ms(typical value)	0.3—5μS 5μs	5ms (typical value) 3ms(typical value)
Current loss of expansion bus	5V <74.6mA	<73.4mA	<115.8mA	<101mA
	24V	<64mA		<125mA
Isolation between output and internal logic circuit * Mode * Voltage	Photoelectric coupler 1500VAC/1minute	Relay 2000Vrms 750Vrms	Photoelectric coupler 1500VAC/1minute	Relay 2000Vrms 750Vrms
Inductive load output protection	Yes	No	Yes	No
Short circuit protection	Yes(3A/each group)	No	Yes(3A/each group)	No
Parallel connection of channels	Yes(in the same group)			
Status indication	A green LED indicates signal "1" of each channel			
Occupied address space				
DI image area	-			
DO image area	1 byte		2 byte	
Dimensions ard weight				
Dimensions (L×W×H)	114×50×70mm		114×75×70mm	
Net weight	125g	150g	170g	235g

Expansion I/O Module

K323-08DTX

Features:

- 8 transistor channels,divided into 2 groups,each group with 4 channels,and each channel can be used as DI or DO.
- Rated power supply voltage: DC24V;
- Rated output voltage: DC24V; Maxi
- Rated output voltage: DC24V; Maximum output current of each channel: 750mA, source type;
- Power input protection;
- Inductive load output protection;
- Short circuit protection (protected if the output current is greater than 3A);
- Parallel connection of DO channels
- Photoelectric isolation between field signals and internal circuit;

Electric parameters	K323-08DTX
Number of channels	8, can used as DI or DO
Input/output type	Source type
Rated power supply voltage	DC24V
Rated output voltage	DC24V
Maximum output current	750mA@24VDC
Output impedance	Maximum: 0.2Ω
Output delay * ON delay * OFF delay	0.3—5μS 5μs
Rated input voltage	DC24V ("1" FOR DC15~30V)
Rated input current	4.1mA@24VDC
Maximum input voltage of logic "0"	5V@0.7mA
Minimum input voltage of logic "1"	15V@2.5mA
Input filter delay	5ms
Isolation between signal and internal logic circuit * mode * Voltage	Photoelectric coupler 1500VAC/1 minute
Inductive load output protection	Available
Short circuit protection	Available (protected if the output current of each group is greater than 3A)
Parallel connection of channels	Available
Current loss of expansion bus	5V <84.3mA
	24V -
Status indication	A green LED indicates signal "1" of each channel
Occupied address space	
DI image area	1 byte
DO image area	1 byte
Dimensions and weight	
Dimensions (L×W×H)	114×50×70mm
Net weight	130g

Expansion I/O Module

K323-xxDR

Features:

- DI 4/8*DC24V, totally classified into 1 group;
- The DI channel can either be connected to source input (common cathode) or to sink input (common anode);
- Rated input voltage of DI channel: DC24V, with a valid voltage range of 15~30V;
- Photoelectric isolation between field signals of DI channel and internal circuit;
- DI 4/8* relay, totally classified into 1 group;
- Maximum power supply voltage of DO channel: DC30V/AC270V;
- Maximum output current of each DO channel: 3A(DC30V/AC270V);

Electric parameters	K323-08DR	K323-16DR
Number of input channels	4 (4 channels/group)	8 (8 channels/group)
Input type	Source/sink	
Rated input voltage	DC24V ("1" for DC15~30V)	
Rated input current	4.1mA@24VDC	
Maximum input voltage of logic "0"	5V@0.7mA	
Minimum input voltage of logic "1"	15V@2.5mA	
Input filter delay	5ms	
Isolation between input and internal logic circuit * mode * Voltage	Photoelectric coupler 1500VAC/1 minute	
Number of output channels	4 relay (4 channels/group)	8 relay (4 channels/group)
Power supply voltage for output	Maximum: DC30V/AC270V	
Maximum output current of each channel	3A(DC30V/AC270V)	
Maximum output current of each group	10A	
Output ON delay time	10ms (Max.) 5ms (typical value)	
Output OFF delay time	5ms (Max.) 3ms (typical value)	
Maximum switch frequency of relay *No-load *Rated load	12,000 times/minute 100 times/minute	
Expected life of relay contact *Mechanical life (no load) *Electric life (rated load)	20,000,000 times 100,000 times	
Output isolation characteristics * mode * Isolation voltage between coil and contact * Isolation voltage between contacts	Relay 2000Vrms 1000Vrms	Relay 2000Vrms 750Vrms
Current loss of expansion bus	5V <75.6mA	<114.6mA
	24V <32.7mA	<60.5mA
Occupied address space		
DI image area	1 byte	
DO image area	1 byte	
Dimensions and weight		
Dimensions (L×W×H)	114×50×70mm	114×75×70mm
Net weight	145g	160g

