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Kinco® Automation

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Kinco

PLC

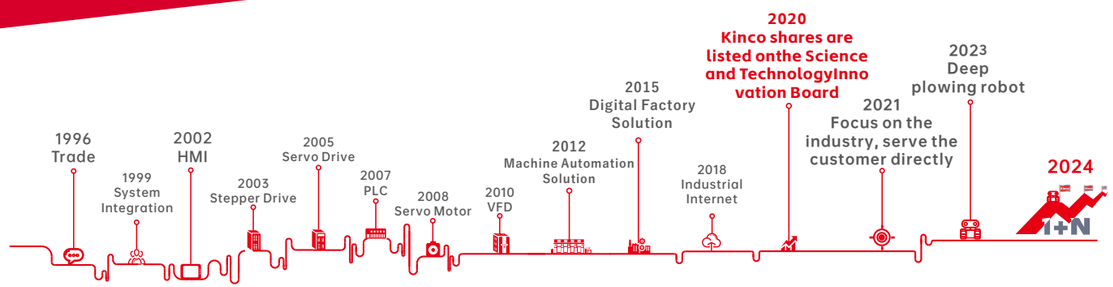
Kinco PLC Brochure

MK Series
Programmable
Controler with HMI



About us





Kinco was founded in 1996, and successfully listed on the Shanghai Stock Exchange in 2020 (abbreviated name: Kinco share, stock code 688160), which is a high-tech, specialized and sophisticated enterprise that attaches great importance to independent research and development and innovation, mainly engaged in the research and development, production, sales and related technical services of industrial automation and robot core components and digital factory hardware and software. It is a leading supplier of automation control, robot power and digital factory solutions in China.

After years of continuous research and development and innovation, Kinco has established a complete product line with independent intellectual property rights, covering a series of products from machine iot to human-machine interaction, control, drive and execution, which are widely used in robots, medical equipment, logistics equipment, packaging equipment, food equipment, clothing equipment, environmental protection equipment, etc. New energy equipment, rail transit equipment and other automation equipment industry.

Based on the comprehensive industrial automation and digital technology platform, the company has in-depth application scenarios in the robot industry, providing display, control, drive and other multi-dimensional solutions for industrial mobile robots, collaborative robots, industrial robots, pan-service robots, and bionic robots. Through the insight of the industry pain points, deep links with robot customers, combined with the advantages of product research and development, the company continues to innovate, and launches industry-leading low-voltage servo products for mobile robots, integrated servo wheel, frameless torque motor for collaborative robots, robot human-machine interfaces, robot controllers and other products. The company has formed a relatively complete robot core parts capability, and after nearly 10 years of hard work in the robot industry, it has become a leading enterprise in the field of mobile robot low-voltage servo, and has a high brand influence in the industry.

Kinco has four research and development centers in Shanghai, Shenzhen, Changzhou and Chengdu, and two manufacturing bases in Shenzhen and Changzhou, a total of 10+ domestic marketing centers, 100+ domestic service providers, 40+ global partners, and products are exported to 70+ countries overseas. In terms of after-sales service, Kinco has established after-sales service centers in Shanghai, Shenzhen and Changzhou.

MK Series Programmable Controler with HMI



Overview

The MK series products are high-performance offerings from Kinco, integrating the three advantageous technologies of HMI, PLC, and IoT. The MK series products are jointly developed on a new MCU platform, integrating the Dtools software, the KincoBuilder software and the M-IoT technology platform. They offer rich remote operation features such as remote upload/download program, remote transparent PLC communication, VNC monitoring, and device management, providing greater value to a broad range of users.

Features:

Display Section(HMI)

-M-IoT: Support remote operation functions such as upload/download program, remote transparent communication(PLC), VNC monitoring, device management, etc.

-Enhanced Hardware: Industrial-grade CPU with 700MHz main frequency, 128MB Flash + 64MB DDR2 large capacity storage, support Dtools programming software.

-Standard with Ethernet interface: Simultaneously support USB extended storage, making it convenient to connect more peripherals..

Logic Control Section(PLC):

-Expansion: Support the expansion of 8 KS modules, with options for expanding digital I/O, analog I/O, etc.

-4 high-speed input channels: The highest frequency is 50kHz, supporting single-phase dual-phase (Up/Down), AB phase counting modes.

-4 high-speed pulse outputs: Support PTO and PWM modes.

-2 RS485(PORT1 and PORT2): Support communication rates up to 115.2kbps.

