Kinco-MK Series HMI/PLC All-in-one

1.Product Description

Kinco MK series combines the advantages of the M-IoT, and is an economical all-in-one product that supports the M-IoT function launched by the Kinco Company.

The Kinco MK series all-in-one HMI-PLC retains the high cost performance of the Kinco HP series of all-in-one machines, but adopts a high-performance CPU and the new DTools software technology platform for programming the HMI, so as to support more rich picture components and functions of the new software. In addition, combined with the Kinco M-IoT technology platform it provides remote download, pass through PLC communication over the network, VNC remote monitoring, equipment management and other advanced remote operation and maintenance functions. This will provide more value for our users.

2.Product appearance





3. Product List

Item	Type	Specification
HMI-PLC	MK070E-33DT	DC24V, 7 TFT display, DI 16*DC24V, DO 14*DC24V, 2*AI, 1*AO, USB2.0 Programming port (PLC&HMI sharing same programming port) PLC part 2*RS485 COM port, Supports up to 8 Kinco KS series expansion modules. HMI part provides Ethernet interface, supports access to external network or other Ethernet devices.
	MK070E-32DX	DC24V, 7 TFT display, DI 16*DC24V, DO 4*DC24V and 12*Relay USB2.0 Programming port (PLC&HMI sharing same programming port) PLC part 2*RS485 COM port, Supports up to 8 Kinco KS series expansion modules. HMI part provides Ethernet interface, supports access to external network or other Ethernet devices.
	MK043E-20DT	DC24V, 4.3 TFT display, DI 9*DC24V, DO 9*DC24V, 2*AI (only support voltage type), USB2.0 Programming port (PLC&HMI sharing same programming port) PLC part 2*RS485 COM port, Supports up to 8 Kinco KS series expansion modules. HMI part provides Ethernet interface, supports access to external network or other Ethernet devices.

4. Technical Specification

4.1 Source

	MK070E-33DT	MK070E-32DX	MK043E-20DT
Power Supply			
Rated supply voltage	DC24V		
Voltage range	DC20.4V－28.8V		
Rated power	10W		

4.2 PLC Specification

	MK070E-33DT	MK070E-32DX	MK043E-20DT
I/O and communication			
Digital IO	DI 16*DC24V， DO 14*DC24V	DI 16*DC24V， DO 4*DC24V+12*Relay	DI 9*DC24V， DO 9*DC24V
Analog IO	2*A,1*AO.(Supports voltage and current type)	None	2*AI (only support voltage type)
Expansion	Supports up to 8 KS series expansion modules.		
Programming port	USB2.0 Slave		
Serial Communication Ports	2*RS485 PORT1,PORT2,max. 115.2kbps. PORT1 supports Kinco programming protocol, Modbus RTU master and slave protocol, free serial protocol. PORT2 supports Modbus RTU master and slave protocol, free serial protocol.		
High speed counter	4 Support single,double UP/DOWN,AB 4 max 50KHz		
High speed output	4	2	4
	Q0.0,Q0.1,Q0.4 max output 50 Khz(The load resistance must be less than 3KΩ at maximum frequency) Q0.5 max output 10Khz		
Edge interrupt	4, I0.0-I0.3 can be on/off interrupt.		
Memory area			
User programme	Maximum. 4K instructions supported		
User data memory	M area 1K bytes; V area 4K bytes.		
Data backup	E2PROM, 448 bytes.		
Retentive memory range	V area： VB0-VB1907 total 1908 bytes; C area: C0-C63. Lithium battery, 3 year lifetime at room temperature.		

Others	
Timer	256 1ms time base：4 10ms time base：16 100ms time base：236
Interrupt	2, 0.1ms time base.
Counter	256
Realtime Clock	built-in, time deviation is less than 5min/month at 25℃.

4.3 Display Specification

Type	7” TFT	4.3” TFT
Resolution	800*480	480*272
Colors	256K	
Brightness	250 cd/m2	400cd/m2
Backlight	LED	
Touch panel	4 wire precision resistive(4H)	
Backlight lifetime	50000 hours	
CPU	700MHz RISC	
Ethernet	10M/100M	
Memory	128MB Flash + 64MB DDR2	
Recipe memory	256KB+RTC	
Expansion memory	1 USB Host	
Programming download	1*USB slave/Ethernet/USB flash disk	
Printer port	USB	
Software	Dtools+EdgeAccess+M-IoT	

4.4 Dimensions

Model	MK070E-33DT	MK070E-32DX	MK043E-20DT
Dimensions	204*150*33.9mm		132*102*31.5mm
Installation size	192*138mm		119*93mm

5.Main Advantages

- **M-IoT Function**

Support program upload and download, pass through PLC communication through network, VNC remote monitoring, equipment management and other rich remote operation and maintenance functions, easy to use and powerful, to facilitate the application needs of customers in various applications.