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Expansion I/O Module

K331-04IV

Features:

- 4 channels, multiple signal input, measurable 4-20mA, 1-5V, 0-20mA and -10V~10V signals;
- Independent parameter configuration can be made for each channel by means of the KincoBuilder software;
- Signal measurement accuracy: 0.2%F.S;
- The current input of each channel shall not exceed 28mA, and the voltage input shall not exceed ±15V;
- The red LED of each channel indicates whether the input signal exceeds the measurement range.

K331-04RD

Features:

- 4 channels, Pt100 and Cu50 input signals, wiring in two-wire or three-wire system;
- Measurement range: Pt100-150~800℃, Cu50-50~150℃;
- Measurement accuracy of input signals in three-wire system: 0.1%F.S;
- Independent parameter configuration can be made for each channel by means of the KincoBuilder software;
- The red LED of each channel indicates whether the input signal exceeds the measurement range.

Electric parameters	K331-04IV	K331-04RD
Number of channels	4	
Signal form	4~20mA、1~5V、 0~20mA、±10V	Pt100:-150~800℃ Cu50:-50~150℃
Measurement accuracy	0.2%F.S.	0.1%F.S.
Input impedance	Current mode: 250Ω Voltage mode: 4MΩ	
Rated power supply	DC 24V, ⩾ 75mA	
Current loss of expansion bus	5V <49.7mA	<51.6mA
	24V -	
Status indication	The red LED of each channel indicates whether the input signal exceeds the measurement range.	
Occupied address space		
AI image area	8 bytes	
AO image area	-	
Dimensions and weight		
Dimensions (L×W×H)	114×50×70mm	
Net weight	136g	132g

K332-02IV

Features:

- 2 channels, multiple signal output, 4-20mA, 1-5V, 0-20mA and ±10V signals can be output;
- Output signal accuracy: 0.5%F.S.;
- Independent parameter configuration can be made for each channel by means of the KincoBuilder software;
- Each signal form has their respective permitted output range.

Expansion I/O Module

Electric parameters	K332-02IV	
Number of channels	2	
Signal form	4~20mA、1~5V、0~20mA、 ±10V	
Output signal accuracy	0.5%F.S	
External load	Current mode: maximum 750 Ω Voltage mode: 1kΩ	
Rated power supply	DC24V	
Current loss of expansion bus	5V	<49.7mA
	24V	-
Occupied address space		
AI image area	-	
AO image area	4 bytes	
Dimensions and weight		
Dimensions (L×W×H)	114 × 50 × 70mm	
Net weight	125g	

K333-0xIV

Features:

- 2 channels, multi-signal input (4-20mA, 1-5V, 0-20mA , ±10V);
- Measurement accuracy: 0.2% F.S.;
- Red LED for alarm;
- 1/2 channels, multi-signal output (4-20mA, 1-5V, 0-20mA, ±10V);
- Output accuracy: 0.5% F.S.;
- The parameters of each channel are configured through KincoBuilder individually.

Electrical data	K333-03IV	K333-04IV
Number of AI channels	2	
Measurement types	4~20mA, 1~5V, 0~20mA, ±10V	
Rated power supply	DC 24V, ⩾75mA	
Resolution (including sign)	16 bits	
Measurement accuracy	0.2% F.S.	
Conversion rate (per channel)	About 15 times/s	
Input impedance	Current mode: <250Ω Voltage mode: >4MΩ	
Status indication	The red LED of each channel indicates whether the input signal exceeds the measurement range	
Number of AO outputs	1	2
Output signal	4~20mA, 1~5V, 0~20mA, ±10V	
Rated power supply	DC 24V	
Resolution (including sign)	12 bits	
Output Accuracy	0.5% F.S.	
Resistance load	Current mode: max. 500Ω Voltage mode: min. 1kΩ	
Current consumption via expansion bus	5V	<49.7mA
	24V	-
Address occupied		
AI image area	4 bytes (2 bytes per channel)	
AO image area	2 /4bytes (2 bytes per channel)	
Dimension and weight		
Dimension (Li WiH)	114×50×70mm	
Net weight	136g	

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Denomination Rules

A "Product name" is determined according to the following principle:

Module type + 3 + Sub-type + Serial number

Where:

"**Module type**": expressed in the following English letters:

CPU main control module

PM expansion I/O module

FM expansion function module

SW software

AS accessories

"**3**": indicates Kinco-K3 series compact and integrated PLCs.

