



INDUSTRIAL COMPUTER SOURCE®

Model PC104IDEPLUS Product Manual

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INDUSTRIAL COMPUTER SOURCE®

9950 BARNES CANYON ROAD, SAN DIEGO, CA (619) 677-0877 (FAX) 619-677-0895

INDUSTRIAL COMPUTER SOURCE EUROPE TEL (1) 69.18.74.30 FAX (1) 64.46.40.42 • INDUSTRIAL COMPUTER SOURCE (UK) LTD TEL 01243-533900 FAX 01243-532949

FORWARD

This product manual provides information to install, operate and or program the referenced product(s) manufactured or distributed by Industrial Computer Source. The following pages contain information regarding the warranty and repair policies.

Technical assistance is available at: **1-800-480-0044**.

Manual Errors, Omissions and Bugs: A "Bug Sheet" is included as the last page of this manual. Please use the "Bug Sheet" if you experience any problems with the manual that requires correction.

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Guarantee

A thirty day money-back guarantee is provided on all **standard** products sold. **Special order products** are covered by our Limited Warranty, *however they may not be returned for refund or credit.*

Refunds

In order to receive a full refund on a product purchase price, the product must not have been damaged by the customer or by the common carrier chosen by the customer to return the goods, and the product must be returned complete (meaning all manuals, software, cables, etc.) within 30 days of receipt and in as-new and resalable condition. The **Return Procedure** must be followed to assure prompt refund.

Restocking Charges

Product returned *after* 30 days, and *before* 90 days, of the purchase will be subject to a **minimum** 20% restocking charge and any charges for damaged or missing parts.

Products not returned within 90 days of purchase, or products which are not in as-new and resaleable condition, are not eligible for credit return and will be returned to the customer.

Limited Warranty

One year limited warranty on all products sold with the exception of the "Performance Series" I/O products, which are warranted to the original purchaser, for as long as they own the product, subject to all other conditions below, including those regarding neglect, misuse and acts of God. Within one year of purchase, Industrial Computer Source will repair or replace, at our option, any defective product. At any time after one year, we will repair or replace, at our option, any defective "Performance Series" I/O product sold. This does not include products damaged in shipment, or damaged through customer neglect or misuse. Industrial Computer Source will service the warranty for all standard catalog products for the first year from the date of shipment. After the first year, for products not manufactured by Industrial Computer Source, the remainder of the manufacturer's warranty, if any, will be serviced by the manufacturer directly.

The **Return Procedure** must be followed to assure repair or replacement. Industrial Computer Source will normally return your replacement or repaired item via UPS Blue. *Overnight delivery or delivery via other carriers is available at additional charge.*

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Industrial Computer Source or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Industrial Computer Source or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the owners' manual.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Industrial Computer Source reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.



Shipments not in compliance with this Guarantee and Limited Warranty Return Policy will not be accepted by Industrial Computer Source.

Return Procedure

For any Limited Warranty or Guarantee return, please contact Industrial Computer Source's Customer Service at **1-800-480-0044** and obtain a Return Material Authorization (RMA) Number. All product(s) returned to Industrial Computer Source for service or credit **must** be accompanied by a Return Material Authorization (RMA) Number. Freight on all returned items **must** be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty **must** include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing date of purchase.

To reduce risk of damage, returns of product must be in an Industrial Computer Source shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Industrial Computer Source Customer Service at a nominal cost.

Limitation of Liability

In no event shall Industrial Computer Source be liable for any defect in hardware or software or loss or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Industrial Computer Source liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Industrial Computer Source or its authorized agent.

Some *Sales Items* and *Customized Systems* are **not** subject to the guarantee and limited warranty. However in these instances, any deviations will be disclosed prior to sales and noted in the original invoice. ***Industrial Computer Source reserves the right to refuse returns or credits on software or special order items.***

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September 1995

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Chapter 1: Introduction

The PC104IDEPLUS is a PC/104 super I/O module for PC/AT and 386/486 systems. It supports two serial ports, one parallel port, one IDE (AT Bus) hard disk controller and one floppy disk controller.

Specification

- SMC 37C664 Super I/O Controller
- I/O configuration setup by hardware jumpers
- One IDE (AT BUS) hard disk controller supports up to two HDDs
- One floppy controller supports up to two FDDs (360 KB, 720 KB, 1.2 MB and 1.44 MB)
- One bi-directional parallel port
- Two serial ports

COM1: RS-232

COM2: RS-232/RS-422/RS-485

(selected by jumper setting)

Initial inspection

We carefully inspected the PC104IDEPLUS both mechanically and electrically before we shipped it. It should be free of marks and scratches and in perfect electrical order on receipt.

Handle the board only by its edges. The static charge on your body may damage its integrated circuits. Keep the card in its anti-static package whenever it is not installed. You can use this package to return the card if it should need repair.