- **Performance**

The HMI part adopts industrial CPU, 700MHz main frequency, 128MB Flash +64MB DDR2 mass storage, and supports the new generation touch screen Dtools programming software of Kinco, which further improves the performance of the product.

- **Extended Function**

The PLC supports a rich variety of extension modules, it can be extended with a maximum of 8 KS extension modules. It can meet the needs of a variety of applications of users, with a better cost performance.

- **High speed pulse counter**

4 high speed pulse counters are provided. Each high-speed counter allows a maximum of 32 PV values and supports 32 "CV=PV" interrupts. High speed counter supports a variety of modes, it can be single-phase, dual-phase (Up/Down), AB phase (1-fold and 4-fold frequency).The maximum counting frequency of the four pulse counters is 50KHz.

- **High speed pulse output**

4 high-speed pulse outputs are provided, all support PTO (pulse string) and PWM (pulse width modulation) output signals.

The software provides PLS (PWM or PTO), positioning control command group, PFLO_F (follow instruction) and other functions to facilitate users implementing simple motion control applications.

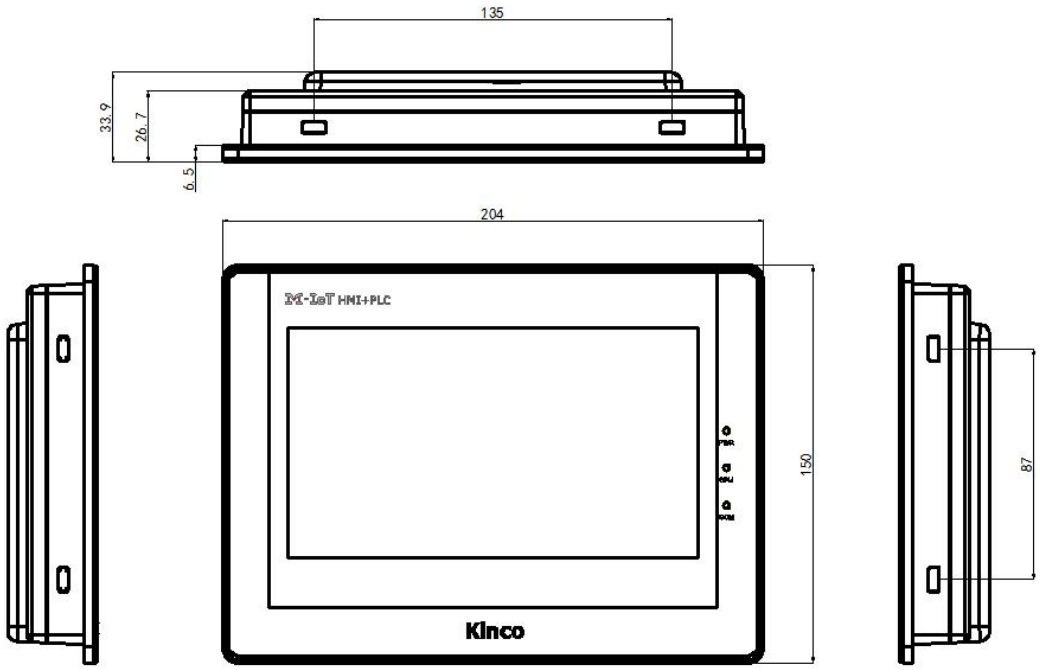
- **Serial communication ports**

The PLC part contains 2 RS485 interfaces, PORT1, PORT2, with communication rates of up to 115.2kbps.

