

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 3K Ω 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°C. |

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.

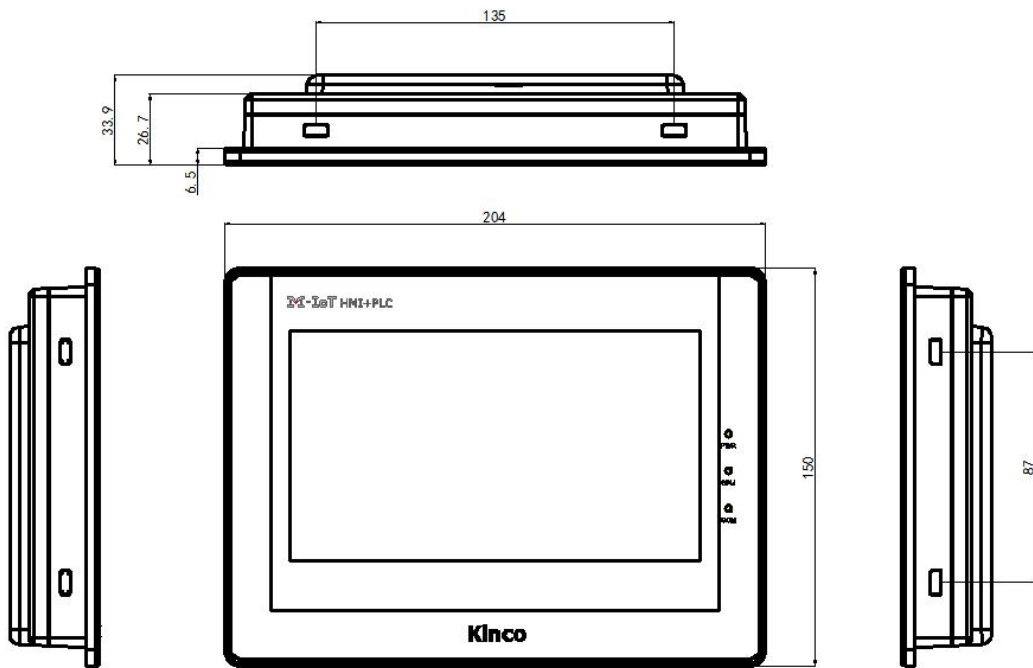
➤ Serial communication ports

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

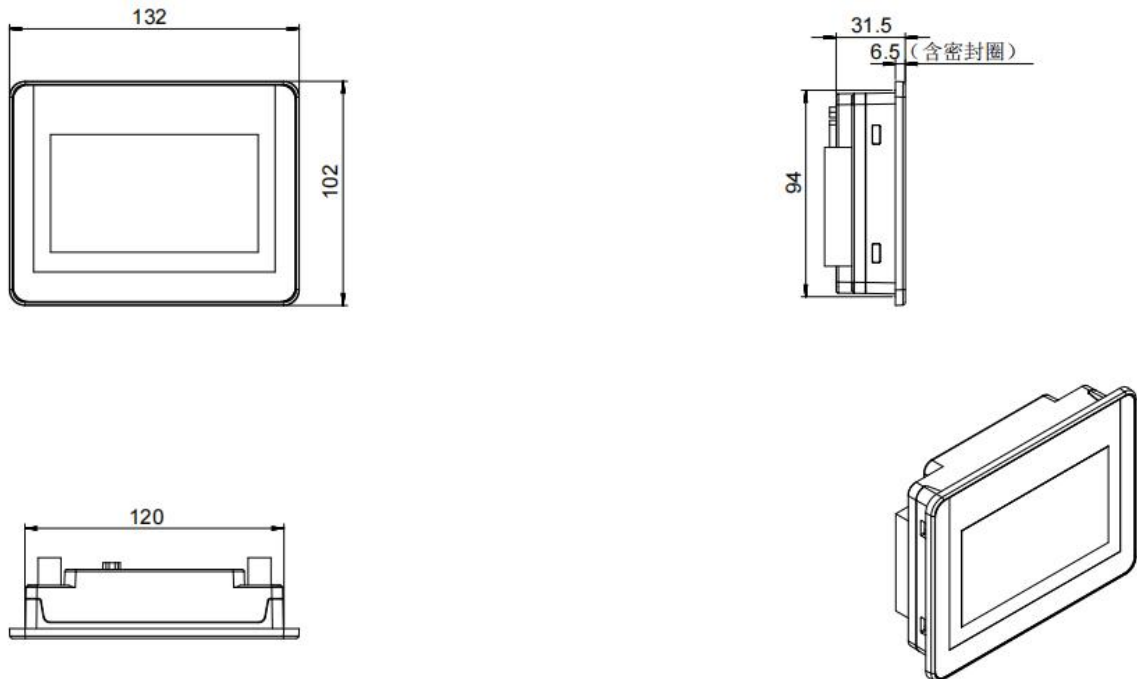
PORT1 supports Kinco programming protocols, Modbus RTU master and slave stations, and free serial protocol.