-Optional CAN Functionality: Optional support for Kinco motion control, CANopen master station, or free communication functions.

Standard Series(PLC Section)

Standard Series			
Model	MK070E-33DT	MK070E-32DX	MK043E-20DT
Power Supply			
Rated Power Supply	DC24V	DC24V	DC24V
Voltage Range	DC20.4V ~DC 28.8V	DC20.4V ~ DC28.8V	DC20.4V ~ DC28.8V
Maximum Power	≈10W	≈10W	≈8W
PLC Section			
Built-in DI/DO	DI 16*DC24V(NPN/PNP) DO 14*DC24V(PNP)	DI 16*DC24V(NPN/PNP) DO 4*DC24V(PNP)+12*Relay	DI 9*DC24V(NPN/PNP) DO 9*DC24V(PNP)
Built-in AI/AO	2*AI，1*AO Support 4-20mA/1-5V/0-20mA/ 0-10V	None	2*AI Support 0-10V
Expansion	Support up to 8 KS modules		
Program Download	USB SLAVE(USB-B)/RS485(PORT1)		
CAN	1 channel Kinco motion control,Free communication	1 channel CANopen master,Free communication	1 channel Free communication
	*The Kinco motion control function and CANopen master function cannot be used simultaneously with the expansion function.		
Serial Port	2*RS485(PORT1/PORT2), support communication rates up to 115.2kbps PORT1 :programming protocol, Modbus RTU master/slave、free communication PORT2 : Modbus RTU master/slave、free communication		
High-speed Inputs	4 channels, support single-phase, dual-phase UP/DOWN, and AB phase mode, support a maximum frequency of 50kHz.		
High-speed Outputs	4 channels	2 channels	4 channels
	Q0.0, Q0.1, Q0.4 :Support a maximum frequency of 50kHz (the load resistance should not exceed 3kΩ when used at the highest frequency). Q0.5 : Support a maximum frequency of 10kHz.		
Interrupts	4(I0.0-I0.3), supporting both rising and falling edge interrupts		
Program Capacity	4k instructions		
Data Capacity	M Area：1k bytes V Area：4k bytes		
Data Backup	E2PROM，448 bytes		
Data Retention	V Area：VB0-VB1907，total 1908 bytes C Area：C0-C63 Lithium battery ,Battery lifetime: 3 years typical, at 25°C		
RTC	Built-in real-time clock, with an error of less than 5 minutes per month at 25°C.		
Configuration Software	KincoBuilder		

Specifications of MK Series Product

Standard Series(HMI Section)

Standard Series			
Model	MK070E-33DT	MK070E-32DX	MK043E-20DT
HMI Section			
LCD Size	7"TFT	7"TFT	4.3” TFT
Resolution	800*480	800*480	480*272
Color Depth	256k	256k	256k
Brightness	250cd/m2	250cd/m2	400cd/m2
Backlight	LED	LED	LED
Touch Screen	4-Wire Precision resistive network (Surface Hardness 4H)	4-Wire Precision resistive network (Surface Hardness 4H)	4-Wire Precision resistive network (Surface Hardness 4H)
LCE Lifespan	50000h	50000h	50000h
CPU	700MHz RISC	700MHz RISC	700MHz RISC
Serial Port	None	None	None
Ethernet	10M/100M Adaptive	10M/100M Adaptive	10M/100M Adaptive
Memory	128MB Flash + 64MB DDR2	128MB Flash + 64MB DDR2	128MB Flash + 64MB DDR2
Recipe Memory	256KB + RTC	256KB + RTC	256KB + RTC
Expansion Menory	USB HOST(USB-A)	USB HOST(USB-A)	USB HOST(USB-A)
Program Download	USB SLAVE(USB-B)/Ethernet/ USB HOST(USB-A)	USB SLAVE(USB-B)/Etherne/ USB HOST(USB-A)	USB SLAVE(USB-B)/Etherne/ USB HOST(USB-A)
Printing Port	USB SLAVE(USB-B)	USB SLAVE(USB-B)	USB SLAVE(USB-B)
Configuration Software	DTools + EdgeAccess + MIoT		
Outer Dimensions	204*150*33.9 mm	204*150*33.9 mm	132*102*31.5 mm
Installation Dimensions	192*138 mm	192*138 mm	119*93 mm
Certification			
CE Certification	√	√	√

Enhanced Series (PLC Section)