"**Sub-type**": One of digits 0~9 is used to indicate the sub-type of a module.

0 CPU module

1 Resered

2 Digital data module

3 Analog data module

6 System software

7 Accessories

8 Reserved

9 Reserved

"**Serial number**": One of digits 0~9 is used to indicate the serial number of a sub-type. The serial numbers in each sub-type are defined as follows:

CPU module
4 indicates the CPU has 14 I/O channels;
6 indicates the CPU has 24 I/O channels;
8 indicates the CPU has 40 I/O channels;
Other serial numbers are reserved.

Digital data module
1 indicates digital input module;
2 indicates digital output module;
3 indicates mixed digital input/output module;
Other serial numbers are reserved.

Analog data module
1 indicates analog input data;
2 indicates analog output data;
3 indicates mixed analog input/output module;
Other serial numbers are reserved.

System software
0 indicates programming software;
Other serial numbers are reserved.

Software and accessories
0 indicates programming cable;
Other serial numbers are reserved.

Based on the above principle, CPU306 indicates a CPU module with 24 I/O channels; PM321 indicates an expansion digital input module; AS360 indicates the KincoBuilder programming software, and so on.

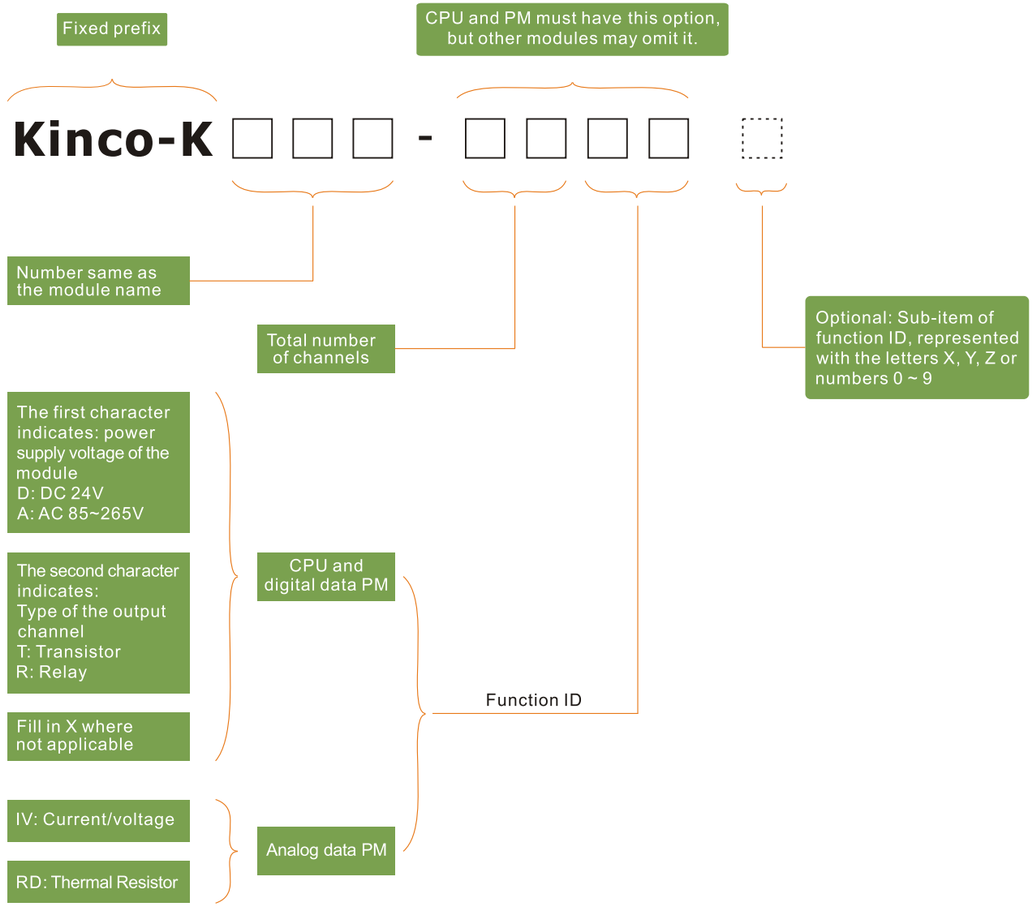
The Order Number

Different from the "product name", each product(module) has a unique"order number".

