

# THM Series HMI



more sensors, more solutions





# Friendly | Rapid | Open | Flexible

## The introduction of BANNER ENGINEERING

BANNER ENGINEERING is a global leading sensing detecting and automation solution supplier, who has more than 22,000 types of products and the most complete product lines, including industrial controllers (PLC & HMI), photoelectric sensors, measuring and detecting sensors, industrial wireless network products, machine vision, industrial safety products, industrial intelligent indicators, rotary encoders and other automation products that can meet different control & detection demands. In the past 4 decades of development, Banner has been taking innovation as the driving force of application and R&D of products. In terms of either factory automation or process automation, Banner can provide leading and reliable control & detection solutions.



## The introduction of THM series HMI

THM has excellent performance, elegant outlook and complete product series. It adopts advanced embedded technology, efficient real-time operation system, and simple used operation software. Besides basic functions of monitor, operation and storing data, it also supports major brands of controllers, PLC, inverter and other equipment communication. In various fields of Factory Automation and Process Automation, it has widely application. THM series HMI has eight inches, which are 3.5".4.3".5.6".7".8".10.4".12.1",15".

The main stream adopts 60000 colors TFT displays, from the basic type only with the serial port, to the type integrating various serial ports, various USB interfaces, Ethernet interface, audio interface, and SD card slot of Multi function type. It has various types to realize different users under needs of different application scenes.

### Friendly software

BAMS software is integrated the advantages of the major brand globally, which is easy to operate and has abundant function. The well-designed windows and the smooth animation will make you satisfied.

### Rapid Response

THM adopts advanced embedded technology, low-power 32-bit RISC CPU chip, and advanced 2D graphics accelerator. High efficient built-in real-time operation system, lights when it powers on instantaneously, communicating with the controller rapidly. THM will finish its communication instantaneously and would not delay when it communicates with IPC & PLC.



### Strong Communication

Integrating various serial ports (at most 3 pcs), supporting three sorts of communication styles, which are RS232/RS485/RS422, and able to communicate with controllers of different communication protocol simultaneously. Integrated Ethernet interface: Realizing the remote monitor on HMI by Ethernet, and the data exchange between HMI and controller, each PC, and each HMI.

Integrated USB interface: Uploading and downloading program, and storing data by USB interface. Also able to connect with other equipments of USB interface, such as Mouse, keyboard and printer. Flexible expansion & wealth of function.

### Cool Vision Effect

Adopting 65536 colors, True color TFT LCD screen, which is bright and colourful. It supports picture formats like BMP, JPG and GIF for individualized demonstration.

### High reliability

All series of products have certification of CE, etc, which are consistent with international standards. They have advanced anti jamming performance to the environment like electromagnetic wave, static electricity, humidity, and high and low temperature. Moreover, they have various protection functions, like power reverse connection, short circuit protection, surge protection, and communication protection.

Product specifications & Amendment commitment

All specifications and parameters may be amended. Banner Engineering reserves the right of amending above without notice.



Sensing • Detecting • Automation Expert

# Strong | Stable | Reliable | Safe



## Overview of THM hardware



### Audio interface (partial models)

For playing language file, and outputting language message



### Power interface

DC20 ~ 28V



### Ethernet interface

Realizing the remote monitor to HMI by Ethernet, and the data exchange between HMI and controller, each PC, and each HMI.



### USB interface

Uploading & downloading program, and storing data by USB interface. Also able to connect with other equipments of USB interface, such as mouse, keyboard & printer.



### Serial port

Supporting RS232/422/485



### SD card

Able to insert SD card, for program upload & download and data storage.

# Overview of BAMS software

- **BAMS software is simple to learn & use.**

- **Large volume of the gallery**

- ※ Supporting the format of BMP, JPG, and GIF; Supporting full color display, and meanwhile, the software integrates rich gallery for random options.

- ※ The software has over 4000 graphics originals for users' making images of various effect.

- **Multi languages transformation**

Supporting all fonts of Windows system; Adopting Unicode system, and supporting multi languages online transformation, which at most reaches to 10 sorts of languages.

- **Simulation function**

In BAMS software, simulating HMI & PLC could be operated by online or offline patterns, to simulate debugging of image and operation.

- ※ Offline simulation. Without HMI & PLC, directly simulating the computer as one HMI & PLC, for users' conveniently learning software and design the image.