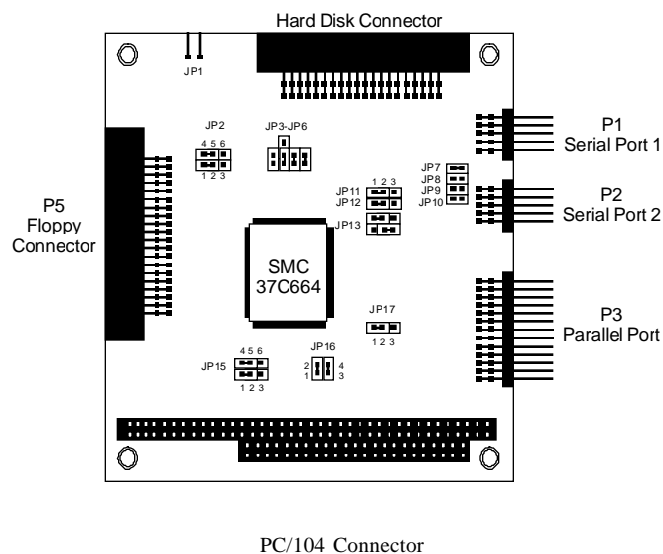


Figure 1: Connector and Jumper Locations

Chapter 2: Installation

Parallel port setup

The PC/104IDEPLUS has one bi-directional parallel port that can be setup for one of the following configurations:

- LPT1 (I/O address:3BCH)
- LPT2 (I/O address:378H)
- LPT3 (I/O address:278H)

To configure your parallel port use jumper 13 as shown in Figure 2.

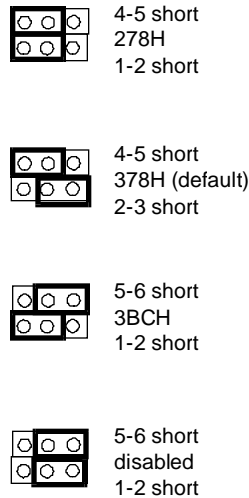


Figure 2: JP13 (parallel port address)

Activate bi-directional function

When you want to use the PC104IDEPLUS's bi-directional function you must set jumper 17 as shown in Figure 3.

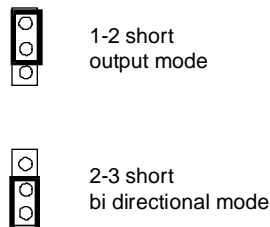


Figure 3: JP 17 (bi-direction enable/disable)

The PC104IDEPLUS supports a PS/2 compatible bit that controls the direction of the parallel port. Depending which LPT port you are using (1,2 or 3), the read/write control bit can be found at address 3BEH, 37AH or 27AH (configured base address + 02H). The actual control bit is bit number five.

BIT 5 = 1 read mode (signal in)
 BIT 5 = 0 write mode (signal out)

Serial port setup

The PC104IDEPLUS supports two serial ports:

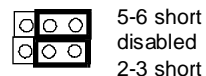
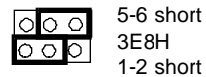
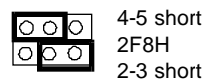
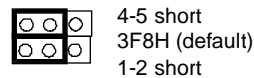
Serial port 1:

RS-232 mode only, port's I/O address can be set to either 3F8H, 2F8H, 3E8H or can be disabled (selected by jumpers).

Serial port 2:

Serial port 2 supports RS-232, RS-422 and RS-485 mode (selected by jumpers). The I/O port address can be set to 2F8H, 3F8H, 2E8H or can be disabled (selected by jumpers).

To configure the first serial port's address and interrupt refer to Figure 4 to set jumper 15 and jumper 16.



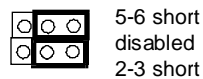
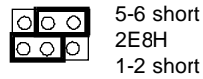
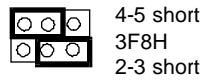
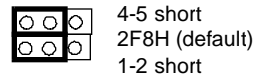
JP 15 (I/O address port 1)



JP 16 (IRQ port 1)

Figure 4: Serial Port 1 Jumper Settings

To configure the second serial port's address and interrupt set jumper 2 and jumper 16 as shown in Figure 5.



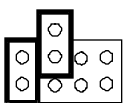
JP 2 (I/O address port 2)



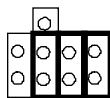
JP 16 (IRQ port 2)

Figure 5: Serial Port 2 Jumper Settings

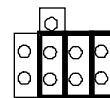
Communication mode (port 2 only)



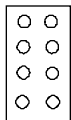
JP3 short
JP4 1-2 short
JP4 open
JP6 open



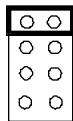
JP3 open
JP4 2-3 short
JP4 short
JP6 short



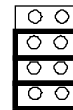
JP3 open
JP4 2-3 short
JP4 short
JP6 short



JP7 open
JP8 open
JP9 open
JP10 open



JP7 short
JP8 open
JP9 open
JP10 open



JP7 open
JP8 short
JP9 short
JP10 short

RS-232

RS-422

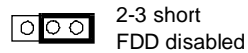
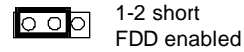
RS485