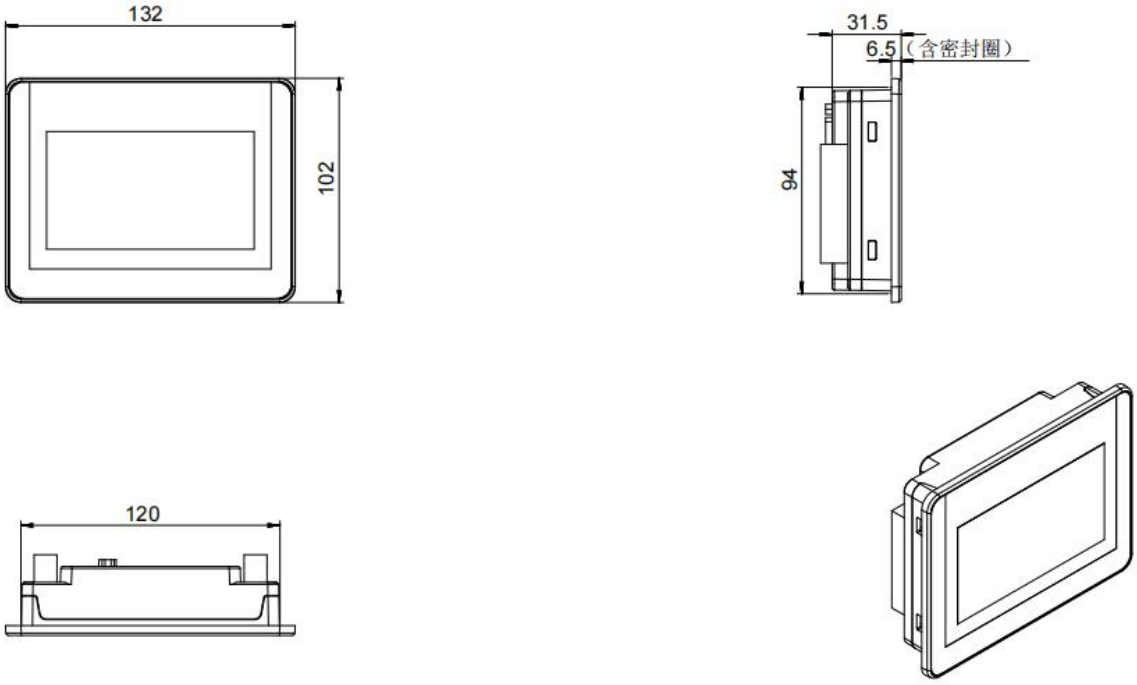
PORT1 supports Kinco programming protocols, Modbus RTU master and slave stations, and free serial protocol.

PORT2 supports Modbus RTU master and slave stations and free serial protocol.