- ※ Online simulation, directly regarding the computer as one HMI & PLC to communicate and exchange data. The effect is the same as online operation of HMI & PLC.

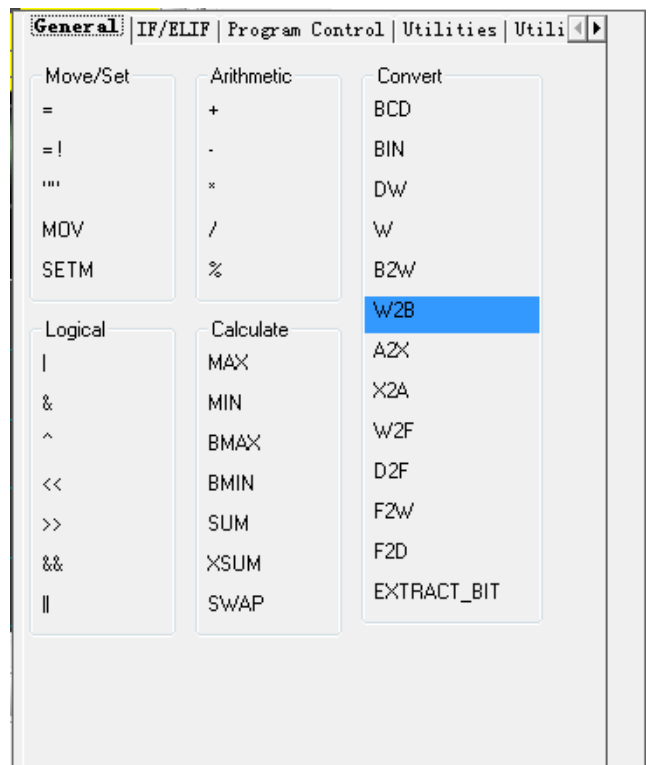
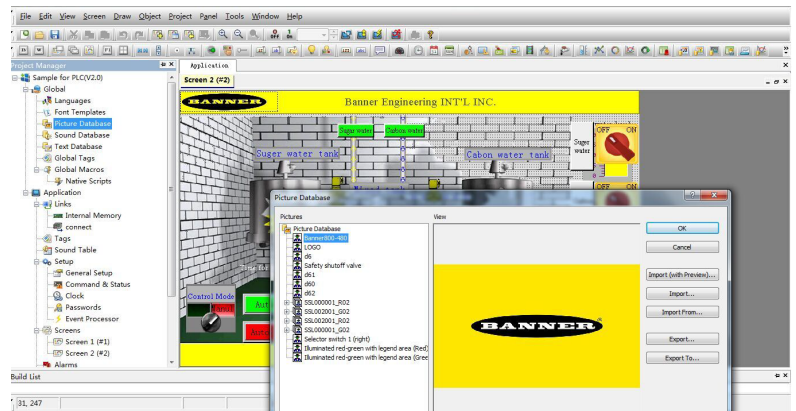
- **Strong MACRO Editor**

Supporting MACRO script. The MACRO The MACRO instruction is rich for users' freely writing program to realize the necessary functions.

- ※ Various MACRO instruction for flexible use

- ※ MACRO instruction Pattern of Various controlling methods for options

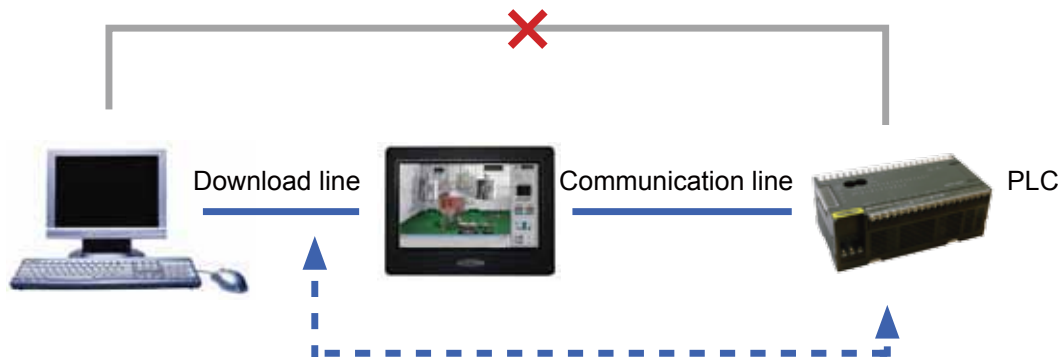
- ※ The program can be inputted various MACRO instruction





• **Transparent communication**

PC communicates through THM & PLC, which makes the debugging of PLC more convenient. When the communication style is RS422/485, the specialized PLC communication cable can be replaced. PC can directly online amend and monitor PLC system by THM without the specialized PLC communication cable.



