

HMI User Manual

Thank you for purchasing Coolmay MT series HMI. This manual provides instructions of product characteristics, general specifications, hardware interface and software settings, etc..Detailed programming, please refer to "Coolmay Programming User Manual".

HMI main features:

- Provides vector galleries and supports self-built gallery
- Resistive touch panel with high precision and reliability
- Supports any-format static images and GIF animation
- Supports all fonts in Windows
- 60,000 TFT true color display
- Supports recipe storage, historical data, curve, alarm storage
- MT60 series support date import or export and program downloading by USB drive (not available for MT90 series)
- Default RS232 and RS485 port
- MT60 series supports vertical display
- Network port, audio or CAN port is optional
- MT60**H: WINCE 5.0 system, MT60**HA/KHA: WINCE 7.0 system, MT90**H/KH: no system
- MT6037H/MT6050H (A): gray, gold, or silver panel is optional, black or white bottom shell is optional
- MT6037H/MT6050H (A) supports wall mounted, and can be used in home automation or industrial control

Product Information

◆ Naming rules $\frac{MT}{①} \frac{60\ 70}{②\ ③} \frac{H}{④} - \frac{W}{⑤} - \frac{Y}{⑥}$

- Coolmay product series MT series HMI
- Version MT60 series: WINCE system, MT90 series: no system
- HMI dimension 37: 3.5"/ 43: 4.3"/ 50: 5"/ 70: 7"/ 100: 10"/ 150:15"
- Version and holes H: basic version, HV: basic version vertical, WINCE 5.0 system
HA: upgraded version, HAV: upgraded version vertical, WINCE 7.0 system
KH: different cut-out sizes from H series
- Network/ CAN port W: network port, available for MT60 series HMI
CAN: CAN port, available for MT90 series HMI, and can't coexist with COM2 port.
- Audio Y: Audio (optional)

Specifications and parameters

Table 1 MT60 series

Model	MT6037H	MT6043H	MT6050H	MT6070H	MT6100HA	MT6150HA
Display panel	3.5" TFT LCD	4.3" TFT LCD	5.0" TFT LCD	7.0" TFT LCD	10.1" TFT LCD	15.0" TFT LCD
Resolution	320*240	480*272	800*480	800*480/1024*600	1024*600	1024*768
Dimension	88*88*25mm	134*102*30mm	146*88*25mm	212*148*40mm	275*194*36mm	365*290*36mm
Cut-out size	72*72mm	120*94mm	137*72mm	194*138mm	262*180mm	352*279mm
Display	73*56mm	97*56mm	108*65mm	154*87mm	222*125mm	304*228mm
Power consumption	100mA/24V	150mA/24V	150mA/24V	200mA/24V	280mA/24V	500mA/24V
Weight	0.3kg	0.33kg	0.33kg	0.54kg	0.7kg	3.414kg
Brightness	300cd/m ²					450cd/m ²
Power	12-24VDC±10% < 150mA@24VDC					12-24VDC±10% < 300mA@24VDC
RAM	H series: 64MB HA series: 128M					
CPU	H series: ARM9 kernel 400MHz HA series: Cortex A8 720MHz-1GHz					
ROM	128MB Flash ROM					
Communication	RS232, RS485 (optional network port)					
Color	65536 true color					

Table 2 MT90 series

Model	MT9037H	MT9043KH	MT9050KH	MT9070KH
Display panel	3.5" TFT LCD	4.3" TFT LCD	5.0" TFT LCD	7.0" TFT LCD
Resolution	320*240	480*272	800*480	800*480
Dimension	88*88*25mm	150*93*32mm	150*93*32mm	226*163*35.6mm
Cut-out size	72*72mm	143*86mm	143*86mm	217*154mm
Display	73*56mm	97*56mm	108*65mm	154*87mm
Power consumption	100mA/24V	150mA/24V	150mA/24V	280mA/24V
Weight	0.3kg	0.33kg	0.33kg	0.54kg
RAM	32MB	32MB	32MB	64MB
CPU	ARM9 kernel 216MHz	ARM9 kernel 216MHz	ARM9 kernel 216MHz	ARM9 kernel 288MHz
ROM	128MB Flash ROM			
Communication	RS232, RS485(CAN port is available for MT9043KH/MT9050KH/MT9070KH, can not coexist with COM2 port)			
Brightness	300cd/m ²			
Power	12-24VDC±10% < 150mA@24VDC			
Color	65536 true color			

