INDUSTRIAL COMPUTER SOURCE®

Model WINCOMM4
Product Manual

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INDUSTRIAL COMPUTER SOURCE®

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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*. *EPROMs, RAM, Flash EPROMs or other forms of solid electronic media are not returnable for credit - but for replacement only. Extended Warranty available. Consult factory.*

Refunds

In order to receive 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 re-saleable 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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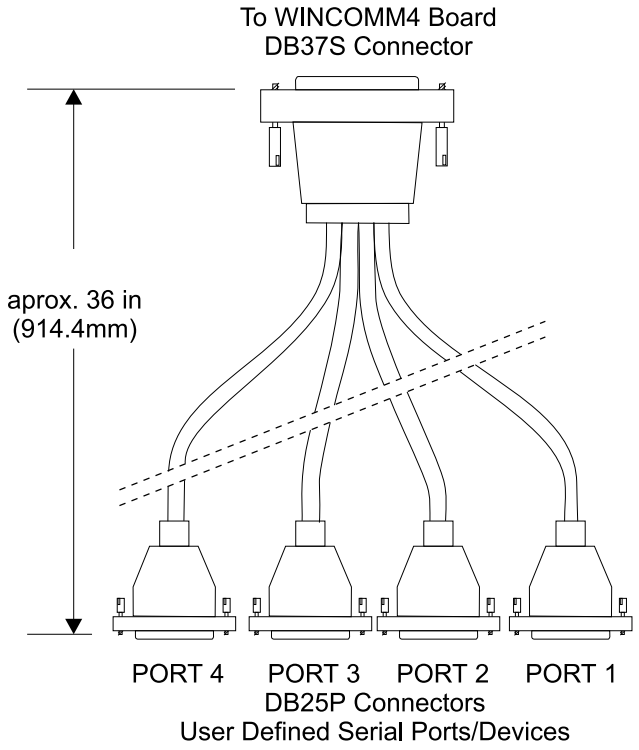
Chapter 1: Installation

The WINCOMM4 board can be installed in any of the PC expansion slots, except J8 on the original IBM XT and portable. Be sure to set the address and jumper options before installation. Remove the PC case, remove the blank metal slot cover, and insert the board. Replace the screw, replace the cover, install the “spider cable” to the DB-37 connector mounted on the board (see **Figure 1-1**) and you are done.

DB37S PINOUT	DB25P PLUG/PIN	ATTRIBUTE
1	P4-8	DCD
2	P4-3	RD
3	P4-2	TD
4	P4-20	DTR
5	P4-7	GND
6	P3-22	RI
7	P3-5	CTS
8	P3-4	RTS
9	P3-6	DSR
10	P2-8	DCD
11	P2-3	RD
12	P2-2	TD
13	P2-20	DTR
14	P2-7	GND
15	P1-22	RI
16	P1-5	CTS
17	P1-4	RTS
18	P1-6	DSR
19	NO CONNECTION	
20	P4-6	DSR
21	P4-4	RTS
22	P4-5	CTS
23	P4-22	RI
24	P3-7	GND
25	P3-20	DTR
26	P3-2	TD
27	P3-3	DCD
29	P2-6	DSR
30	P2-4	RTS
31	P2-5	CTS
32	P2-22	RI
33	P1-7	GND
34	P1-20	DTR
35	P1-2	TD
36	P1-3	RD
37	P1-8	DCD



DB-25 PORT 1 - PORT 4 PINOUTS

SIGNAL	NAME	PINOUT	MODE
TS	TRANSMIT DATA	2	OUTPUT RS-232
RTS	REQ. TO SEND	4	OUTPUT RS-232
RD	RECEIVE DATA	3	INPUT RS-232
CTS	CLEAR TO SEND	5	INPUT RS-232
GND	GROUND	7	
DCD	DATA CARRIER DETECT	8	INPUT RS-232
DSR	DATA SET READY	6	INPUT RS-232
DTR	DATA TERMINAL READY	20	OUTPUT RS-232
RI	RING INDICATOR	22	INPUT RS-232

Figure 1-1: Board to Port Pinouts

Chapter 2: Address Selection

Each serial port on the WINCOMM4 board occupies 8 consecutive I/O locations. A dip switch is used to set the base address for these locations. Be careful when selecting the base address as some selections conflict with existing PC ports. The following table shows several examples that usually do not cause a conflict.

SW 4 sets the I/O address for port 1, SW 3 sets the address for port 2, SW 2 sets the I/O address for port 3, SW 1 sets the address for port 4, as labeled on the cable.

