



# MICRONIX PC/104 SERIAL INTERFACE

---

PV-SERIES 4-PORT  
RS232/RS422/RS485  
MODULES

User Manual  
&  
Installation Guide

VERS. 1.04

Doc: M4801DM.DOC

---

Micro Technic A-S • Denmark •  
Tel. +45 6615 3000 • Fax +45 6615 3077  
E-mail: [support@micro-technic.com](mailto:support@micro-technic.com)  
Website: [www.micro-technic.com](http://www.micro-technic.com)

## DESCRIPTION

Micronix PV-interfaces let you customise your system and optimise a combination of RS232, RS422 or RS485 data transmission. All signals are surge protected for industrial applications. The PV-modules plug into any standard PC/104 bus interface.

With the advanced 16C550 UART or highspeed 16C650 UART (-H versions) with 16-byte FIFO, your industrial PC can communicate with other computers or peripherals at high speeds.

Compatible to standard serial interfaces supported by DOS and Windows operating systems. Four ribbon cables with DB-9 connectors are optional.

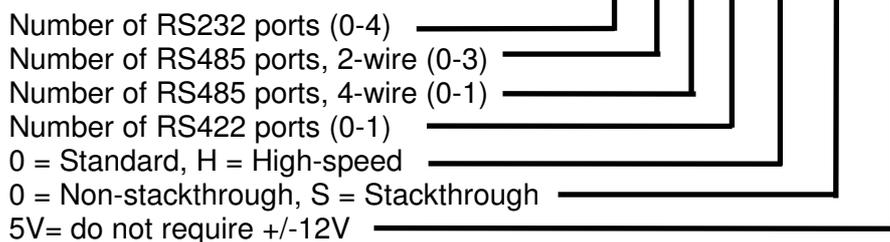
Non-stackthrough or stackthrough (S-versions) connectors are available.

## FEATURES AND SPECIFICATIONS

- ◆ Four channels of asynchronous serial communication
- ◆ Baud rate up to 115 Kbps or 460 Kbps (-H versions)
- ◆ 16C550 or 16C650 advanced UART with 16-byte FIFO
- ◆ Supports RS232 interface: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
- ◆ Complete RS-232 Modem control signals, except RI
- ◆ RTS used for data direction control
- ◆ Interrupt selectable (IRQ 3,4,5,7,9,10,11,12 or 15)
- ◆ Individually or shared interrupt
- ◆ I/O-address selectable from 248H to 3F8H
- ◆ Surge protection to  $\pm 8$  kV according to IEC1000-4-2
- ◆ Supported by DOS and Windows
- ◆ Power requirements: +5VDC, 50mA typ, +/- 12VDC, 50mA(except 5V-versions)
- ◆ Operating temp.: 0 - 60° C
- ◆ Storage temp.: -20 - 60° C
- ◆ Relative humidity: 0 - 90%, non-condensing
- ◆ Dimensions: 95 x 90 x 18 mm
- ◆ PC/104 Stackthrough connectors (S-versions)
- ◆ 5V-version for 5V-only systems
- ◆ Optional cables 10-pin header to DB-9, 20 cm

### MODEL SELECTION

PV - X X X X - H - S - 5V



### AVAILABLE MODELS

Model no.	Description/Type
PV-0301 /-H/-S	3xRS485 (2-wire) + 1xRS422
PV-0310 /-H /-S	3xRS485 (2-wire) + 1xRS485 (4-wire)
PV-1201 /-H /-S	1xRS232 + 2xRS485 (2-wire) + 1xRS422
PV-1210 /-H /-S	1xRS232 + 2xRS485 (2-wire) + 1xRS485 (4-wire)
PV-2002 /-H /-S	2xRS232 + 2xRS422
PV-2011 /-H /-S	2xRS232 + 1xRS485 (4-wire) + 1xRS422
PV-2101 /-H /-S	2xRS232 + 1xRS485 (2-wire) + 1xRS422
PV-2110 /-H /-S	2xRS232 + 1xRS485 (2-wire) + 1xRS485 (4-wire)
PV-3001 /-H /-S	3xRS232 + 1xRS422
PV-3010 /-H /-S	3xRS232 + 1xRS485 (4-wire)
PV-4000 /-H /-S	4xRS232

Model	Port			
	A	B	C	D
0301	⊗	⊗	⊗	#
0310	⊗	⊗	⊗	□
1201	•	⊗	⊗	#
1210	•	⊗	⊗	□
2002	•	•	#	#
2011	•	•	#	□
2101	•	•	⊗	□
2110	•	•	⊗	□
3001	•	•	•	#
3010	•	•	•	□
4000	•	•	•	•

•: RS232      ⊗: RS485, 2-wire  
 #: RS422      □: RS485, 4-wire

## **INSTALLATION GUIDE**

Please refer to the schematic outline on page 5.