Enhanced Series			
Model	MK070E-27DRT	MK043E-20DTC	MK043E-27DT
Power Supply			
Rated Power Supply	DC24V	DC24V	DC24V
Voltage Range	DC20.4V ~DC 28.8V	DC20.4V ~ DC28.8V	DC20.4V ~ DC28.8V
Maximum Power	≈10W	≈8W	≈8W
PLC Section			
Built-in DI/DO	DI 12*DC24V(NPN/PNP) DO 12*Relay	DI 9*DC24V(NPN/PNP) DO 9*DC24V(PNP)	DI 10*DC24V(NPN/PNP) DIO 4*DC24V
Built-in AI/AO	3*RD Support Pt100 type, measuring temperature in the range of -40°C to 240°C	2*TC Support J/K/E/T types	DO 10*DC24V(PNP) 2*AI，1*AO Support 4-20mA/1-5V/0-20mA/0-10V
Expansion	Support up to 8 KS modules		
Program Download	USB SLAVE(USB-B)/RS485(PORT1)	USB SLAVE(USB-B)/RS485(PORT1)	USB SLAVE(USB-C)/RS485(PORT1)
CAN	1 channel Free communication	1 channel Free communication	1 channel Kinco motion control, Free commmunication
	*The Kinco motion control function and CANopen master function cannot be used simultaneously with the expansion function.		
Serial Port	2*RS485(PORT1/PORT2), support communication rates up to 115.2kbps PORT1 :programming protocol, Modbus RTU master/slave、free communication PORT2 : Modbus RTU master/slave、free communication		
High-speed Inputs	4 channels, support single-phase, dual-phase UP/DOWN, and AB phase mode, support a maximum frequency of 50kHz.		
High-speed Outputs	None	4 channels	4 channels
	Q0.0, Q0.1, Q0.4 :Support a maximum frequency of 50kHz (the load resistance should not exceed 3kΩ when used at the highest frequency). Q0.5 : Support a maximum frequency of 10kHz.		
Interrupts	4(I0.0-I0.3), supporting both rising and falling edge interrupts		
Program Capacity	4k instructions		
Data Capacity	M Area：1k bytes V Area：4k bytes		
Data Backup	E2PROM，448 bytes		
Data Retention	V Area：VB0-VB1907, 1908 bytes C Area：C0-C63 Lithium battery ,Battery lifetime: 3 years typical, at 25°C		
RTC	Built-in real-time clock, with an error of less than 5 minutes per month at 25°C.		
Configuration Software	KincoBuilder		

Specifications of MK Series Product

Enhanced Series (HMI Section)

Enhanced Series			
Model	MK070E-27DRT	MK043E-20DTC	MK043E-27DT
HMI Section			
LCD Size	7” TFT	4.3” TFT	4.3” TFT
Resolution	800*480	480*272	480*272
Color Depth	256k	256k	256k
Brightness	250cd/m2	400cd/m2	400cd/m2
Backlight	LED	LED	LED
Touch Screen	4-Wire Precision resistive network (Surface Hardness 4H)	4-Wire Precision resistive network (Surface Hardness 4H)	4-Wire Precision resistive network (Surface Hardness 4H)
LCE Lifespan	50000h	50000h	50000h
CPU	700MHz RISC	700MHz RISC	700MHz RISC
Serial Port	None	None	1*RS232(COM2)
Ethernet	10M/100M Adaptive	10M/100M Adaptive	10M/100M Adaptive
Memory	128MB Flash + 64MB DDR2	128MB Flash + 64MB DDR2	128MB Flash + 64MB DDR2
Recipe Memory	256KB + RTC	256KB + RTC	256KB + RTC
Expansion Menory	USB HOST(USB-A)	USB HOST(USB-A)	USB HOST(USB-A)
Program Download	USB SLAVE(USB-B)/Ethernet/ USB HOST(USB-A)	USB SLAVE(USB-B)/Ethernet/ USB HOST(USB-A)	USB SLAVE(USB-C)/Ethernet/ USB HOST(USB-A)
Printing Port	USB SLAVE(USB-B)	USB SLAVE(USB-B)	USB SLAVE(USB-C)
Configuration Software	DTools + EdgeAccess + MIoT		
Outer Dimensions	204*150*33.9 mm	132*102*31.5 mm	132*102*45.42 mm
Installation Dimensions	192*138 mm	119*93 mm	119*93 mm
Certification			
CE Certification	√	√	√

Basic Series(PLC Section)