To order, a user only needs to tell us the order number for the necessary product.

The "order number" of a product is defined according to the following principles:

Order numder: **Kinco-K + module ID + feature code**



Based on the above principles, Kinco-K306-24DT indicates a CPU module with DC24V power supply and 24 I/O channels (where the output channel type is a transistor), and Kinco-K321-08DX indicates an 8- channel DC24V digital input extension module.

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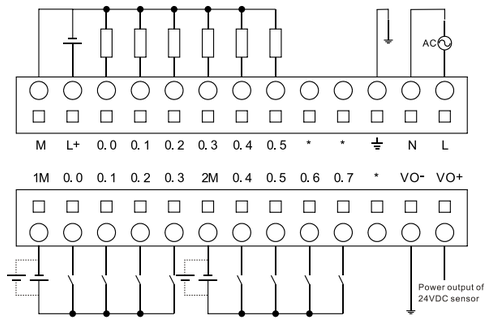
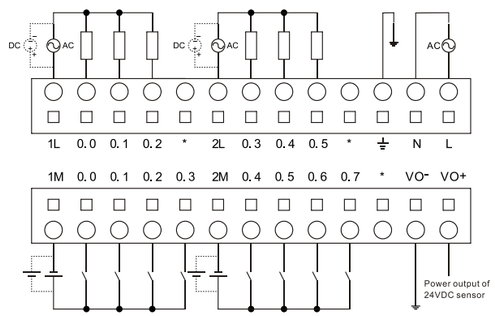
Wiring Diagram

