INDUSTRIAL COMPUTER SOURCE®

Model PC-ACB Family
Product Manual

MANUAL NUMBER :   00750-011-2B

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.

NOTE

This page intentionally left blank

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.***

Table of Contents

List of Figures

Current Revision 2B

September 1997

Chapter 1: Introduction

Congratulations! You have now entered the world of mobile Synchronous communications via the *PC-ACB* Advanced Communications Board. The *PC-ACB* is the result of responding to our customer requests for an easy to use high speed Synchronous/Asynchronous PCMCIA interface. The *PC-ACB* is available in two different models. The first model is a RS-485/422/530 Model PC-ACB/485 version that is capable of high speed/long distance communications. The second is a RS-232 Model PC-ACB/232 interface conforming to industry standards for use with CSU's, DSU's and high speed Synchronous modems. Both interfaces feature the 85233 Enhanced Serial Communication Controller (ESCC) standard.

In the last few years, the portable and notebook market has grown by leaps and bounds. Most early laptops and notebooks handled I/O expansion through proprietary expansion slots. These slots provided limited expansion for specific peripherals such as modems and FAX peripherals. Mass storage peripherals were factory installed and could not be easily changed. Interconnectivity through local area networks offered limited performance through slow parallel port network interfaces.

During this time period, two standards organizations, JEIDA and PCMCIA, were working on the standardization of memory IC cards. These cards were designed as strictly non-volatile silicon storage. JEIDA was the first to propose the 68 pin connector standard for memory cards. In 1989, PCMCIA adopted the JEIDA 68 pin standard and worked with JEIDA on further developments. A memory only interface, PCMCIA Release 1.0 was introduced in September, 1990 and is identical to the JEIDA 4.0 standard.

As the notebook market grew, the need for a standard I/O bus was seen. The PCMCIA groups saw an opportunity to meet this need with an expanded version of the 68 pin interface. Further development occurred, and within one year release 2.0 of the standard was completed. Release 2.0 was a major update to Release 1.0 and included full hardware support for I/O devices. Release 2.0 coincided with JEIDA's 4.1 release and is identical.

The *PC-ACB* continues the Industrial Computer Source tradition of an easy to use, highly reliable, and technically advanced I/O solutions.

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 Models PC-ACB/232 & PC-ACB/485 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.

Chapter 2: System Requirements

The PCMCIA Serial I/O cards provide a single serial interface the PCMCIA interface. All cards conform to the PCMCIA Type II (Release 2.01) specification for PC cards and are JEIDA 4.1 compatible.

Card and Socket Services must be loaded on the system prior to installing the **PC-ACB** card. Card and Socket Services are typically supplied by the PCMCIA slot provider (i.e. the computer manufacturer or the PC adapter manufacturer).

Socket Services are the lowest level of the PCMCIA Software hierarchy. Socket Services provide a standard interface to the higher level drivers and isolate the socket controller's specific hardware details. Socket Services provide the "BIOS" interface to the socket controller hardware. Socket Services are typically hidden under Card Services and are rarely directly accessable by application software.

Card Services provide the interface to application software and drivers. Card Services are responsible for allocating card resources and ensuring that card resources do not interfere other existing system resources. Card Services are typically implemented as a driver and are loaded via CONFIG.SYS during boot up. Almost all PCMCIA type cards require some sort of software driver. For the **PC-ACB**, the generic Card services driver provided with the computer system will install the **PC-ACB** at the next available COM port address and interrupt. Please note that the **PC-ACB** is a non-standard communications port. The **PC-ACB** is an enhanced device supporting multiple communications protocols not typically supported by standard communication ports. If this installation mode is not preferred, an "Enabler" has been provided with the **PC-ACB** that will address unique setup requirements (i.e. non standard I/O addressing, different IRQ selection etc.). Please refer to Appendix C for information on the SEAPC enabler.

This page intentionally left blank

Chapter 3: Installation

Connecting the *PC-ACB* to a computer requires no special technical skills. It is installed by simply sliding the card into a PCMCIA Type II compliant slot on the personal computer. The PCMCIA slot is keyed so that the *PC-ACB* cannot be installed backwards or upside down. The card should install with a minimal amount of pressure. Do not force the card into the slot. Forcing the card can result in damage to the *PC-ACB* and/or the PCMCIA slot. After the card has been installed into the card slot, the I/O cable should be connected to the card. The cable is keyed to prevent it from being installed incorrectly.

This page intentionally left blank

Chapter 4: I/O Address and Interrupt Selection

The *PC-ACB* board occupies 4 consecutive I/O addresses. These addresses are selected by the Card Services. Please refer to the Card Services Documentation, Appendix B and the supplied Diskette for further information.

The relative I/O addresses of the *PC-ACB* are as follows:

- Base+0   Channel A Data Port
- Base+1   Channel A Control Port
- Base+2   Channel A Data Port
- Base+3   Channel A Control Port

This page intentionally left blank

Chapter 5: Technical Description

The *PC-ACB* **A**dvanced **C**ommunications **B**oard provides a PCMCIA compliant computer with one high speed Sync/Async port. The *PC-ACB* can be used in a variety of sophisticated communications applications such as SDLC, HDLC, X.25, and high speed Async.