Address	Binary	Switch Position Settings						
	A9 A0	1	2	3	4	5	6	7
280-287	10 1000 0XXX	OFF	ON	OFF	ON	ON	ON	ON
2A0-2A7	10 1010 0XXX	OFF	ON	OFF	ON	OFF	ON	ON
2F8-2FF COM2:	10 1111 1XXX	OFF	ON	OFF	OFF	OFF	OFF	OFF
3F8-3FF COM1:	11 1111 1XXX	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2E8-2EF COM4:	10 1110 1XXX	OFF	ON	OFF	OFF	OFF	ON	OFF
3E8-3EF COM3:	11 1110 1XXX	OFF	OFF	OFF	OFF	OFF	ON	OFF
320-327	11 0010 0XXX	OFF	OFF	ON	ON	OFF	ON	ON
328-32F	11 0010 1XXX	OFF	OFF	ON	ON	OFF	ON	OFF

If you don't see an address in the table that is compatible with your software, you can determine the switch setting for a particular address by using the table below. The following table shows the correlation between the dip switch setting and the address bits used to determine the base address. In the example below, the address 300 HEX through 307 HEX is selected. 300 HEX = 11 0000 0XXX in binary representation.

Switch Position	Address Line	Example: 300 Hex	Switch
1	A9	1	OFF
2	A8	1	OFF
3	A7	0	ON
4	A6	0	ON
5	A5	0	ON
6	A4	0	ON
7	A3	0	ON

Note - that setting the switch ON or CLOSED corresponds to a “0” in the address, while leaving it OPEN or OFF corresponds to a “1”.

Chapter 3: Option Selection

The board contains several jumper straps for each port which must be set for proper operation.

Port Enable/Disable

Each port on the WINCOMM4 can be enabled or disabled with switch position 8 on the dip switch. The port is enabled with the switch “ON” and disabled when “OFF” or “OPEN”. If any port is disabled, be sure to also disable the interrupt request for that port by removing the IRQ jumper (see below).

E1-E4: Selects the interrupt for each serial port. If COM1: is selected, this jumper must be on the IRQ4 setting. If COM2: is selected, this jumper must be on IRQ3.

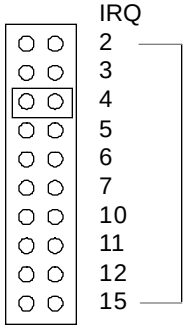
NOTE:

Most communications software applications default COM3: to IRQ4 and COM4: to IRQ3. This requires the sharing of interrupts between COM1: and COM3:, and between COM2: and COM4:. While this is the default, it is not always the preferred setting. Check your application’s configuration instructions to ascertain the most appropriate IRQ selection.

Any two or more ports can share a common IRQ by placing the jumpers on the same IRQ setting and setting the appropriate selection at E5. Consult your particular software for IRQ selection. If no interrupt is desired, remove the jumper.

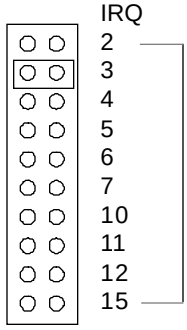
Note - that IRQ 2 on AT class machines is not available for users. IRQ 9 is substituted in place of IRQ 2. To select IRQ 9 place jumper on the IRQ 2 position.

E4:



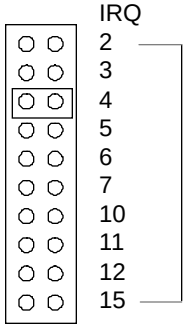
Port 1 Selection

E3:



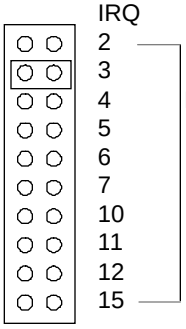
Port 2 Selection

E2:



Factory Port 3 Selection

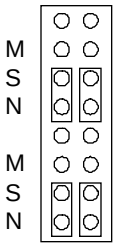
E1:



Factory Port 4 Selection

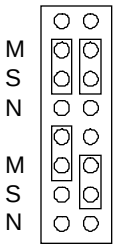
E5: "N" indicates the (N)ormal, single interrupt per port mode. The "S" indicates the (S)hared interrupt mode, which allows more than one port to access a single IRQ. The (M) indicates the inclusion of a 1K OHM pull-down resistor required on one port when sharing interrupts.

E5:



Set the jumpers to "N" for single interrupt mode. This setting is the normal setting for most applications.