• **Strong opening**

THM supports various communication interfaces for convenient flexible networkings as follows

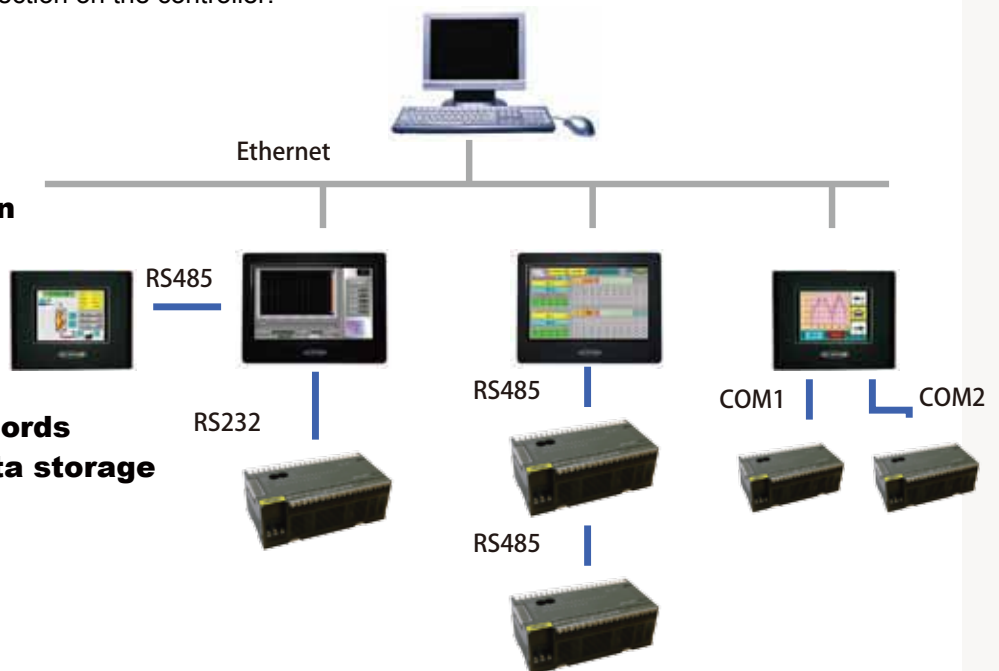
1. One HMI connecting one PLC (1:1) or the two serials of one HMI individually connecting two different controllers (2:2)
2. One serial (RS485) of one HMI connecting various controllers(1:n)
3. Various HMI (RS485) connecting one controller (n:1)
4. One HMI connecting various controllers by Ethernet.
5. One HMI connecting PC by Ethernet; Connecting the controller by serial ports, which makes PC realize the data collection on the controller.