Continued

Item	Instructions
Backlight	LED
Backlight life	60000 hours
Shell material	ABS+PC
Electric stress test	500VAC 1 minute
IP level	Ip65 (front panel)
Environmental temperature	0~50°C
Environmental humidity	20~90%RH
Storage	-20~70°C
Cooling	Natural cooling
Contrast	400:1
Allow power down	Within 20ms
USB	Yes (not available for MT90 series)
Calendar	Yes
Input voltage	DC24±10%VDC or customized as DC12V/DC5V input
System diagnosis	Power effect test
Certificate	CE
FCC	Conform to FCC Class A
Anti-interference test	1500Vp-p, pulse period 1μs, continue 1s
Quakeproof test	10-25Hz (X,Y,Z direction 2G 30mins)
Insulation resistance	More than 10MΩ@500VDC
Touch panel	4-wire resistance panel

Mechanical Design

◆ Mounting size

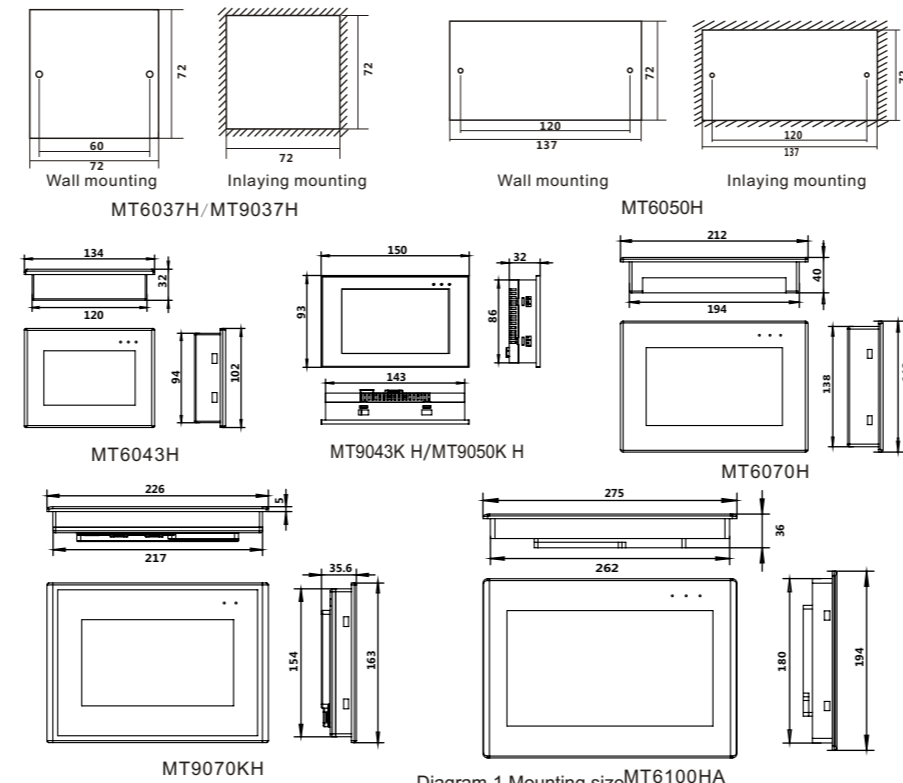


Table 3 Mounting size

Model	Mounting size		Dimension W*H*D(mm)
	A(mm)	B(mm)	
MT6037H/ MT9037H	72	72	88*88*25
MT6043H	120	94	134*102*30
MT6050H	137	72	146*88*25
MT9043(50)KH	143	86	150*93*32
MT6070H	194	138	212*148*40
MT9070KH	217	154	226*163*35.6
MT6100HA	262	180	275*194*36
MT6150HA	352	279	365*290*36

※ More specifications can be customized.