Figure 6: Serial Port 2 Communication Mode

FDD and HDD setup

Floppy disks

The on-board floppy drive controller supports up to two drives of the following capacities: 360 KB, 720 KB, 1.2 MB an/or 1.44 MB. If no floppy drives are installed and you wish to reduce power consumption, or if an external floppy drive controller will be used, disable the controller by setting JP11 as shown below:

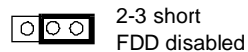
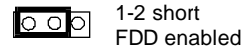


JP11 (FDD enable/disable)

Figure 7: Floppy Disk Jumper Setting

Hard disks

The PC104IDEPLUS's on-board hard disk controller supports up to two IDE (AT Bus) hard disk drives. If no hard drives will be installed and you wish to reduce power consumption, or an external hard drive controller will be used, disable the controller by setting JP12 as shown below:



JP12 (HDD enable/disable)

Figure 8: Hard Disk Jumper Setting

Appendix A: Connector Pin Assignments

IDE INTERFACE

NAME	PIN NO.		NAME
- RESET	1	2	GND
D7	3	4	D8
D6	5	6	D9
D5	7	8	D10
D4	9	10	D11
D3	11	12	D12
D2	13	14	D13
D1	15	16	D14
D0	17	18	D15
GND	19	20	NOT USED
NOT USED	21	22	GND
IOW	23	24	GND
IOR	25	26	GND
IORDY	27	28	ALE
NOT USED	29	30	GND
IRQ14	31	32	IOCS16
A1	33	34	NOT USED
A2	35	36	A2
CS0	37	38	CS1
ACTIVE	39	40	GND

FLOPPY INTERFACE

NAME	PIN NO.		NAME
GND	1	2	RM/LC
GND	3	4	NOT USED
GND	5	6	NOT USED
GND	7	8	INDEX
GND	9	10	MOTOR A
GND	11	12	DRV SEL B
GND	13	14	DRV SEL A
GND	15	16	MOTOR B
GND	17	18	DIRECTION
GND	19	20	STEP PULSE
GND	21	22	WRITE DATA
GND	23	24	WRITE ENABLE
GND	25	26	TRACK 0
GND	27	28	WRITE PROTECT
GND	29	30	READ DATA
GND	31	32	HEAD SELECT
GND	33	34	DISK CHANGE

SERIAL PORT INTERFACE

PIN NO.	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	DATA+
4	DTR	RX-	DATA-
5	GND	GND	GND
6	DSR	RTS-	
7	RTS	RTS+	
8	CTS	CTS+	
9	RI	CTS-	

Parallel Port Interface

NAME	PIN NO.	NAME
-STORE	1	-AUTOFEED
D0	2	-ERROR
D1	3	-INIT
D2	4	-SLCTIN
D3	5	GND
D4	6	GND
D5	7	GND
D6	8	GND
D7	9	GND
-ACK	10	GND
BUSY	11	GND
PE	12	GND
SLCT	13	

PC/104 BUS-SIGNAL ASSIGNMENT

PIN	J1/P1	J1/P1	J2/P2	J2/P2
NO.	ROWA	ROWB	ROWC	ROWD
0	-	-	0V	0V
1	-IOCHCHK	0V	-SBHE	-MEMCS16
2	SD7	RESTDRV	LA23	-IOCS16
3	SD6	+5V	LA22	IRQ10
4	SD5	IRQ9	LA21	IRQ11
5	SD4	-5V	LA20	IRQ12
6	SD#	DRQ2	LA19	IRQ15
7	SD2	-12V	LA18	IRQ14
8	SD1	-ENDXFR	LA17	-DACK0
9	SD0	+12V	-MEMR	DRQ0
10	IOCHRDY	(KEY)	-MEMW	-DACK5
11	AEN	-SMEMW	SD8	DRQ5
12	SA19	-SMEMR	SD9	-DACK6
13	SA18	-IOW	SD10	DRQ6
14	SA17	-IOR	SD11	-DACK7
15	SA16	-DACK3	SD12	DRQ7
16	SA15	DRQ3	SD13	+5V
17	SA14	-DACK1	SD14	-MASTER
	SA13	DRQ1	SD15	0V
19	SA12	-REFRESH	(KEY)	0V
20	SA11	SYSCLK	-	-
21	SA10	IRQ7	-	-
22	SA9	IRQ6	-	-
23	SA8	IRQ5	-	-
24	SA7	IRQ4	-	-
25	SA6	IRQ3	-	-
26	SA5	-DACK2	-	-
27	SA4	TC	-	-
28	SA3	BALE	-	-
29	SA2	+5V	-	-
30	SA1	OSC	-	-
31	SA0	0V	-	-
32	0V	0V	-	-

BUG REPORT

While we have tried to assure this manual is error free, it is a fact of life that works of man have errors. We request you to detail any errors you find on this BUG REPORT and return it to us. We will correct the errors/problems and send you a new manual as soon as available. Please return to:



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