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

6. Dimension diagram

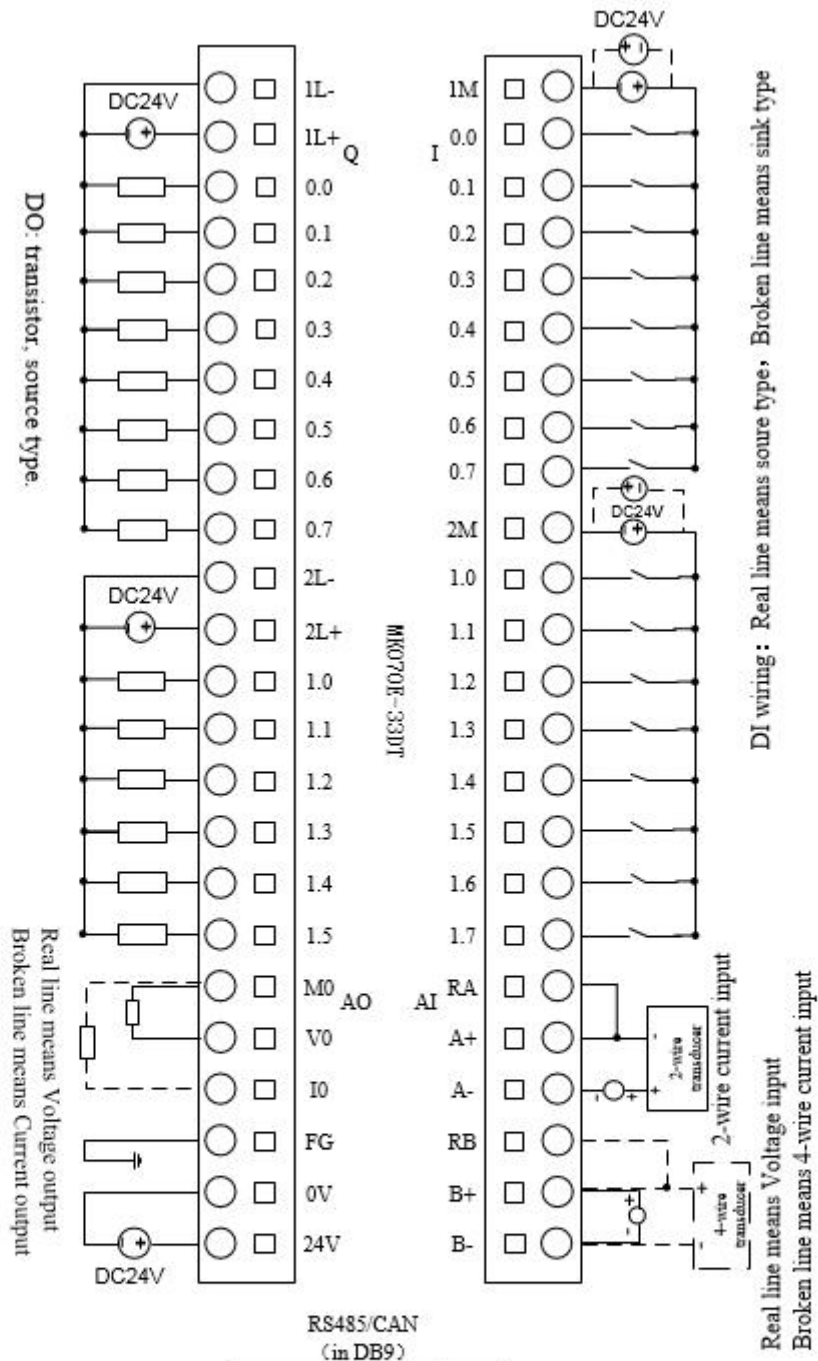


MK070E dimension drawing