Electrical Design

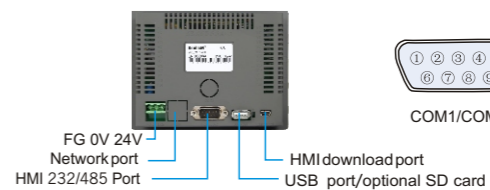
◆ Appearance



Diagram2 Product Structure

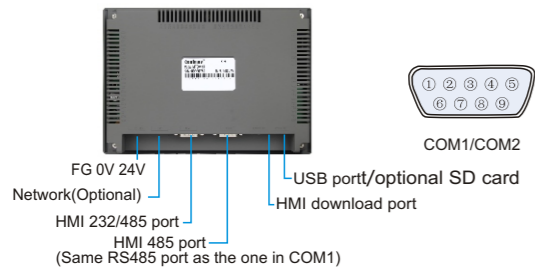
◆ Hardware Interface

MT6043H



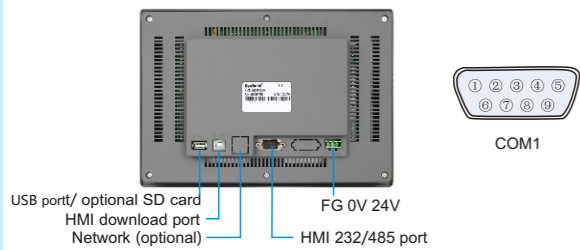
Pin No	Signal	Description
Definition of RS232 COM		
2	RXD	Receive
3	TXD	Send
5	GND	Ground
Definition of RS485 COM		
1	A	485+
6	B	485-

MT6070H



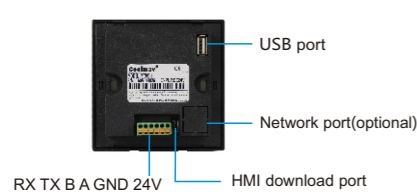
Pin No	Signal	Description
Definition of COM1 RS232 COM port		
2	RXD	Receive
3	TXD	Send
5	GND	Ground
Definition of COM1/COM2 RS485 port		
1	A	485+
6	B	485-

MT6100HA



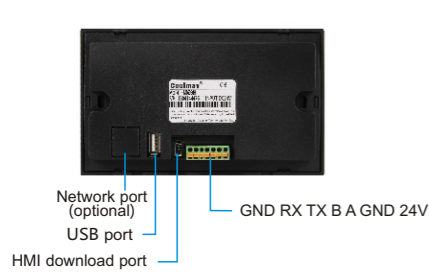
Pin No	Signal	Description
Definition of RS232 COM port		
2	RXD	Receive
3	TXD	Send
5	GND	Ground
Definition of RS485 COM port		
1	A	485+
6	B	485-

MT6037H/MT9037H



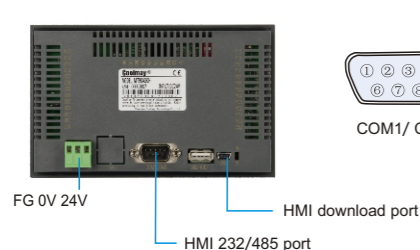
Pin No	Description
Definition of RS232 COM port	
RXD	Receive
TXD	Send
GND	Ground/DC24V-
Definition of RS485 COM port	
A	485+
B	485-
DC24V power supply	
24V	DC24V+
GND	Ground/DC24V-

MT6050H



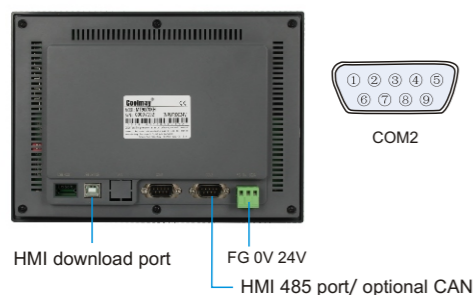
Pin No	Description
Definition of Rs232 COM port	
RXD	Receive
TXD	Send
GND	Ground
Definition of Rs485 COM port	
A	485+
B	485-
DC24V power supply	
24V	DC24V+
GND	DC24V-

