

HMI1021

User's Manual



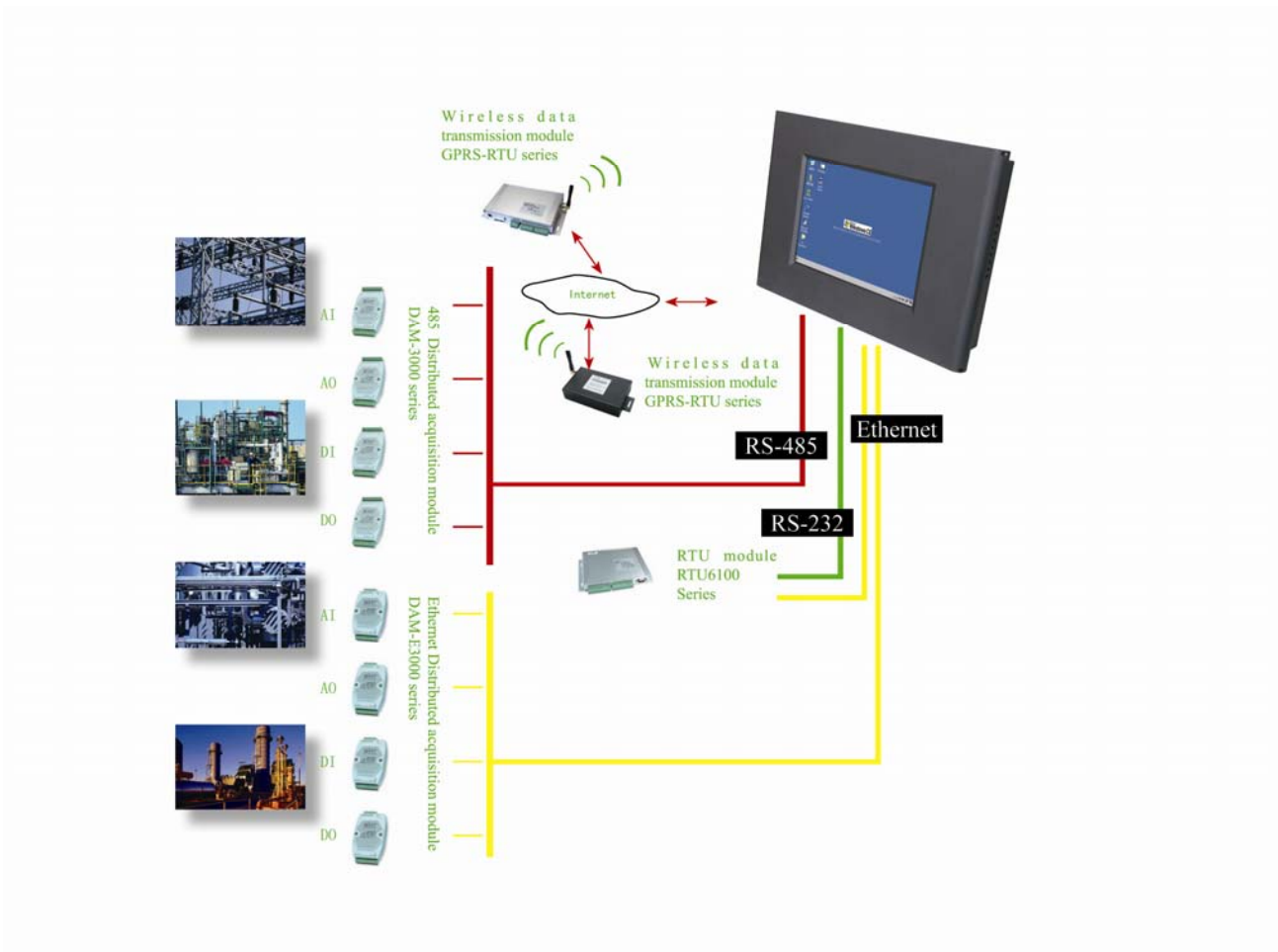
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Chapter 1 Overview


HMI1021 embedded motherboard which has a large number of functions is an ARM9 embedded system platform. It uses SAMSUNG Corporation S3C2450 microprocessor, expands an adequate number of storage resources and typical embedded system interfaces, and provides complete WinCE system solutions. HMI1021 has strong anti-interference ability, high integration, easy installation; low power consumption, electromagnetic compatibility, and can work in harsh environments




Hardware Features

-  CPU: SAMSUNG S3C2450
Master Frequency: 533MHz
-  System RAM:
 - Memory: 128MB, DDR2
 - Nand Flash: 256MB, power-down nonvolatile (can be upgraded to 1GB)
 - CF Card Interface: one, support 256MB~8GB (TURE IDE Mode)
 - SD Card Interface: one, capacity up to 2GB
-  Display System