CPU304

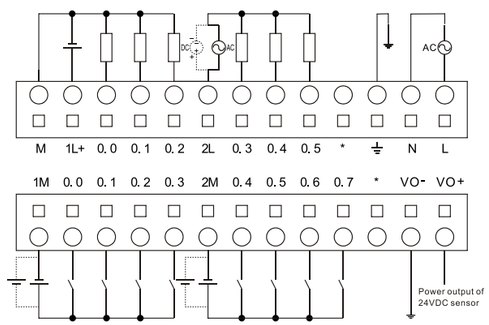
K304-14AT



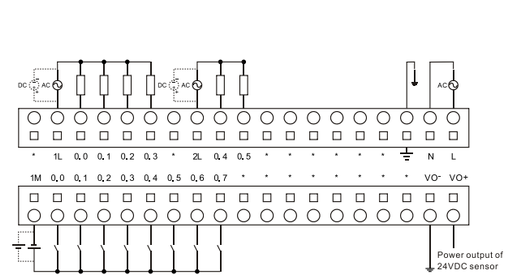
K304-14AR



K304-14AX



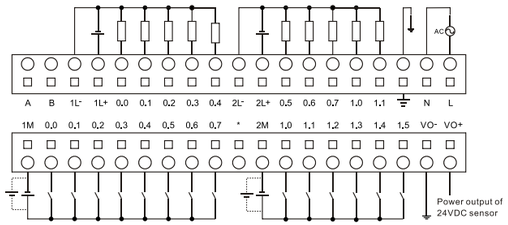
K304EX-14AR



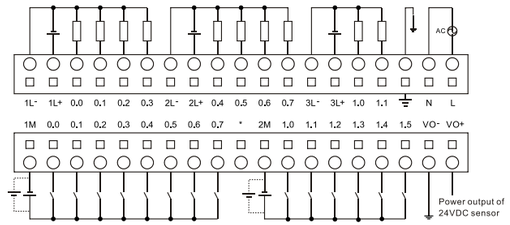
Wiring Diagram

CPU306

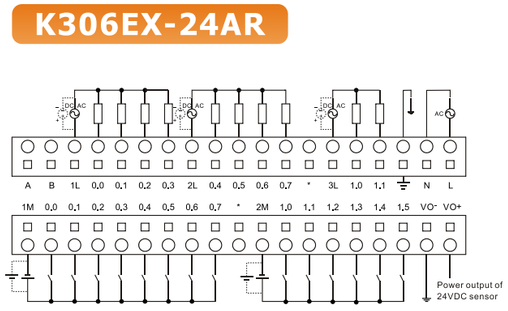
K306EX-24AT



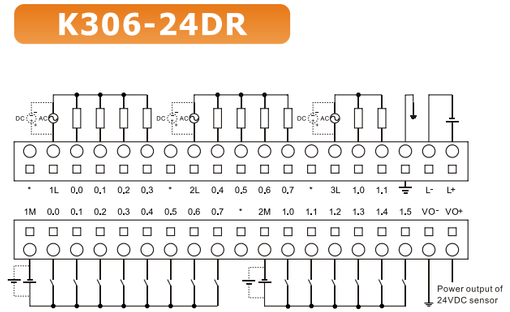
K306-24AT



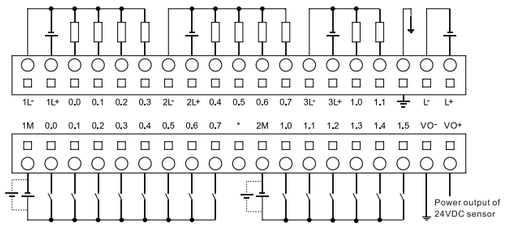
K306EX-24AR



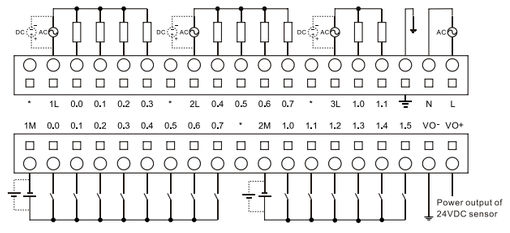
K306-24DR



K306-24DT



K306-24AR



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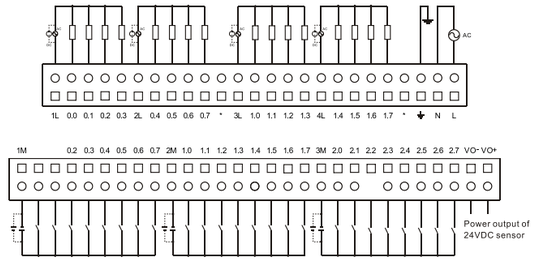
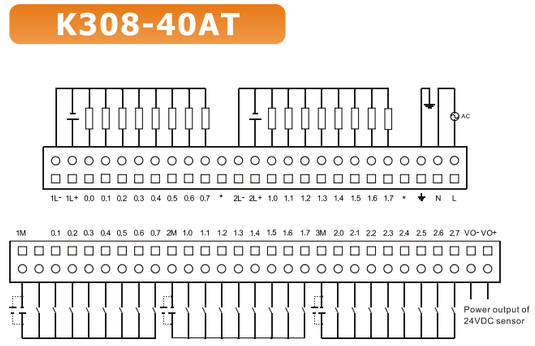
Wiring Diagram