Basic Series		
Model	MK070C-33DT	MK043C-20DT
Power Supply		
Rated Power Supply	DC24V	DC24V
Voltage Range	DC20.4V ~DC 28.8V	DC20.4V ~ DC28.8V
Maximum Power	≈10W	≈8W
PLC Section		
Built-in DI/DO	DI 16*DC24V(NPN/PNP) DO 14*DC24V(PNP)	DI 9*DC24V(NPN/PNP) DO 9*DC24V(PNP)
Built-in AI/AO	2*AI，1*AO Support 4-20mA/1-5V/0-20mA	2*AI Support 0-10V
Expansion	None	
Program Download	USB SLAVE(USB-B)	USB SLAVE(USB-B)
CAN	None	
Serial Port	1*RS485(PORT1), support communication rates up to 115.2kbps PORT1 :programming protocol, Modbus RTU master/slave、free communication	
High-speed Inputs	4 channels, support single-phase, dual-phase UP/DOWN, and AB phase mode, support a maximum frequency of 50kHz.	
High-speed Outputs	Q0.0, Q0.1, Q0.4 :Support a maximum frequency of 50kHz (the load resistance should not exceed 3kΩ when used at the highest frequency). Q0.5 : Support a maximum frequency of 10kHz.	
Interrupts	4(I0.0-I0.3), supporting both rising and falling edge interrupts	
Program Capacity	4k instructions	
Data Capacity	M Area：1k bytes V Area：4k bytes	
Data Backup	E2PROM，448 bytes	
Data Retention	V Area：VB0-VB1907, 1908 bytes C Area：C0-C63 Lithium battery ,Battery lifetime: 3 years typical, at 25°C	
RTC	Built-in real-time clock, with an error of less than 5 minutes per month at 25°C.	
Configuration Software	KincoBuilder	

Specifications of MK Series Product

Basic Series(HMI Section)

Basic Series		
Model	MK070C-33DT	MK043C-20DT
HMI Section		
LCD Size	7" TFT	4.3" TFT
Resolution	800*480	480*272
Color Depth	256k	256k
Brightness	250cd/m2	400cd/m2
Backlight	LED	LED
Touch Screen	4-Wire Precision resistive network (Surface Hardness 4H)	4-Wire Precision resistive network (Surface Hardness 4H)
LCE Lifespan	50000h	50000h
CPU	700MHz RISC	700MHz RISC
Serial Port	None	None
Ethernet	None	None
Memory	128MB Flash + 64MB DDR2	128MB Flash + 64MB DDR2
Recipe Memory	256KB + RTC	256KB + RTC
ExpansionMenory	USB HOST(USB-A)	USB HOST(USB-A)
Program Download	USB SLAVE(USB-B)/USB HOST(USB-A)	USB SLAVE(USB-B)/USB HOST(USB-A)
Printing Port	USB SLAVE(USB-B)	USB SLAVE(USB-B)
Configuration Software	DTools(*The economic series does not support IoT functionality.)	
Outer Dimensions	204*150*33.9 mm	132*102*31.5 mm
Installation Dimensions	192*138 mm	119*93 mm
Certification		
CE Certification	X	X