### **PRECAUTIONS TO ESD**

Please note, that the Micronix PV modules must be handled with respect to ESD (Electrostatic Discharge). Electrostatic Discharge to the PV modules must be avoided. Before removing the module from the protection bag, the user must be discharged using a grounded wrist ribbon.

### **SETTING THE I/O ADDRESS**

The I/O address for channel A through D is set by the corresponding rotary-switch. The individual positions are printed on the PCB.

#### **EXAMPLE**

Setting channel A to I/O address 2F8, turn rotary-switch labelled "A" to position "7".

### **SETTING THE INTERRUPT NUMBER (INDIVIDUALLY)**

The IRQ number for channel A through D, is set by the corresponding pin column array. The individual positions are printed on the PCB.

#### **EXAMPLE**

See IRQ select page 6.

### **SETTING THE INTERRUPT NUMBER (SHARED)**

If shared interrupt is used, the IRQ number for all four channels will be the same.

#### **EXAMPLE**

See shared IRQ settings page 7.

### **SETTING THE BAUD RATE**

The baud rate is set by the software application. Each port is compatible to a normal PC COM-port and should be accessed accordingly. Operating systems and standard software applications have utilities for that.

For more sophisticated programming and specific control of handshake signals, please refer to a 16C550 manual. This manual can be ordered from a National Semiconductor representative.

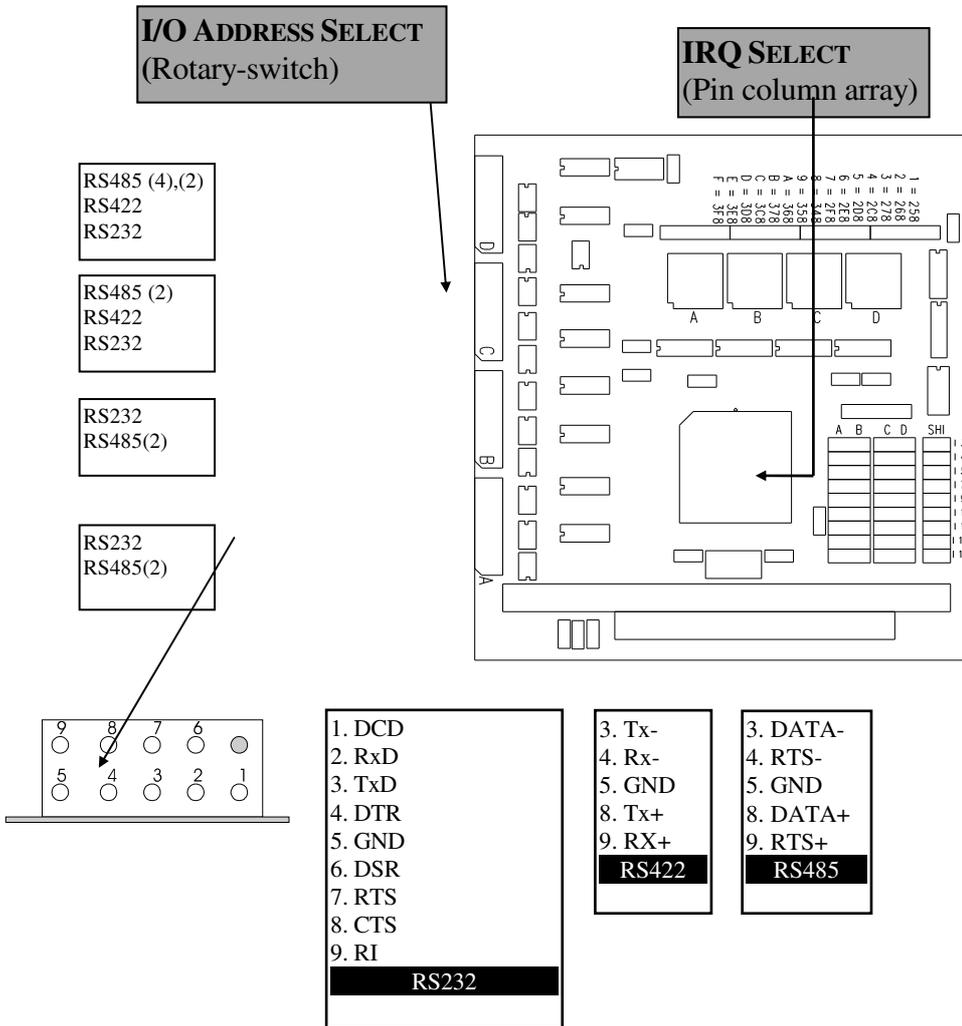
### **HIGH SPEED-VERSIONS: BAUD RATE NOTICE**

The actual baud rate will be 4 times the baud rate set by the software.