CPU308

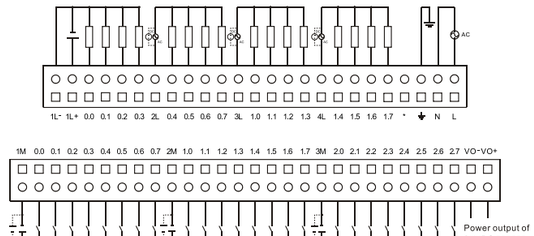
K308-40AR



K308-40AT



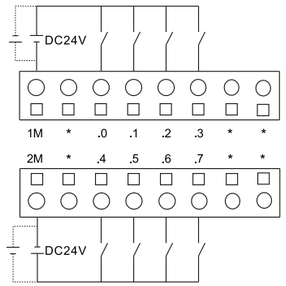
K308-40AX



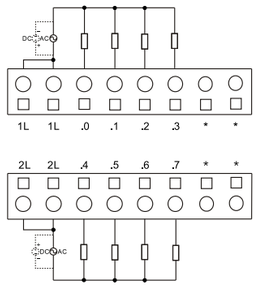
Wiring Diagram

PM321 / PM322

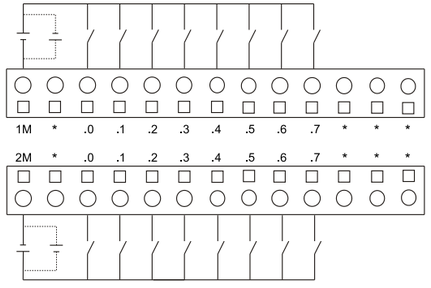
K321-08DX



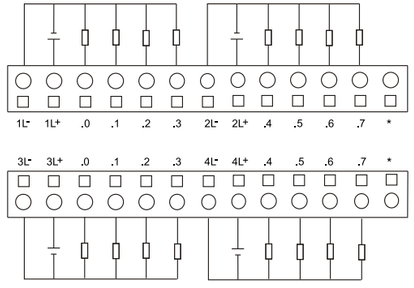
K322-08XR



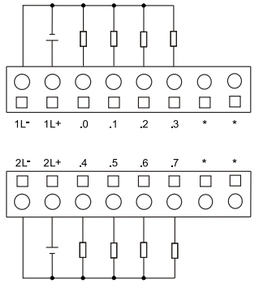
K321-16DX



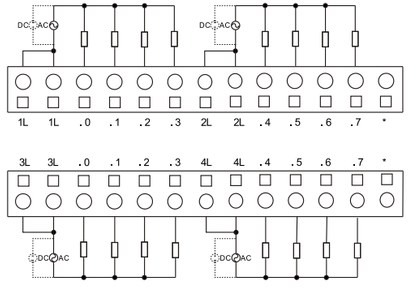
K322-16DT



K322-08DT



K322-16XR



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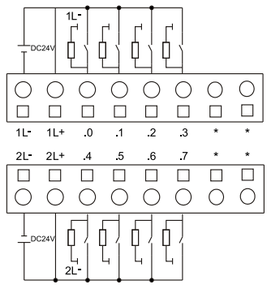
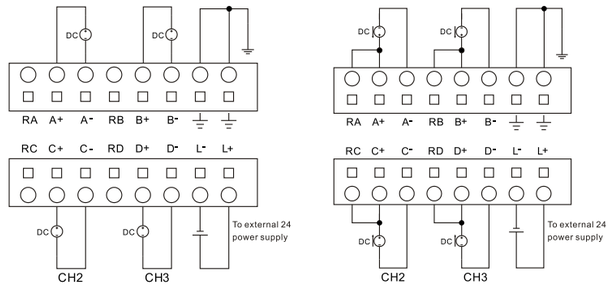
Wiring Diagram