6. Dimension diagram

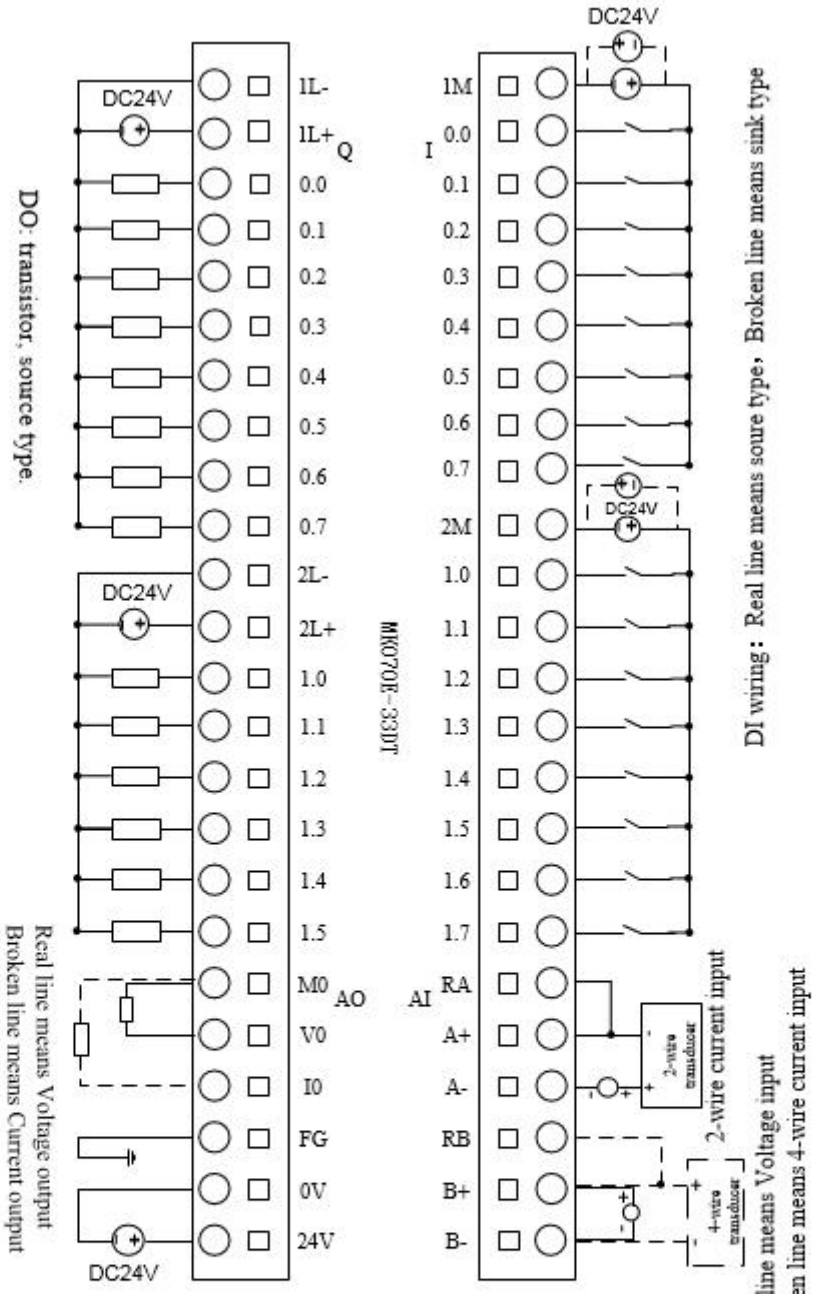


MK070E dimension drawing



MK043E dimension drawing

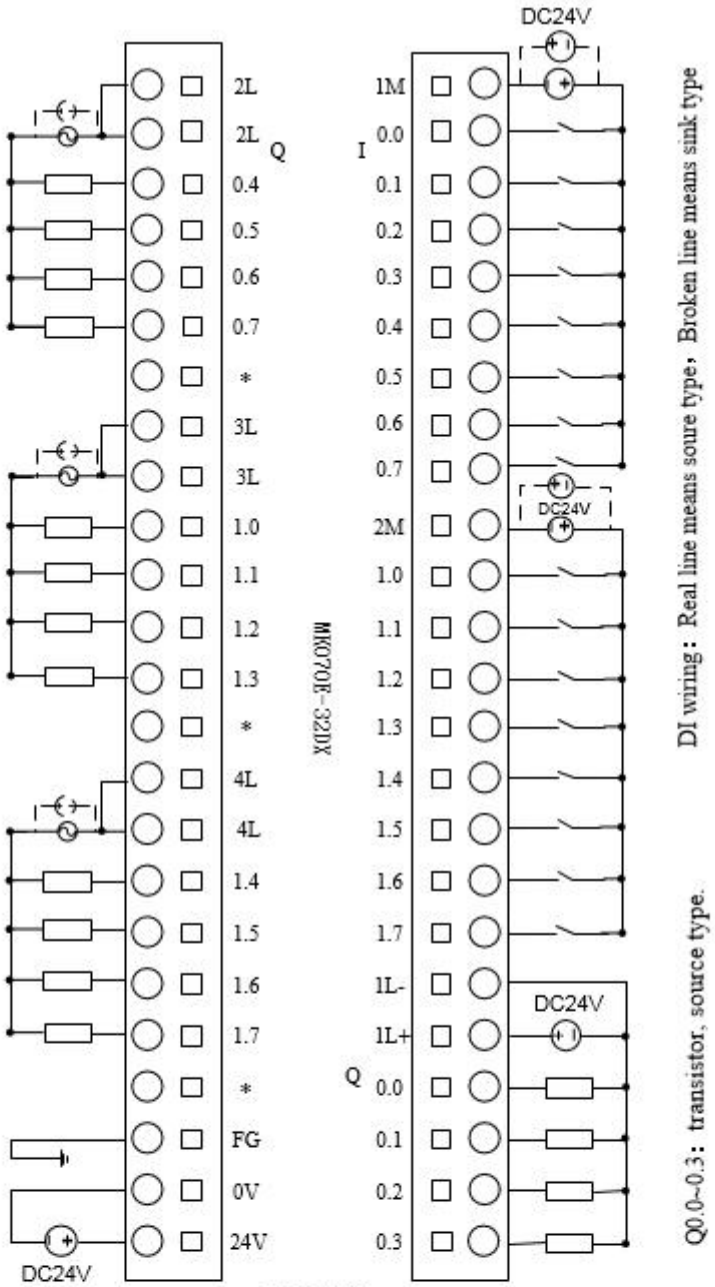
7. Hardware wiring diagram



RS485/CAN (in DB9)

