

# HMI0601

## User's Manual



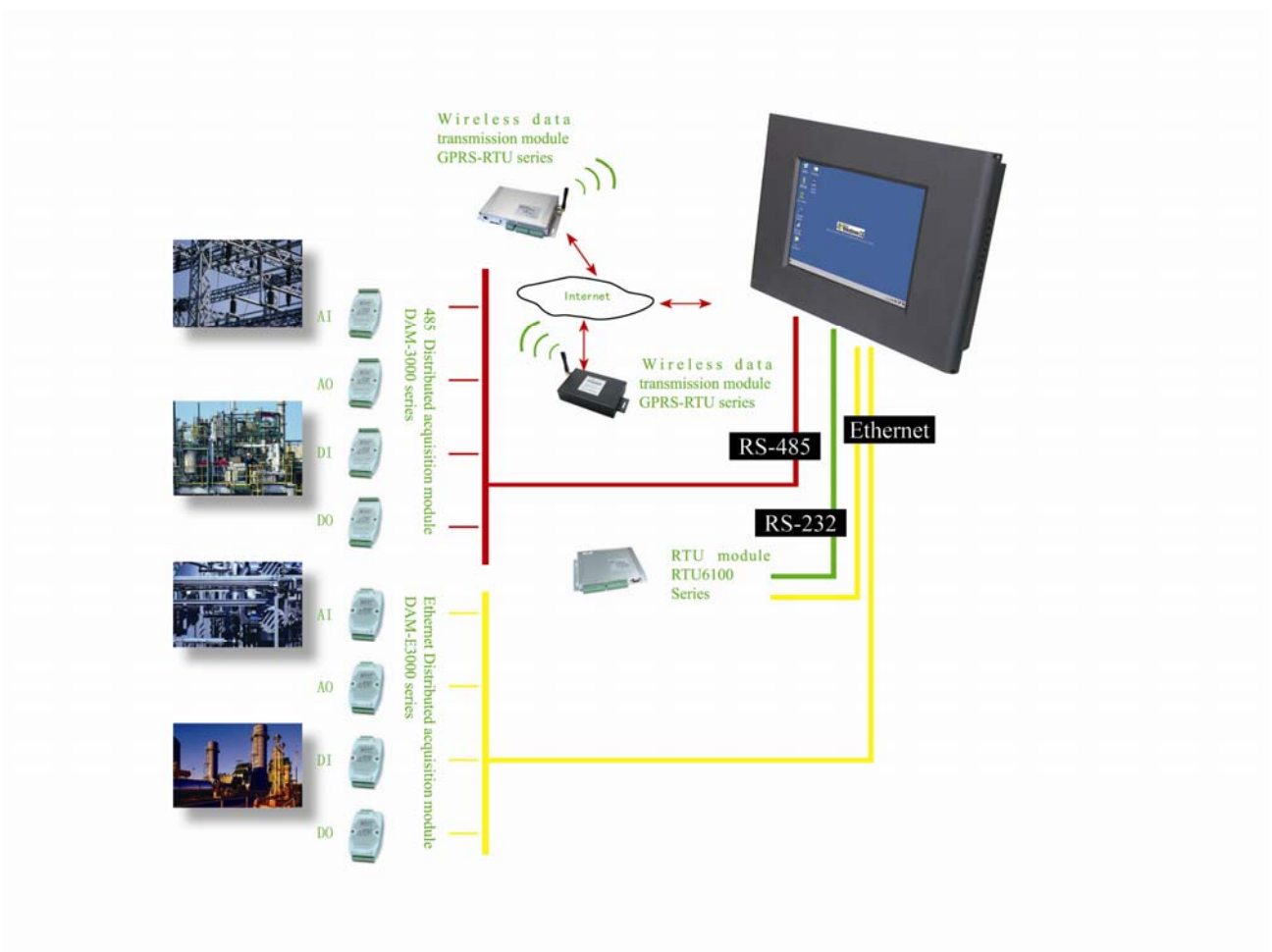
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# Chapter 1 Overview

HMI0601 embedded motherboard which has a large number of functions is an ARM9 embedded system platform. It uses Atmel Corporation AT91SAM920T microprocessor, expands an adequate number of storage resources and typical embedded system interfaces, and provides complete WinCE and Linux system solutions. HMI0601 has strong anti-interference ability, high integration, easy installation; low power consumption, electromagnetic compatibility, and can work in harsh environments



## Hardware Features

- CPU: Atmel AT91SAM9261  
Master Frequency: 200MHz
- System RAM:  
SDRAM: 64MB, 32-bit data bus  
NandFlash: 256MB, power-down nonvolatile, 220MB user space (can be upgraded to 1GB)
- Display System  
Type: 6.4 inch TFT LCD screen  
Resolution: 640 \* 480

Dot pitch: 0.0675 (H) mm \* 0.1905 (V) mm  
Pixel Pitch: 0.2025 (H) mm \* 0.203 (V) mm  
Backlight: CCFL, 2tubes  
Light Transmission Rate: 80%  
Brightness: 400cd/m<sup>2</sup>  
Clock: 256K  
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, 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 USB2.0, baud rate up to 12Mbps  
USB Device: one USB2.0, baud rate up to 12Mbps  
Ethernet: one, 10M/100Mbps self-adaptive