MT9043KH/MT9050KH



Pin No	Signal	Description
Definition of Rs232 COM port		
2/4	RXD	Receive
3/7	TXD	Send
5	GND	Ground
Definition of Rs485 COM port		
1	A	485+
6	B	485-
Definition of COM2 CAN port		
8	H	
9	L	

MT9070KH



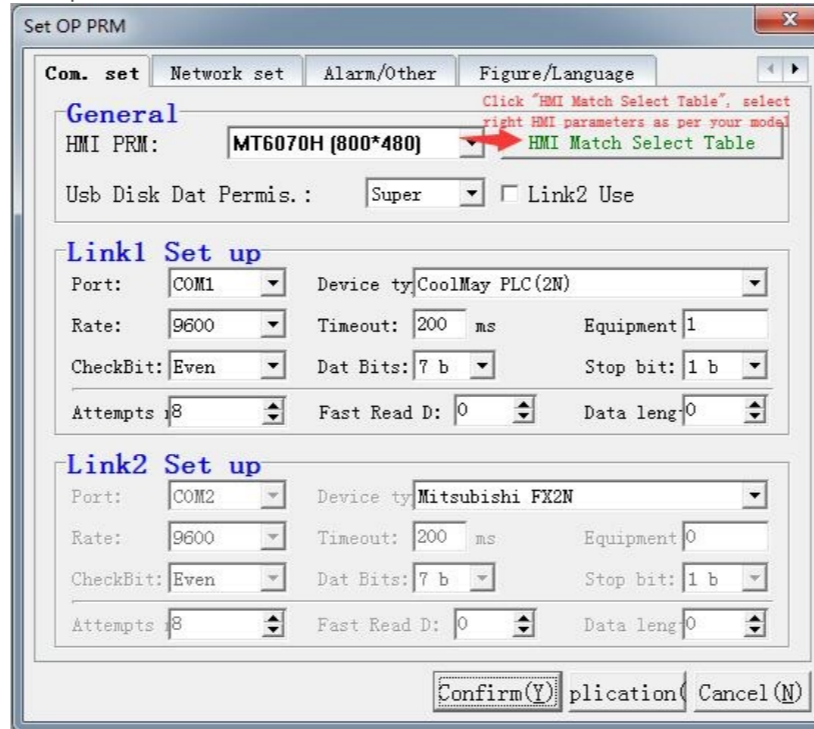
Pin No	Signal	Description
Definition of Rs232 COM port		
2	RXD	Receive
3	TXD	Send
5	GND	Ground
Definition of COM2 RS485 port		
1	A	485+
6	B	485-
Definition of COM2 CAN port		
8	H	
9	L	

Differences of software functions between MT60 and MT90:

1. MT60 supports 18 languages. MT90 only supports Chinese and English.
2. MT60 supports data storage functions. It requires to select "U-disk memory" in the software, and USB interface is required to connect an external U-disk (SD card is optional and can't coexist with U-disk memory). MT90 allows data storage with max. 30,000.
3. MT60 can add network port and Ethernet monitoring. MT90 can add CAN port(can't coexist with COM2 port).
4. MT60 supports USB drive to download programs and upload and download data base, and supports to connect external USB mouse or USB drive. MT90 can't.
5. MT90 boots up fast without boot screen. Some functions are upgrading.

Software Parameter settings

In software parameter setting "Link 1", MT60 series, MT9037H and MT9070KH default as COM1:RS232, COM2:RS485; MT9043(50)KH default as COM1: RS232 or Rs485, COM2: Rs232. If tick Link 2, it can communicate with 2 serial port devices at the same time.



HMI parameter selections

Model (horizontal)	HMI parameters	Model(vertical)	HMI parameters
MT6037H/MT9037H	MT6037H[320*240]	MT6043HV	MT6043HV[272*480]
MT6043H/MT9043KH	MT6043H[480*272]	MT6050HV/MT6070HV	MT6070HV[480*800]
MT6050H/MT9050KH/MT6070H/MT9070KH	MT6070H[800*480]		
MT6070H/MT6100HA	MT6100HA[1024*600]		
MT6150HA	MT6150HA[1024*768]		

List of controlling equipment (can communicate with HMI):

CoolMay PLC(3G) / FX3UC, CoolMay PLC(2N), Mitsubishi FX Serier, Mitsubishi FX2N, Mitsubishi FX485ADP/422BD, Omron C/CPM Series, Omron CP/CS/CJ Series, Siemens S7-200 Series, Thinget XC/XCM Series, LG Master-K80/120 Series, Delta DVP Series, Panasonic FP Series, Vigor M/VB/VH Series, Fatek FB Series, Free Protocol, Modbus RTU Master, Modbus RTU Slave, Modbus ASCII Slave , micro-type printers, MS7120/LV-909 bar code scanner, etc..