	Function	Pin
Port1	A	6
	B	1
Port2	A	9
	B	4
CAN	CANH	7
	CANL	2
GND	GND	5

MK070E-33DT wiring diagram



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（in DB9）

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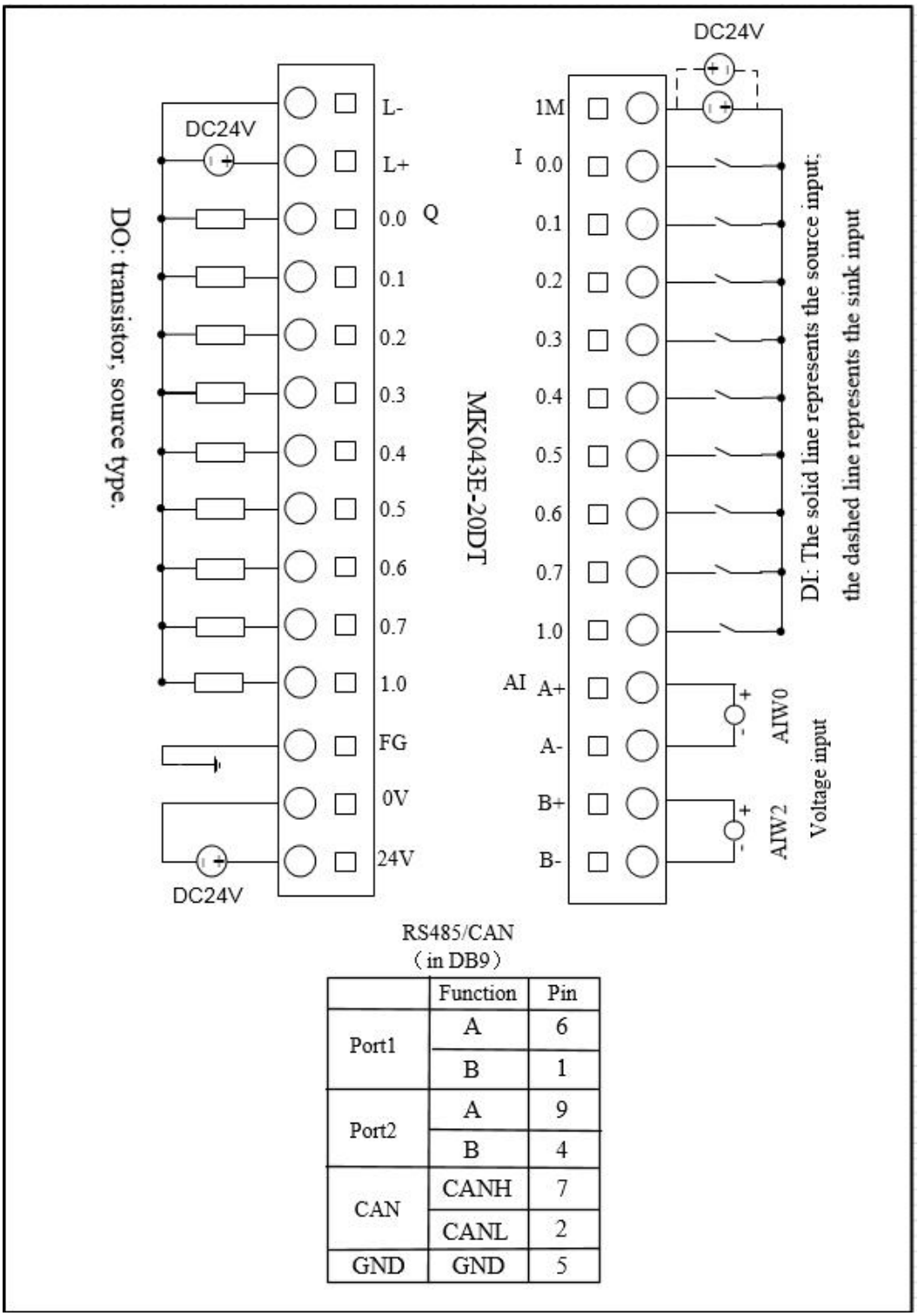
MK070E-32DX wiring diagram



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（in DB9）

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MK043E-20DT wiring diagram