✚ Operation Temperature: -10°C ~ +60°C

✚ Storage Temperature: -20°C ~ +75°C

✚ Humidity: 90% (max)

✚ Power: 7.2W

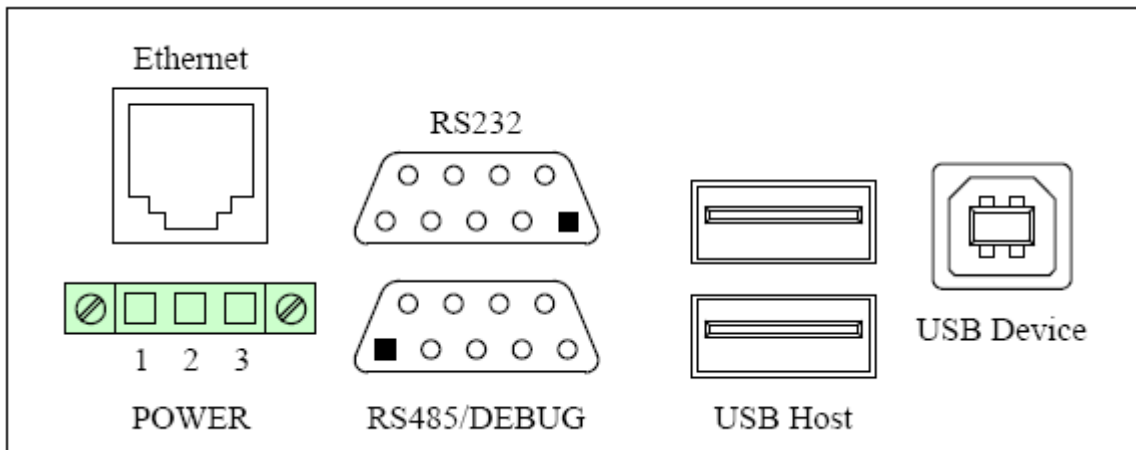
✚ Power Supply: 12~36VDC

✚ Size: 232mm\*174mm\*45mm

## Chapter 2 Product Features

### 2.1 General Purpose Interface

HMI0601 interface distribution shown as below



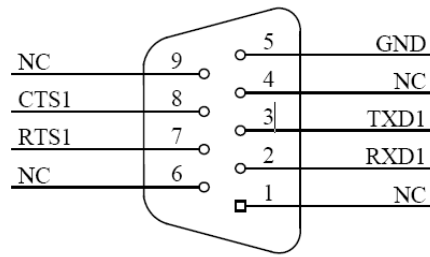
#### 2.1.1 Ethernet

HMI0601 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

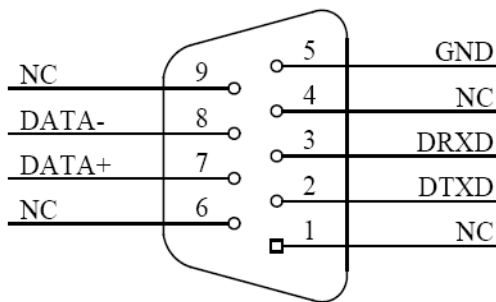
AT91SAM9261 itself with a debug serial port, three standard serial port, HMI0601 board leads to an RS-232 standard communication interface, an RS-485 serial interface and a DEBUG port, DEBUG and RS485 serial port are multiplexed serial.



RS232

RS232 serial port

Pin	Pin Definition	Function
2	RXD1	Receive Data
3	TXD1	Send Data
5	GND	GND
7	RTS1	Send Request
8	CTS1	Send Clear
1、4、6、9	NC	NC



RS485/DEBUG

DEBUG and RS485 multiplex serial port

Pin	Pin Definition	Function
2	DTXD	Debug data sending
3	DRXD	Debug data receiving
5	GND	GND
7	DATA+	RS485 sends data
8	DATA-	RS485receives 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.

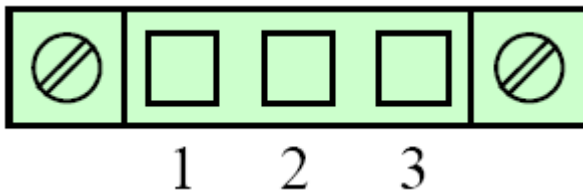
### USB Host interface

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

## ***Chapter 3 Software Resource***

HMI0601 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)
- 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
- LED 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 1~30min 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



## 3.2 Linux

- Kernel Version

- Linux2.6.27

- Support File Systems

- Yaffs (file system can be read/wrote, recommend)
- Cramfs (only read file system, recommend when does not update data online)
- NFS (network file system)
- Ext2
- Ramdisk
- FAT16/32

- Driver Features

- 10M/100M Ethernet Card DM9000A Driver
- NAND FLASH Driver
- RTC Driver
- RS232/RS485 Driver
- USB HOST Driver supports USB mouse, keyboard, USB flash device etc.
- USB wireless network card driver (optional)
- TFT Liquid Crystal Screen Driver
- Touch Screen Driver
- Backlight Control Driver
- Buzzer Driver
- LED Driver

- Linux Applications and Service Programs

- Busybox
- Telnet, Ftp, TFTP
- ifconfig, ping, route

- Embedded Graphics System

- Qt/Embedded, MiniGUI

# Chapter 4 Dimensions

## Mechanical Character