Type: 10.4 inch TFT LCD screen
Resolution: 800 * 600
Pixel Pitch: 0.264 (H) mm * 0.264 (V) mm
Backlight: LED backlight
Light Transmission Rate: 80%
Brightness: 300cd/m²
Clock: 64K
Best Angle of View: 6'0 Clock
The life of average brightness: 20 000 hours

 Touch Screen:

Type: 4-wire Resistance Touch Screen
Surface Hardness: 3H
Single Life: more than 100 million times


 Communication Interface:


RS232 Serial Port: one 5-wire serial port, one 9-wire full-function serial port, baud rate up to 115200 Kbps
Debugging Serial Port: one 3-wire serial port, baud rate is set to 115200 Kbps
RS485 interface: one industrial grade standard RS485
USB HOST: two USB1.1, baud rate up to 12Mbps
USB Device: one USB2.0, baud rate up to 12Mbps
Ethernet: one, 10M/100Mbps self-adaptive


 Other Device

One DC buzzer
Three LED: one is system running indicator, the other two are not used

 Operation Temperature: -10°C ~ +60°C


 Storage Temperature: -20°C ~ +75°C

 Operation Humidity: 5%~90%

 Storage Humidity: 8%~90%

 Power: 4W

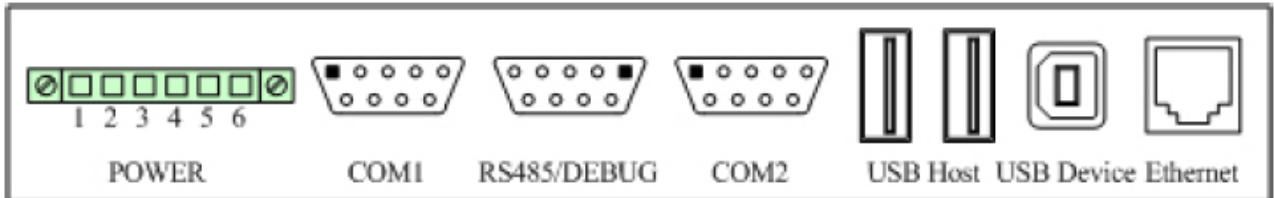
 Power Supply: 12~36V_{DC}

 Size: 324mm*246mm*65mm

Chapter 2 Product Features

2.1 General Purpose Interface

HMI1021 interface distribution shown as below



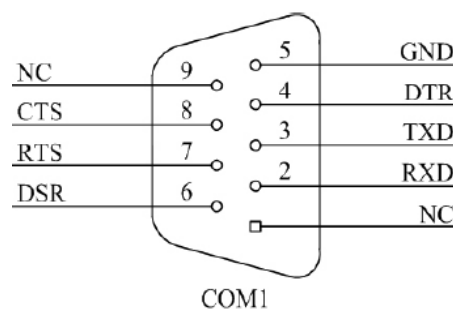
2.1.1 Ethernet

HMI1021 has one standard RJ-45 Ethernet port, support standard TCP/IP protocol, 100M Ethernet port, DM9000A, with connection and transmission indicator.

Pin	Signal Name
1	TX+
2	TX-
3	RX+
4、5	2.5V
6	RX-
7、8	GND
9~12	LED
13、14	Case

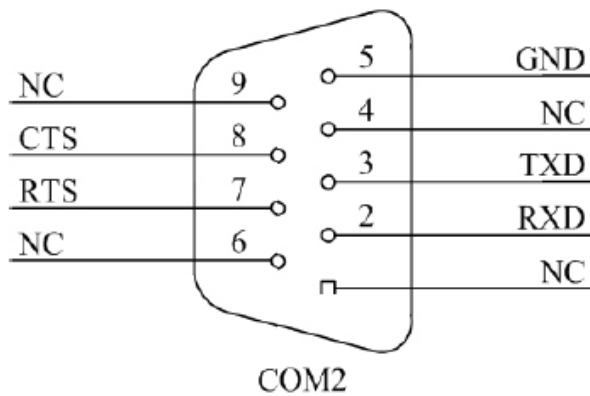
2.1.2 Serial Communication Port

HMI1021 has two RS-232 interface, 9-wire full-function serial COM1 and 5-wire serial COM2, an RS-485 serial interface and a DEBUG port, DEBUG and RS485 serial port are multiplexed serial.



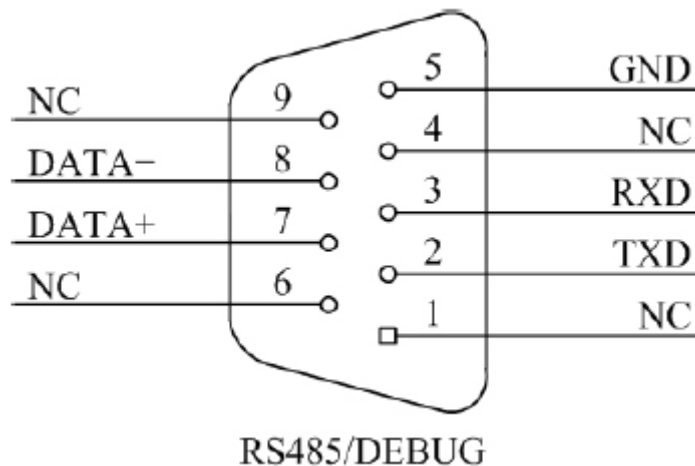
RS232 full-function COM1 definition

Pin	Pin Definition	Function
2	RXD	Receive Data
3	TXD	Send Data
4	DTR	Data terminal is ready
5	GND	GND
6	DSR	Data sending is ready
7	RTS	Send Request
8	CTS	Send Clear
1, 9	NC	NC



