



# RS-232/422/485 PC/104 Module

#### ● Introduction

Thanks for purchasing PC/104 compatible RS-232 or RS-422/485 serial interface module that combines small size, industrial grade construction and reliability specifications, plus perform the functions most commonly need in embedded application.

Because PC/104 modules use as smart stacking bus design, they avoid the costs and bulk associated with backplanes or card cage. Its work with PC/104 CPU boards that accept the PC/104 expansion interface, and comes with DB9 or DB25 connection cables are available as options to meet users' varied connection requirements.

This Multi-port PC/104 serial module equips with 2 or 4 ports high speed RS-232 or RS-422/485 standard serial ports which accessed through DB-9 or DB-25 male connectors. You can configure the I/O base address and interrupt vector of each serial port. Each serial port has built-in 64 byte hardware FIFO, and provides data transfer speed up to 921Kb/Sec with industry standard 16C750 asynchronous communication chip.

#### ● Features

- 2 / 4 independent RS-232 or RS-422/485 serial ports
- Single chip SUN1699 (16C750 compatible) hardware flow control
- Each serial port has built-in 64 byte hardware FIFO
- Low repair rate with ASIC design
- Data transmission speeds up to 921.6Kbps
- IRQ and I/O address selectable for each serial port by jumper
- Ideal for PC/104 embedded systems
- Auto Detect and Switch RS-422 and RS-485 without jumper settings
- RS-485 Auto RTS Signal Control (ARSC™) technology
- RTS/CTS± Handshaking Communication mode for RS-422/485
- Built-in termination resistors to avoid cross-talking
- Support DOS, Linux, Microsoft WinCE.NET, 3.x, 9x, Me, NT, 2000, XP, and 2003

#### ● Package List

Please check if the following items are present and in good condition upon opening your package. Contact your vendor if any item is damaged or missing.

- Multi-port PC/104 Serial Board
- Serial Cable
  - 2 ports PC/104 series: 2x5 IDC socket to DB9 or DB25 Male × 2
  - 4 ports PC/104 series: 2x5 IDC socket to DB9 or DB25 Male × 4
- CD Driver
- Quick Installation Guide (this document)
- User Manual

#### ● RS-232 Specification

##### ■ Function

Model	PC/104 RS-232 Module
Mode of Operation	HandShaking
BUS Transceivers	RS-232 Full-Duplex
Drivers per Line	RS-232 1 Driver
Receivers per Line	RS-232 1 Receiver

##### ■ Hardware

IC	SUN1699
Controller	16C750 Compatible UART
Bus Interface	PC/104
Number of Ports	2 or 4 DB9 or DB25 Male ports
Connector	Box Header
Dimension (WxD)	95.9 x 90.2 (mm)

##### ■ Communication

Interrupt	IRQ 3, 4, 5, 7, 9, 10, 11, 12, 15
IO Address	3F8, 3E8, 2F8, 2E8, 260, 268, 250, 258, 240, 248, 230, 238
FIFO	64byte hardware FIFO
Baud Rate	75 ~ 921,600bps
Data bit	5, 6, 7, 8
Stop bit	1, 1.5, 2
Parity	Even, Odd, None, Mark, Space
Flow Control	None, Xon/Xoff, HardWare
RS-232 Signal	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND

##### ■ Driver Support

Microsoft Windows	Windows CE.NET / 3.1 / 95 / 98 / Me / 2000 / XP / 2003
Linux, DOS	Linux 2.2.x, 2.4.x

##### ■ Regulatory Approvals

Hardware	CE, FCC
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##### ■ Operation Environment

Operation Temperature	0°C ~ 60°C
Operation Humidity	5 ~ 95 % RH
Storage Temperature	-20°C ~ 85°C

#### ● RS-422/485 Specification

##### ■ Function

Model	PC/104 RS-422/485 Module
Mode of Operation	Differential
BUS Transceivers	RS-422 Full-Duplex / RS-485 Half-Duplex
Drivers per Line	RS-232 1 Driver / RS-485 10 Drivers
Receivers per Line	RS-422 10 Receivers / RS-485 32 Receivers

##### ■ Hardware

IC	SUN1699
Controller	16C750 Compatible UART
Bus Interface	PC/104
Number of Ports	2 or 4 DB9 or DB25 Male ports
Connector	Box Header
Dimension (WxD)	95.9 x 90.2 (mm)

##### ■ Communication

Interrupt	IRQ 3, 4, 5, 7, 9, 10, 11, 12, 15
IO Address	3F8, 3E8, 2F8, 2E8, 260, 268, 250, 258, 240, 248, 230, 238
FIFO	64 byte hardware FIFO
RS-485 Signal	ARSC™ Techonlogy for RS-485
RS-422/485 Select	Auto Detect & Switch RS-422 and RS-485
Baud Rate	75 ~ 115,200bps
Data bit	5, 6, 7, 8
Stop bit	1, 1.5, 2
Parity	Even, Odd, None, Mark, Space
Flow Control	None, Xon/Xoff, HardWare
RS-422 Signal	TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND
RS-485 Signal	Data+/-, RTS+/-, CTS+/-, GND

##### ■ Driver Support

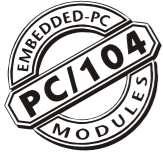
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##### ■ Operation Environment