Specifications of MK Series Product

Quick Selection List

Quick Selection List		
Type	Module	Description
Standard Series	MK070E-33DT	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section: DI 16*DC24V (NPN/PNP), DO 14*DC24V (PNP), AI 2*IV, AO 1*IV, 2*RS485, 1*Expansion interface (support up to 8 KS modules); HMI Section: 7" TFT, 1*USB HOST (USB-A), 1*Ethernet interface, supports M-IoT functionality.
	MK070E-32DX	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section：DI 16*DC24V(NPN/PNP)，DO 4*DC24V(PNP)+12*Relay, 2*RS485, 1*Expansion interface (support up to 8 KS modules); HMI Section：7" TFT, 1*USB HOST(USB-A), 1*Ethernet, supports M-IoT functionality.
	MK043E-20DT	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section：DI 9*DC24V，DO 9*Relay, AI 2*Vol tage, 2*RS485, 1*Expansion interface (support up to 8 KS modules); HMI Section：4.3" TFT, 1*USB HOST(USB-A), 1*Ethernet, supports M-IoT functionality.
Enhanced Series	MK043E-27DT	Powered by DC24V, 1*USB SLAVE (USB-C, shared by PLC and HMI), supporting programming protocols; PLC Section：DI 10*DC24V(NPN/PNP), DO 10*DC24V(PNP), DIO 4*DC24V, AI 2*IV, AO 1*IV, 2*RS485, 1*Expansion interface (support up to 8 KS modules); HMI Section：4.3" TFT, 1*USB HOST(USB-A), 1*RS232(COM2), 1*Ethernet, supports M-IoT functionality.
	MK043E-20DTC	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section: DI 9*DC24V(NPN/PNP), DO 9*DC24V(PNP), AI 2*TC (Supports J/K/E/T type thermocouples, with optional internal and external cold junction compensation) , 2*RS485, 1*Expansion interface (support up to 8 KS modules); HMI Section: 4.3" TFT, 1*USB HOST(USB-A), 1*Ethernet, supports M-IoT functionality.
	MK070E-27DRT	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section: DI 12*DC24V(NPN/PNP), DO 12*Relay, AI 3*RD(support Pt100 type, measuring temperature in the range of -40°C to 240°C), 2*RS485, 1*Expansion interface (support up to 8 KS modules); HMI Section: 7" TFT, 1*USB HOST(USB-A), 1*Ethernet, supports M-IoT functionality.
Basic Series	MK070C-33DT	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section: DI 16*DC24V(NPN/PNP), DO 14*DC24V(PNP), AI 2*IV, AO 1*IV, 1*RS485; HMI Section: 7" TFT, 1*USB HOST(USB-A).
	MK043C-20DT	Powered by DC24V, 1*USB SLAVE (USB-B, shared by PLC and HMI), supporting programming protocols; PLC Section: DI 9*DC24V(NPN/PNP), DO 9*DC24V(PNP), AI 2*Vol tage, 1*RS485; HMI Section: 4.3" TFT, 1*USB HOST(USB-A).No M-IoTFunctionality.

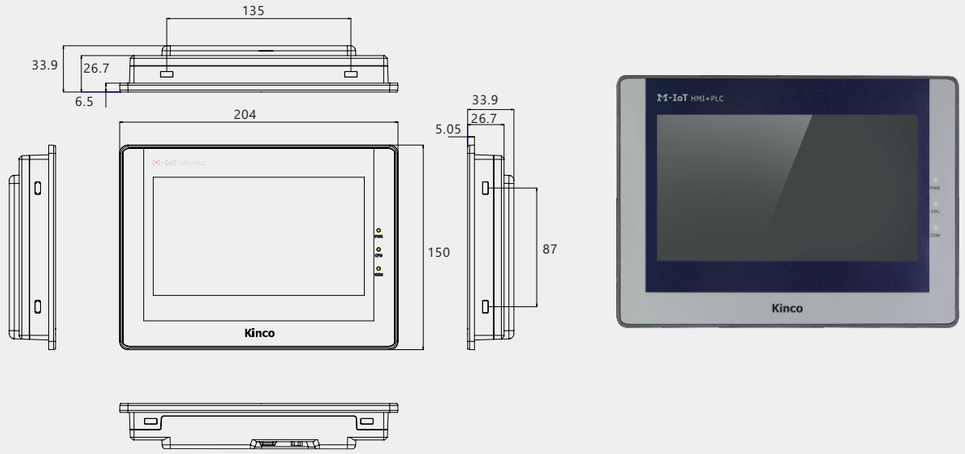
Quick Selection List		
Expansion module	KS122-12XR	DC 20.4V~28.8V, DO 12*Relay, can communicate as a modbus slave
	KS123-14DR	DC 20.4V~28.8V, DI 8*DC 24V,DO 6*Relay, can communicate as a modbus slave
	KS133-06IV	DC 20.4V~28.8V, AI*4 + AO *2, 4~20mA/1~5V/0~20mA/0~10V, can communicate as a modbus slave
	KS121-16DX	DC 20.4V~28.8V, DI 16* DC24V, can communicate as a modbus slave
	KS122-14DT	DC 20.4V~28.8V, DO 14* DC24V(PNP), can communicate as a modbus slave
	KS131-04RD	DC 20.4V~28.8V, RTD*4, Pt100/Cu50/Pt1000/resistance, two-wire/three-wire, can communicate as a modbus slave