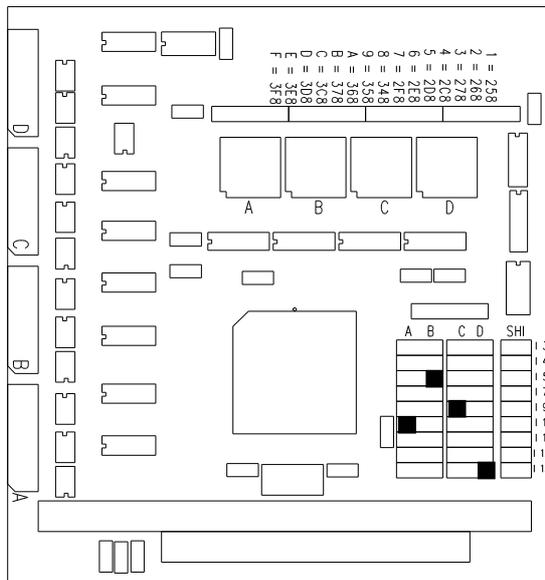
### **5V ONLY VERSIONS (5V):**

These versions do not require +/-12V from the PC/104 bus.

**SCHEMATIC OUTLINE**

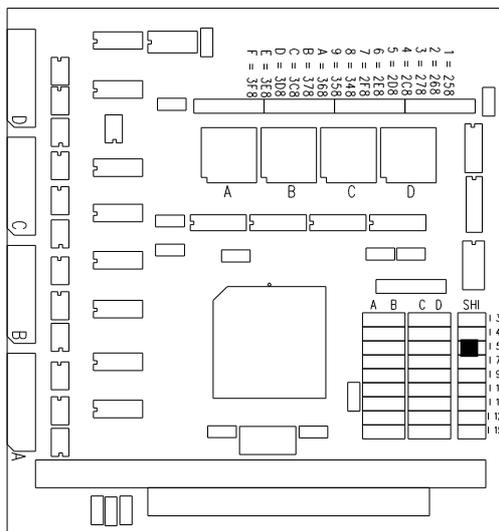


Individually IRQ settings :



- CH. A = IRQ10
- CH. B = IRQ5
- CH. C = IRQ9
- CH. D = IRQ15

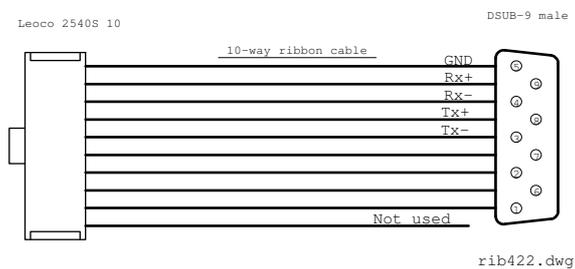
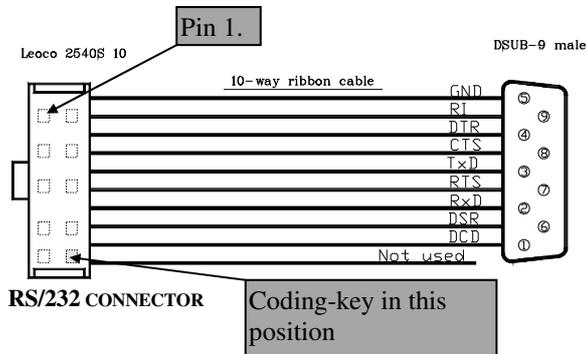
Shared IRQ settings :



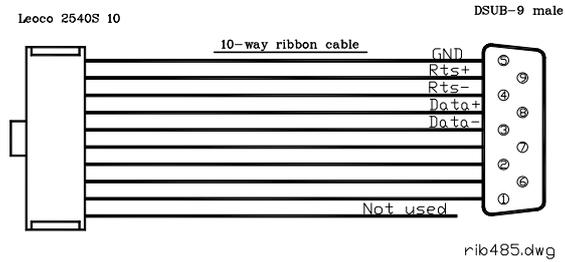
- CH. A = IRQ5
- CH. B = IRQ5
- CH. C = IRQ5
- CH. D = IRQ5

Important notice : It is NOT possible to combine individually and shared IRQ settings.

OPTIONAL CABLE, 20CM



RS/422 CONNECTOR



RS/485 CONNECTOR