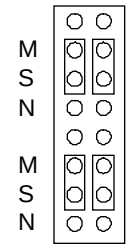
E5:



Set the jumpers to "S" for shared interrupt mode on all blocks sharing an IRQ except one. Set that port block for "M". This provides the pull-down resistor circuit that makes sharing of IRQ's possible. If you are using morethan one WINCOMM4 or a compatible card in a BUS, you

should only have one port set to "M". This example shows all four ports sharing a single IRQ.

E5:



Set the jumpers to "S" if you are using more than one WINCOMM4 in a BUS or you wish to completely remove the pull-down resistor for hardware compatibility. Setting the board in this configuration when it is not accompanied by a pull-down or pull-up resistor will prevent the ports from triggering an interrupt. The factory default for this is COM1 & 3, sharing IRQ4 and COM2 & 4, sharing IRQ3.

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Chapter 4: Technical Description

WINCOMM4 Four Port RS-232 Serial Interface

The WINCOMM4 provides 4 additional serial ports for terminals, modems, printers, etc. The WINCOMM4 can be configured as COM1: through COM4:, or any other I/O address (up to 3FF HEX), providing a low cost means of expanding the number of serial ports on your PC.

Features:

- Provides a COM1: turnkey solution
- Four RS-232 ports with full modem control signals
- Individually selectable address and interrupts (IRQS 2-7 and 10, 11, 12, or 15 on the AT connector)
- Multiple cards or ports can share the same IRQ
- 4 DB-25 male connectors provided using the systems “spider cable”

The WINCOMM4 board utilizes the same 16550 UART chip found in the IBM asynchronous adaptor. This chip features programmable baud rate, data format and interrupt control. Refer to the IBM technical reference for details on programming the chip.

Each serial port can be set as COM1:- COM4:, providing total compatibility with most communications software and languages, or any other I/O address up to 3FF HEX. Some software packages require the use of the modem handshake signals such as CTS or DCD. Consult the particular manual for your software to determine these requirements. If none are mentioned, or if you are not sure, a safe configuration is to tie DTR to DSR and DCD (6-8-20), and tie RTS to CTS (4-5). This usually satisfies the modem signal requirements for most communications software.

How to remain CE Compliant

In order for machines to remain CE compliant, only CE compliant parts may be used. To keep a chassis compliant it must contain only compliant cards, and for cards to remain compliant they must be used in compliant chassis. Any modifications made to the equipment may affect the CE compliance standards and should not be done unless approved in writing by Industrial Computer Source.

The Model WINCOMM4 is designed to be CE Compliant when used in an CE compliant chassis. Maintaining CE Compliance also requires proper cabling and termination techniques. The user is advised to follow proper cabling techniques from sensor to interface to ensure a complete CE Compliant system. Industrial Computer Source does not offer engineering services for designing cabling or termination systems. Although Industrial Computer Source offers accessory cables and termination panels, it is the user's responsibility to ensure they are installed with proper shielding to maintain CE Compliance.

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Chapter 5: Specifications

Environmental Specifications

Specification	Operating	Storage
Temperature Range	0 - 50 Degrees C 32 - 122 Degrees F	-20 - 70 Degrees C -4 - 158 Degrees F
Humidity Range	0 - 90% R.H. Non-Conddensing	0 - 90% Non-Condensing

Performance

MTBF >150,000 Hours

Manufacturing

- IPC 610-A Class-III standards adhered to with 0.1 visual A.Q.L. and 100% Functional Testing.

- Boards are built to U.L. 94VO rating and are 100% Electrically tested. Boards are solder mask over bare copper or solder mask over tin nickel.

- Board size: 4.2 inches x 5.2 inches

Power

Supply Line	+5	+12	-12
Rating (mA)	420mA	50mA	50mA

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Appendix A: Schematics

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Declaration of Conformity

INDUSTRIAL COMPUTER SOURCE®

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Industrial Computer Source declares under its own and full responsibility that the following products are compliant with the protection requirements of the 89/336/EEC directives.

Only specific models listed on this declaration and labeled with the CE logo are CE compliant.

WINCOMM4

Conformity is accomplished by meeting the requirements of the following European harmonized standards:

EN 50082-1:1992	EMC Generic Immunity Standard
EN 55022:1987	Limits & Methods of measurement of interference characteristics of IT Equipment
EN 60 950	Safety of Information Technology Equipment Including Electrical Business Equipment

Information supporting this declaration is contained in the applicable Technical Construction file available from:

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September 11, 1997
San Diego, CA

Mr. Steven R. Peltier
President & Chief Executive Officer

BUG REPORT

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Manual Revision: **00750-004-14B**

Please list the page numbers and errors found. Thank you!