• **Supporting 8 level code protection**

• **Rich alarm function**

• **Supporting recipe function of various zones & groups.**

• **Historical data records displaying, and data storage of various zones**





Model		THM035B	THM043A	THM043C3	THM056A	THM070S	THM070A	THM070AE	THM070C3
Specification	Size	3.5"	4.3"	4.3"	5.6"	7.0"	7.0"	7.0"	7.0"
	Display	256 colors TFT, LED backlight	65536 colors TFT, LED backlight						
	Resolution	320×240	480×272	480×272	320×234	800×480	800×480	800×480	800×480
	Lightness(cd/m2)	300	400	400	250	350	300	300	400
	Touch panel	4 wire resistance screen							
	CPU	32-bit RISC	32-bit RISC	RISC ARM9 32Bit	32-bit RISC	RISC ARM9 32Bit	32-bit RISC	32-bit RISC	RISC ARM9 32Bit
	Memory(SDRAM)	512KB	32MB	64MB	32MB	64MB	64MB	64MB	64MB
	Battery backup memory	None	128KB (1MB optional)	128KB	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)
	Flash Memory	2MB	8MB	64MB	8MB	20MB	8MB	128+8MB	64MB
	SD card	None	None	None	None	None	None	At most 16GB	None
Communication interface	USB	None	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave
	Serial	COM1 : RS232 COM2 : RS422/485	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232(5-Pin Terminal); COM2 : none; COM3 : RS485(5-Pin Terminal)	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232 COM2 : RS422/485 COM3 : RS485	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232 COM2 : RS422/485 COM3 : RS485
	Ethernet	None	None	None	None	None	None	Yes	None
Electricity characteristics	Watt	6W	13W	3.5W	13W	3W	15W	15W	3.5W
	Power supply	DC20V ~ 28V	DC20V ~ 28V	12~24VDC±10%(non-Isolated)	DC20V ~ 28V	12~24VDC±10%(non-Isolated)	DC20V ~ 28V	DC20V ~ 28V	12~24VDC±10%(non-Isolated)
Conditions	Operation temperature	0°C ~ 50°C	0°C ~ 50°C	-10°C ~ 50°C	0°C ~ 50°C	-10°C ~ 50°C	0°C ~ 50°C	0°C ~ 50°C	-10°C ~ 50°C
	Operation humidity	10%~90% RH, No condensation							
	Vibration resistance	10Hz ~ 55Hz(X,Y,Z direction 1G/30 minutes)							
Certifications	IP Class	IP65(Front panel)	IP65(Front panel)	IP54(Front panel)	IP65(Front panel)	IP65(Front panel)	IP65(Front panel)	IP65(Front panel)	IP54(Front panel)
	CE	EN550 22 , EN61000-4-2 , EN61000-6-4 , EN61000-4-8							
Physical specification	Dimensions (mm)	130.0×106.2×39.0	130.0×106.2×39.0	129 x 103 x 33	188.0×143.3×40.0	203.5 x 149.5 x 31	188.0×143.3×40.0	188.0×143.3×40.0	203.5 x 148.5 x 35
	Cutout dimensions (mm)	118.5×92.5	118.5×92.5	118.5×92.5	174.5×132.5	191.5 x 137.5	174.5×132.5	174.5×132.5	191.5 x 137.5
	Weight	0.27kg	0.35kg	0.35kg	0.59kg	0.65kg	0.6kg	0.6kg	0.6kg



THM070C3E	THM080A	THM080AE	THM101S	THM101C3	THM101C3E	THM104A	THM104AE	THM121C3E	THM150C3E
7.0"	8"	8"	10.2"	10.2"	10.2"	10.4"	10.4"	12.1"	15"
65536 colors TFT, LED backlight									
800×480	800×600	800×600	1024×600	1024×768	1024×768	800×600	800×600	1024×768	1024×768
400	300	300	250	350	350	400	400	500	350
4 wire resistance screen								5 wire resistance screen	
RISC ARM9 32Bit	32-bit RISC	32-bit RISC	RISC ARM9 32Bit	RISC ARM9 32Bit	RISC ARM9 32Bit	32-bit RISC	32-bit RISC	RISC ARM9 32Bit	RISC ARM9 32Bit
64MB	64MB	64MB	64	64MB	64MB	64MB	64MB	64MB	64MB
128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)	128KB (1MB optional)
64MB	8MB	128+8MB	20MB	64MB	64MB	8MB	128+8MB	64MB	64MB
None	None	At most 16GB	None	None	None	None	At most 16GB	None	None
1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave	1 Master & 1 Slave
COM1 : RS232 COM2 : RS422/485 COM3 : RS485	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232 COM2 : RS422/485 COM3 : RS485	COM1 : RS232 COM2 : RS422/485 COM3 : RS485	COM1 : RS232 COM2 : RS422/485 COM3 : RS485	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232/422/485 COM2 : RS232/485 COM3 : RS232	COM1 : RS232 COM2 : RS422/485 COM3 : RS485; COM4 : RS485 ; COM5 : RS485	COM1 : RS232 COM2 : RS422/485 COM3 : RS485; COM4 : RS485 ; COM5 : RS485
Yes	None	Yes	None	None	Yes	None	Yes	Yes	Yes
20W	20W	20W	3.5W	3.5W	20W	20W	20W	20W	20W
12~24VDC±10%(Isolated)	DC20V ~28V	DC20V ~28V	12~24VDC±10%(non-Isolated)	12~24VDC±10%(non-Isolated)	12~24VDC±10%(Isolated)	DC20V ~28V	DC20V ~28V	24VDC±10%(Isolated)	24VDC±10%(Isolated)
-10°C~60°C	0°C ~50°C	0°C ~50°C	-10°C~50°C	-10°C~50°C	-10°C~60°C	0°C ~50°C	0°C ~50°C	-10°C~60°C	-10°C~60°C
10%~90% RH, No condensation									
10Hz ~ 55Hz(X,Y,Z direction 1G/30 minutes)									
IP54(Front panel)	IP65(Front panel)	IP65(Front panel)	IP65(Front panel)	IP54(Front panel)	IP54(Front panel)	IP65(Front panel)	IP65(Front panel)	IP54(Front panel)	IP54(Front panel)
EN550 22 , EN61000-4-2 , EN61000-6-4 , EN61000-4-8									
203.5 x 148.5 x 37	231.6×174.6×42.5	231.6×174.6×42.5	270.8 x 212.8 x 37.4	270.8 x 212.8 x 40.5	270.8 x 212.8 x 42.5	270.1×212.1×42.5	270.1×212.1×42.5	335.4 x 245.9 x 58.2	399.1×297.6×57.5
191.5 x 137.5	220.5×163.5	220.5×163.5	259.5 x 201.5	259.5 x 201.5	259.5 x 201.5	259.0×201.0	259.0×201.0	302 x 228	384.5×283.0
0.6kg	0.93kg	0.93kg	1.2kg	1.2kg	1.2kg	1.2kg	1.2kg	2.2kg	2.8kg