PM323 / PM331

K323-08DTX



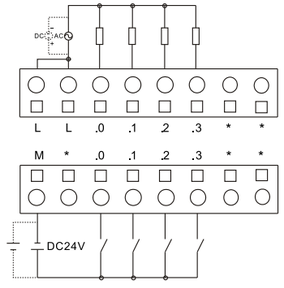
K331-04IV



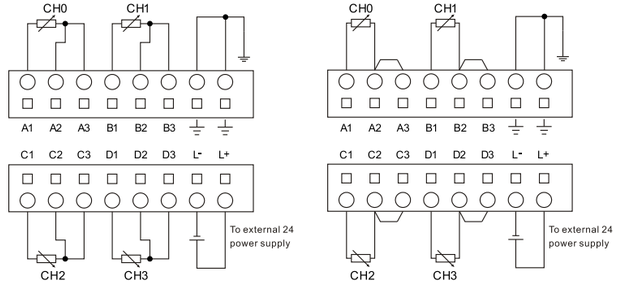
Wiring diagram for voltage input

Wiring diagram for current input

K323-08DR



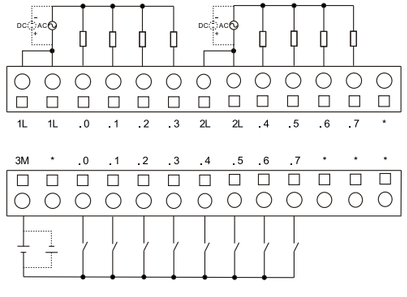
K331-04RD



Wiring diagram for Sensor of three-wire system

Wiring diagram for Sensor of two-wire syst

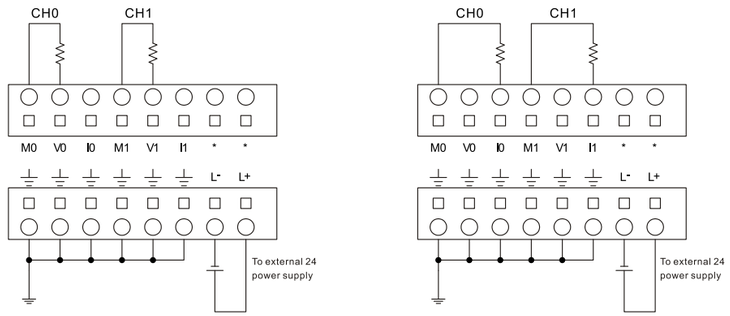
K323-16DR



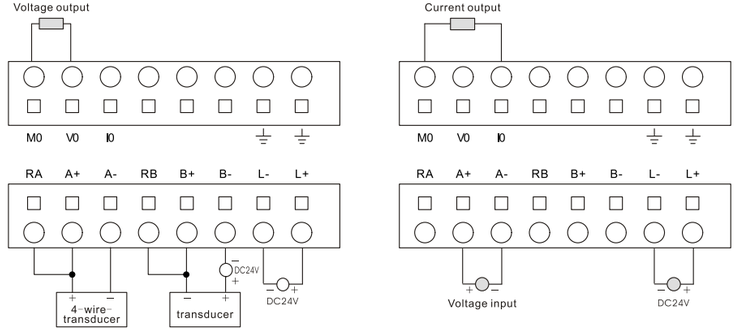
Wiring Diagram

PM332 / PM333

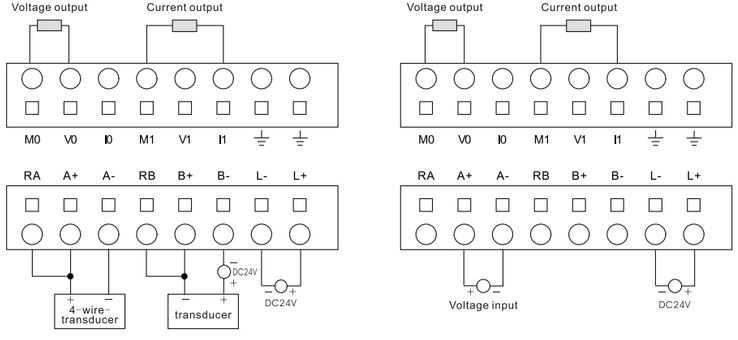
K332-02IV



K333-03IV



K333-04IV



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Installation

Installation Mode

Two modes can be used to install a Kinco-K3 into a control cabinet:

1.DIN rail clamping

2.M4 screw installation

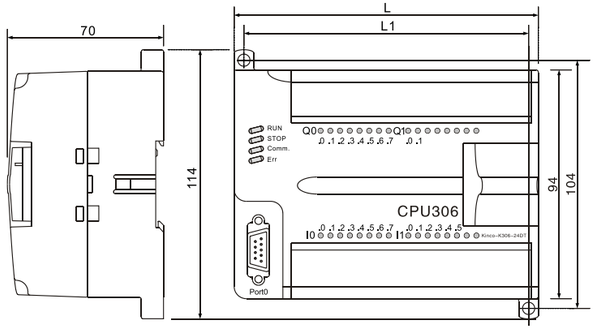
Upon installation, the module can either be horizontally or vertically arranged, or even a lengthened extension cable can be used for connection if the CPU module and extension module needs distributed installation in the case of nocentralized space in the control cabinet.

Terminal connection signal line

The K3 series use a spring-clamped terminal connection signal line. Such a terminal has the following advantages:

1. Remove personal factors, and the spring automatically clamps;
2. The self-locking mechanism ensures it will not fall off;
3. The cooperation with attached "bonus" tools can save 75% wiring time.

Schematic Diagram for Installation of Modules of Different Dimensions



Size of module installation hole (hole diameter:4.2mm)

If L=200mm, L1=190mm
If L=125mm, L1=115mm
If L=97mm, L1=87mm
If L=75mm, L1=65mm
If L=50mm, L1=40mm

For dimensions of each module, refer to the module performance parameters table.