RS232 5-wire COM2 definition

Pin	Pin Definition	Function
2	RXD	Receive Data
3	TXD	Send Data
5	GND	GND
7	RTS	Send Request
8	CTS	Send Clear
1, 4, 6, 9	NC	NC



DEBUG and RS485 multiplex serial port

Pin	Pin Definition	Function
2	TXD	Debug data sending
3	RXD	Debug data receiving
5	GND	GND
7	DATA+	RS485 sends data
8	DATA-	RS485 receives data
1、4、6、9	NC	NC

2.1.3 USB Interface

Interface for USB: two USB Host interface, one USB device interface.

USB Device interface synchronizes with PC, and USB Host interface supports USB keyboard, mouse, U-disk and other devices.

USB Host interface

Pin	Signal Name	Function
1,5	VBUS	5V power
2	HDMA	USB host A port data D-
3	HDP A	USB host A port data D+
4	GND	ground
6	HDMB	USB host B port data D-
7	HDPB	USB host B port data D+

USB Device interface

Pin	Signal Name	Function
1	VBUS	signal detection
2	DDM	USB device port data D-
3	DDP	USB device port data D+
4	GND	ground

2.1.4 Power Interface

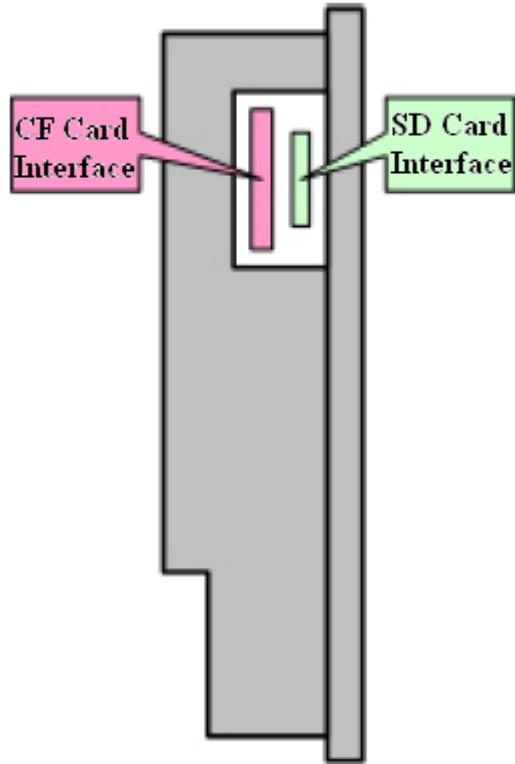


Power Interface

Pin	Pin Definition
1	12V~36V
2	GND
3	EGND
4, 5, 6	NC

2.1.5 CF Card and SD Card Interface

MIH1021 has one CF Card Interface, supports 256MB~8GB (TRUE IDE mode), and an SD card interface, capacity up to 2GB.



Chapter 3 Software Resource

HMI1021 Tablet PC provides all function components driver, the specification of the software resource are as follows:

3.1 WINCE

- **Kernel Version**

- WindowsCE.net 5.0

- **Driver Features**

- 10M/100M Ethernet Card DM9000A Driver
- NAND FLASH Driver(Identified as a disk on WinCE5.0 operating system)
- CF card Driver
- SD card Driver
- RTC Driver
- RS232/RS485 Driver
- USB HOST Driver supports USB mouse, keyboard, USB flash device etc.
- USB Device Driver
- USB wireless network card driver, support 802.11b/g protocol
- TFT Liquid Crystal Screen Driver
- Touch Screen Driver
- Backlight Control Driver
- Buzzer Driver

- **Component Features**

- Support ActiveSync, Microsoft Excel Viewer, Microsoft Word View, Word Pad application
- Support .NET Compact Framework 2.0, COM, DCOM, MFC, SQL Server CE 3.0, MSXML 3.0
- Support RAS/PPP, TAPI 2.0, TCP/IP, Ping, IE6, FTP Server, Telnet Server, Web Server and other network protocols
- Support BMP, GIF, JPG, PNG and other image codecs
- Support Registry Save Function

- **Other Features**

- User can set 2~30min into the IDLE status to reduce power consumption, and the backlight automatic closing (click touch screen or mouse can wake-up)
- Support transition screen display

Chapter 4 Dimensions

Mechanical Character