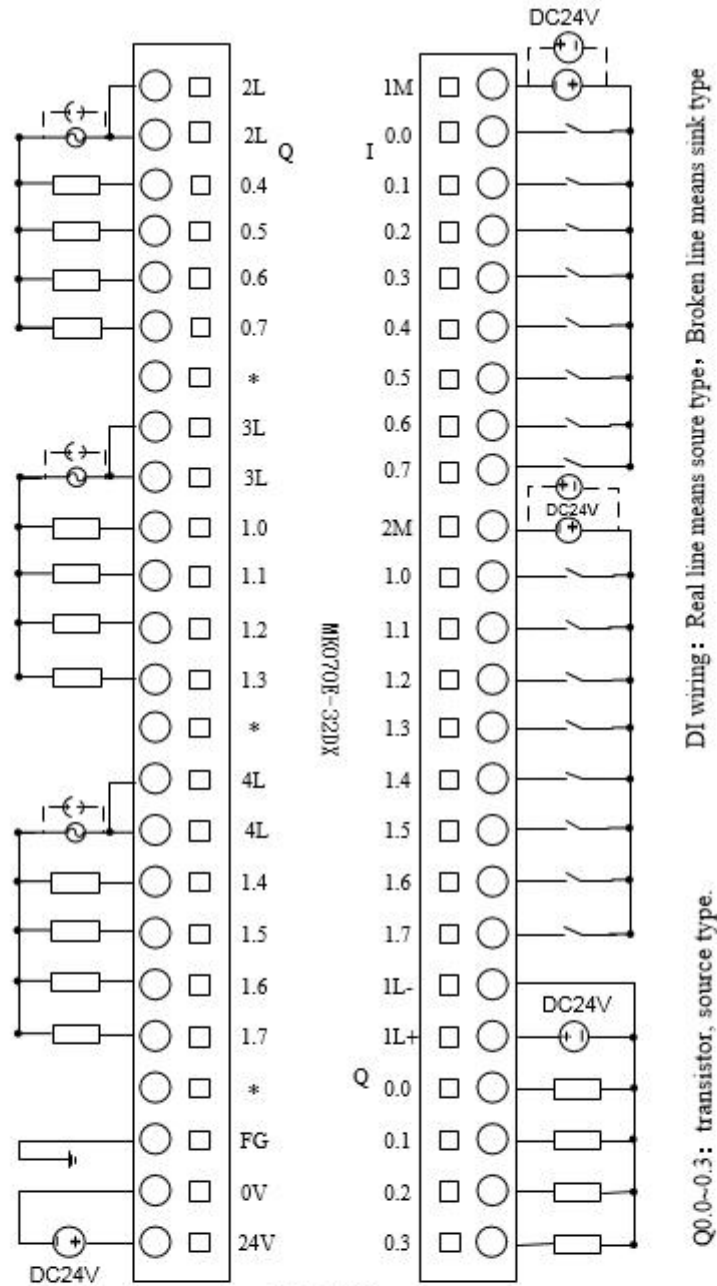
MK043E dimension drawing

7. Hardware wiring diagram



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