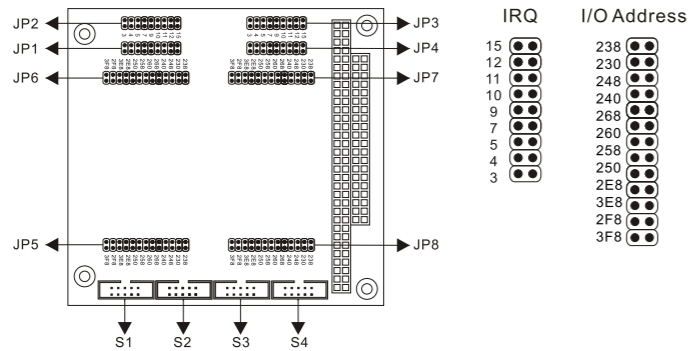
Operation Temperature	0°C ~ 60°C
Operation Humidity	5 ~ 95 % RH
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# RS-232/422/485 PC/104 Module

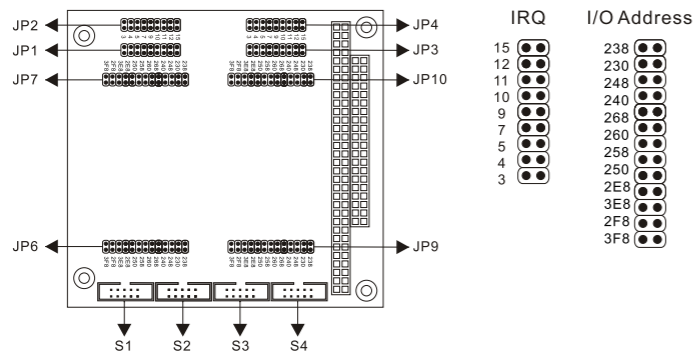
### Mechanical Drawing & Jumper Settings

#### RS-232



Connectors		Jumpers	
Label	Function	Label	Function
S1	RS-232 Port 1	JP1	Port 1 IRQ Select
S2	RS-232 Port 2	JP2	Port 2 IRQ Select
S3	RS-232 Port 3	JP3	Port 3 IRQ Select
S4	RS-232 Port 4	JP4	Port 4 IRQ Select
		JP5	Port 1 I/O Address Select
		JP6	Port 2 I/O Address Select
		JP7	Port 3 I/O Address Select
		JP8	Port 4 I/O Address Select

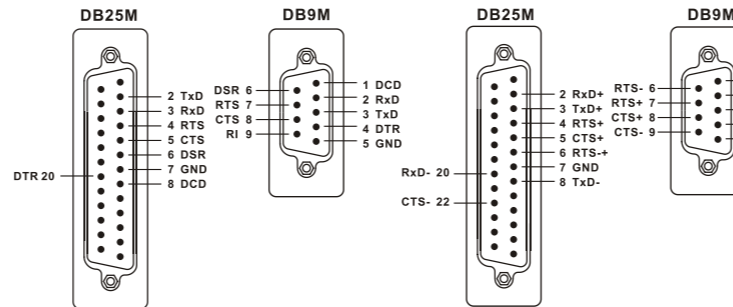
#### RS-422/485



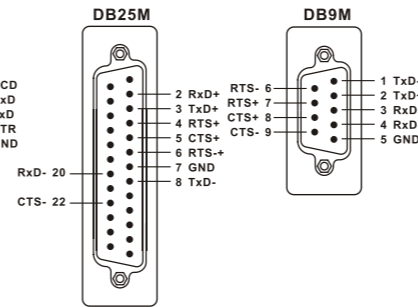
Connectors		Jumpers	
Label	Function	Label	Function
S1	RS-232 Port 1	JP1	Port 1 IRQ Select
S2	RS-232 Port 2	JP2	Port 2 IRQ Select
S3	RS-232 Port 3	JP3	Port 3 IRQ Select
S4	RS-232 Port 4	JP4	Port 4 IRQ Select
		JP6	Port 1 I/O Address Select
		JP7	Port 2 I/O Address Select
		JP9	Port 3 I/O Address Select
		JP10	Port 4 I/O Address Select

### Pin Assignment

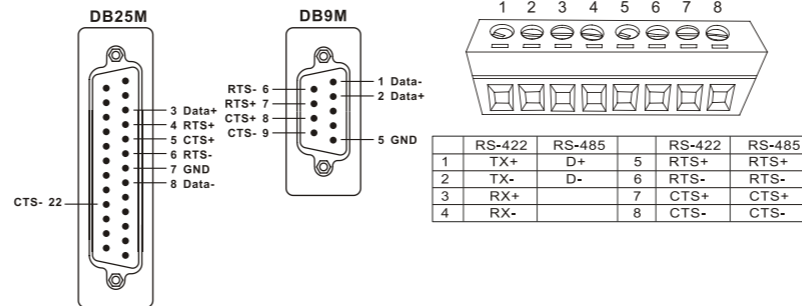
#### RS-232



#### RS-422



#### RS-485



### Driver Installation

In order to ensure proper operation of your PC/104 serial board, the driver will be in the CD bound with your product. You can specify the location (folder) as below:

Operation System	Driver Location
Windows 2000 / XP / 2003	:\\IO\\ISA IO\\Win2000, XP, 2003\\
Windows 95 / 98 / Me	:\\IO\\ISA IO\\Win9x\\
Windows NT4.0	:\\IO\\ISA IO\\WinNT\\
Windows CE.NET	:\\IO\\ISA IO\\WinCE\\
Linux 2.2.x	:\\IO\\ISA IO\\Linux\\
User Manual	:\\IO\\ISA IO\\Manual\\PC104.pdf

※ You can find the detail of the installation steps in the user manual.

### Hardware Verity

Please launch the "Device Manager" to verify hardware installation correctly.

Start > Controller Panel > System > Device Manager



The number of COM ports will depend on what products you bought

### Port Setting

After installing PC/104 serial board successfully, you can modify the setting for each serial port in device manager.

1. Right click your mouse on the COM port, and select "Properties".



2. Select "Port Setting" page to modify COM port setting.

3. Select "Advanced" icon, you can modify COM port number and FIFO.