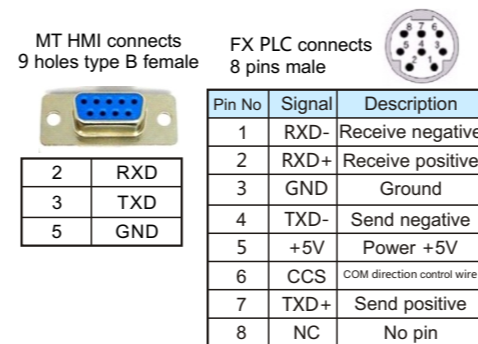
Instructions of HMI connecting with all-brand PLCs

I. Mitsubishi FX series

1) MT software settings

Parameter	Settings
PLC type	Mitsubishi FX Series
COM type	RS232
Data bits	7
Stop bits	1
Checkign bits	Even
Baud rate	9600
Controller ID	0

2) MT(COM1) FX series PLC COM cable connection
Mitsubishi programming cable is used.



MT6037H/MT9037H/MT6050H cables:

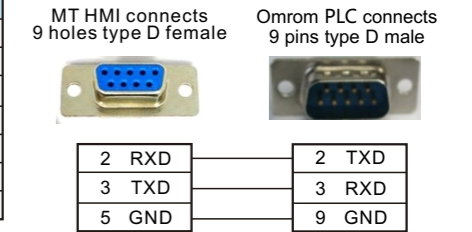
1. If communicates with Coolmay FX3GC/FX2NC/DX2N/Mitsubishi PLC, use the same cables as the ones of DX2N(FX2NC) PLC.
2. If communicates with Coolmay CX3G/CX2N/DCX2N PLC, use the same cables as the ones of CX2N PLC.

II. Omron C series

1) MT software settings

Parameter	Settings
PLC type	Omron C/CPM/CP/CS/CJ Series
COM type	RS232
Data bits	7
Stop bits	2
Checking bits	Even
Baud rate	9600
Controller ID	0

2) MT(COM1)-Omron PLC connections

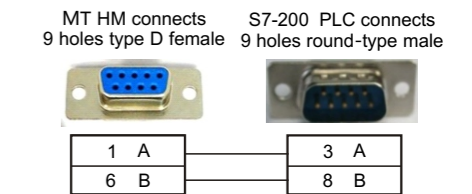


III. Simens S7-200

1) MT software settings(change COM1 to RS485)

Parameter	Settings
PLC type	Siemens S7-200 Series
COM type	RS485
Data bits	8
Stop bits	1
Checking bits	Even
Baud rate	9600
Controller ID	2

2) MT(COM1)S7-200 PLC connections



* Programming Software: Coolmay HMI programming software
Detailed information, please refer to "Coolmay HMI programming manual"

TIPS

HMI User Manual

Please read carefully the related manuals before using our products, and use this product under the environmental conditions specified in this manual.

1. Power on after confirmed the voltage (24VDC, >18W) and right wiring to avoid damage.
2. Tighten the screws or the rail while mounting the product to avoid falling off.
3. Avoid wiring or plug the cable with electricity, or it is easy to cause electric shock or circuit damage. When the product emits odor or abnormal sound, please immediately switch off the power. While processing screw holes or wiring, do not drop the metal chips and wire head into the ventilation hole of the controller, which may cause product failure and disoperation.
4. Ground terminals FG on HMI must right gound connection to improve anti-interference ability.
5. Please do not disassemble the product or modify the wiring.
Or it may cause malfunction, malfunction, loss, or fire.
6. While installing or disassembling the product, ensure to turn off all power. Or it may cause malfunction and breakdown.

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