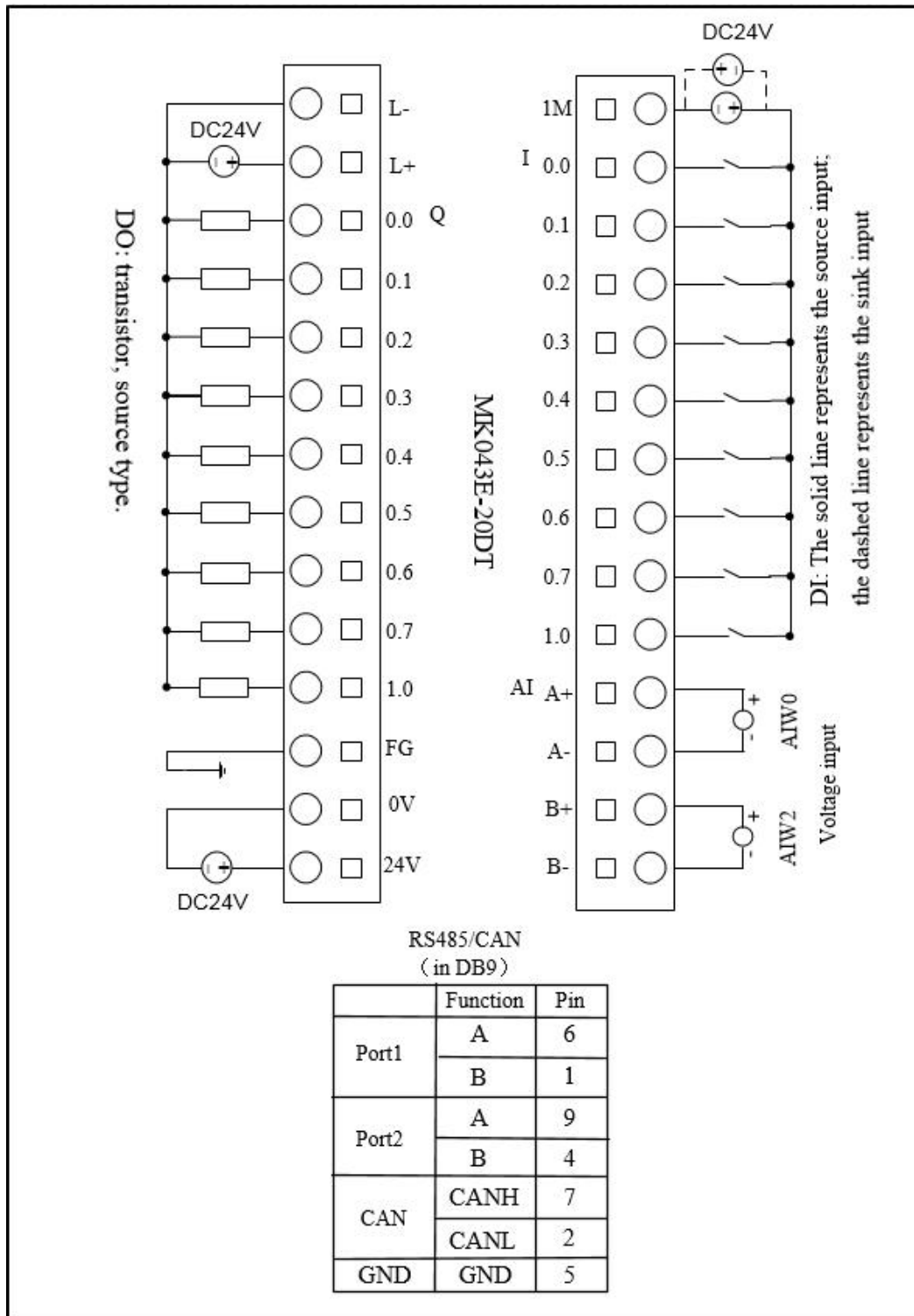
MK070E-33DT wiring diagram



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-32DX wiring diagram



MK043E-20DT wiring diagram