Model	Description
THM035B	3.5" TFT LCD , 256 colors , LED backlight , 320×240 resolution , No USB interface & Ethernet
THM043A	4.3" TFT LCD , 16:9 , 65536 colors , LED backlight , 480×272 resolution , 2 USB interfaces , No Ethernet
THM043C3	4.3" TFT LCD , 16:9 , 65536 colors. LED backlight.480×272 resolution. 2 USB interfaces , No Ethernet
THM056A	5.6" TFT LCD, 65536 colors , LED backlight , 320×234 resolution , 2 USB interfaces , No Ethernet
THM070S	7" TFT LCD , 16:9 , 65536 colors , LED backlight , 800×480 resolution , 2 USB interfaces , No Ethernet , Only 30 pages are supported
THM070A	7" TFT LCD , 16:9 , 65536 colors , LED backlight , 800×480 resolution , 2 USB interfaces , No Ethernet.
THM070AE	7" TFT LCD , 16:9 , 65536 colors , LED backlight , 800×480 resolution , 2 USB interfaces , With Ethernet , Additional 128M of storage space
THM070C3	7" TFT LCD , 16:9. 65536 colors , LED backlight , 800×480 resolution , 2 USB interfaces , No Ethernet
THM070C3E	7" TFT LCD , 16:9. 65536 colors , LED backlight , 800×480 resolution , 2 USB interfaces , With Ethernet
THM080A	8" TFT LCD , 65536 colors , LED backlight , 800*600 resolution , 2 USB interfaces , No Ethernet
THM080AE	8" TFT LCD, 65536 colors, LED backlight , 800×600 resolution, 2 USB interfaces , With Ethernet , Additional 128M of storage space
THM101S	10.2"TFT , 16:9 , 65536 colors , LED backlight , 1024*600 resolution , 2 USB interfaces , No Ethernet , Only 30 pages are supported
THM101C3	10.2"TFT , 16:9 , 65536 colors , LED backlight , 1024*768 resolution , 2 USB interfaces , No Ethernet
THM101C3E	10.2"TFT , 16:9 , 65536 colors , LED backlight , 1024*768 resolution , 2 USB interfaces , With Ethernet
THM104A	10.4"TFT , 65536 colors , LED backlight , 800*600 resolution , 2 USB interfaces , No Ethernet.
THM104AE	10.4"TFT , 65536 colors , LED backlight , 800*600 resolution , 2 USB interfaces , With Ethernet , Additional 128M of storage space.
THM121C3E	12.1"TFT , 16:9 , 65536 colors , LED backlight , 1024*768 resolution , 2 USB interfaces , With Ethernet
THM150C3E	15"TFT , 65536 colors , LED backlight , 1024*768 resolution , 2 USB interfaces , With Ethernet

BAMS1-Datawatch SCADA Software

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