MK Series Dimension

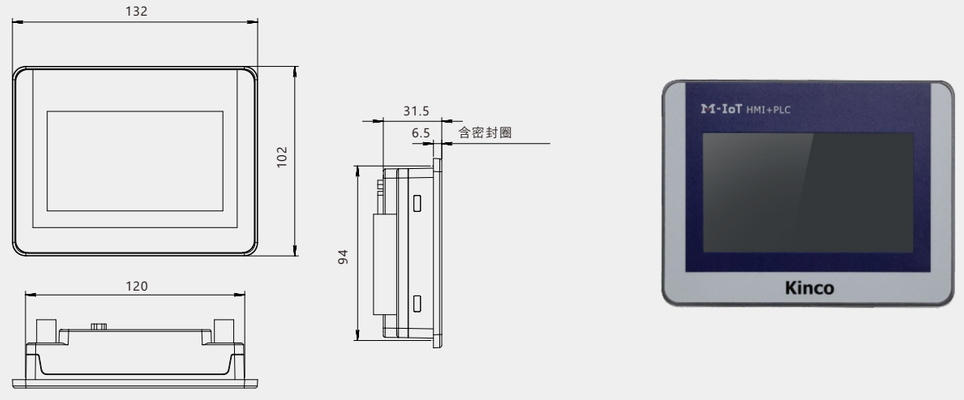
Quick Selection List		
Type	Module	Description
Accessories	MKC-C050S	Hybrid Cable (COM + ExP/CAN), DB9 (male) to RJ45 (female), and 7-core serial port cable (with a set of 7-pin matching terminals).
	MKC-X050S	Serial Port Cable, DB9 (male) to 7-core serial port cable (with a set of 7-pin matching terminals).
	MKC-C000S	Expansion Cable (ExP/CAN), DB9 (male) to RJ45 (female).

Dimensional Drawing (Unit:mm)

MK070E-33DT/MK070E-32DX/MK070E-27DRT/MK070C-33DT

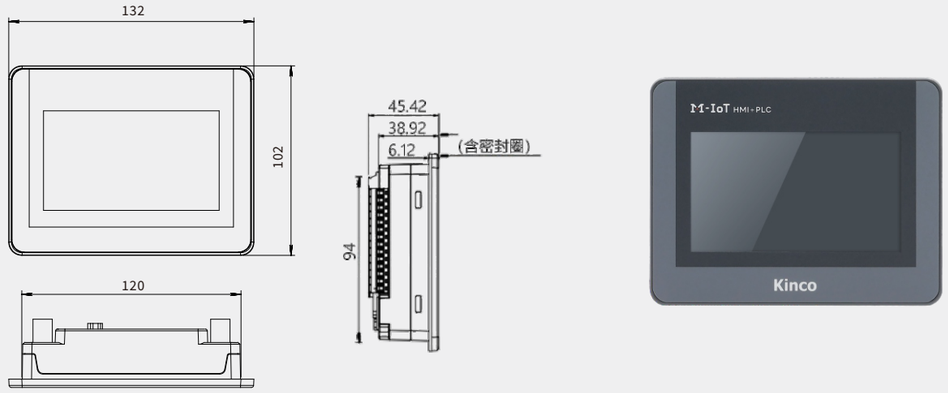


MK043E-20DT/MK043C-20DT



Dimensional Drawing (Unit:mm)

MK043E-27DT



MKC-C050S

Hybrid Cable (COM+Exp/CAN)
- DB9 (male) → RJ45 (female) +
7-core cable (with a set of 7PIN mating connectors)
- CATE Shielded Cat5e Cable, Black, 24AWG, Total Length: 160±10mm
- UL2464 26AWG Shielded Cable with Wire Numbering
Tubes and Cylindrical Terminals, Total Length: 510±15mm

MKC-C050S			
COM	Communication	Label	Color
	RS485 (Port1)	A1	Green
		B1	Brown
	RS485 (Port2)	A2	Violet
		B2	Orange
	RS232 (Port0)	TX	Blue
		RX	Red
		GND	Yellow
RJ45(female)	CAN/Expansion		



MKC-X050S

Serial Cable
- DB9 (male) → 7-core cable (with a set of 7PIN mating connectors)
- UL2464 26AWG Shielded Cable with Wire Numbering Tubes and Cylindrical Terminals, Total Length: 510±15mm

MKC-X050S			
COM	Communication	Label	Color
	RS485 (Port1)	A1	Green
		B1	Brown
	RS485 (Port2)	A2	Violet
		B2	Orange
	RS232 (Port0)	TX	Blue
		RX	Red
		GND	Yellow



MKC-C000S

Expansion Cable (Exp/CAN)
- DB9 (male) - RJ45 (female)
- CATE Shielded Cat5e Cable, Black, 24AWG, Total Length 160±10mm

MKC-C000S	
RJ45(female)	CAN/Expansion