The *PC-ACB* utilizes the Zilog 85233 Enhanced Serial Communications Controller (ESCC). This chip features programmable baud rate, data format, and interrupt control. Refer to the *ESCC Technical Manual*, the *Zilog Datacom I/C Handbook* and the supplied Diskette for programming details on the ESCC chip.

Address and IRQ combinations are very flexible and information on selecting these combinations is available in the Card Services Documentation, Appendix B, and the supplied Diskette. Please refer to the README.DOC supplied with the *PC-ACB* for any manual updates, corrections and software specific changes.

Internal Baud Rate Generator

The baud rate of the SCC is programmed under software control. The standard oscillator supplied with the board is 16 Megahertz (MHz). Other values may be substituted to achieve a different baud rate by replacing the oscillator (Y1) with a new part. This modification must be done at the factory. Please call Industrial Computer Source Technical Support for further information on this modification.

This page intentionally left blank

Chapter 6: Connector Pin-outs

RS-530/422/485 Connector Pin-Outs   (PC-ACB/485)

	Name		Pin#	Mode
GND	Ground		7	
TDB	TX+	Transmit Positive	14	Output
TDA	TX-	Transmit Negative	2	Output
*RTSB	RTS+	Request To Send Positive	19	Output
*RTSA	RTS-	Request To Send Negative	4	Output
TSETB	TSET+	Transmit Signal Element Timing Positive.	11	Output
TSETA	TSET-	Transmit Signal Element Timing Negative	24	Output
RDB	RX+	Receive Positive	16	Input
RDA	RX-	Receive Negative	3	Input
CTSB	CTS+	Clear To Send Positive	13	Input
CTSA	CTS-	Clear To Send Negative	5	Input
RXCB	RXC+	Receive Clock Positive	9	Input
RXCA	RXC-	Receive Clock Negative	17	Input
DTRB	DTR+	Data Terminal Ready Positive	23	Output**
DTRA	DTR-	Data Terminal Ready Negitive	20	Output**

* These signals are only available if the RS-422/530 modification is performed at the factory.

NOTE:

The **PC-ACB/485** is capable of "Point To Point" RS-422/530 communications if the RTS line is asserted prior to transmitting and released after transmission (RS-485 mode). If RS-485 mode is not acceptable a simple modification can be accomplished at the factory that allows "Point to Point" communications regardless of the RTS line (like RS-232).

** DTR is hard wired "On" or "Active"

RS-232 Connector Pin-Outs   (PC-ACB/485)

Name		Pin #	Mode
GND	Ground	7	
RX	Receive Data	3	Input
CTS	Clear To Send	5	Input
TX	Transmit Data	2	Output
RTS	Request To Send	4	Output
RXC	Receive Clock	17	Input
TSET	Transmit Signal Element Timing	24	Output
DTR	Data Terminal Ready	20	Output**

** DTR is hard wired "On" or "Active"

Chapter 7: Developers Information

PC-ACB and Other ACB Products

Due to the small size of the PCMCIA Type II cards and limitations in the specification (i.e. PCMCIA Release 2.1 does not support DMA functions), there are differences between the *PC-ACB* and the other ACB products. Some of the differences are as follows:

PC-ACB	Other ACB Products
Uses the ESCC (85233) Standard	Use the SCC Standard (ESCC available)
Has a 16 MHz clock	Have a 4.9152 MHz clock
Doesn't perform DMA	Performs DMA
Has a single Clock Input (RXC)	Have Dual Clock Inputs (RXC, TRXC)
Has single Clock Output (TSET)	Have Dual Clock Outputs (TSET,TRXC)
RTS enable for Transmit *(P*C-ACB/485)	Default to Transmitter always Enabled

Recommended Readings

For information on the programming of the *PC-ACB*, a variety of resources exist.

For the ESCC, the *"SCC Users Manual"* and *"The Datacom IC Handbook"* are available from the Zilog. These books describe the ESCC registers in detail. To request these publications, contact:

Zilog, Inc.

210 East Hacienda Ave.

Campbell, CA 95008-6600

For PCMCIA Developers, the publication *"The PCMCIA Developer's Guide"* by Michael T. Mori is recommended. To contact Sycard Technology:

:

Sycard Technology

651 Smoke Tree Way

Sunnyvale, CA 94086

To contact the PCMCIA organization, write:

PCMCIA

1030 East Duane Ave., Ste. G

Sunnyvale, CA 94086

For a detailed explanation of serial communications, please refer to the book *Technical Aspects of Data Communications* by John E. McNamara, published by Digital Press (DEC) 1982.

This page intentionally left blank

Chapter 8: Specifications

Environmental

Operating:

    0 to 50 Degrees C

    32 to 122 Degrees F

Storage:

    -20 to 70 Degrees C

    -40 to 100 Degrees F

Humidity Range:

    0 to 90% R.H.

    0 to 90% R.H.

Performance

MTBF:

    > 150,000 Hours

MTTR:

    < .25 Hours

Manufacturing

- IPC 610-A Class-III standards adhered to with a 0.1 visual A.Q.L. and 100% Functionally tested.
- Boards are built to U.L. 94V0 rating and are 100% Electrically tested.
- Board conforms to PCMCIA Type II size requirements.

Power

- 5Volts at approximately 25mA.

This page intentionally left blank

Appendix A: Troubleshooting

Problem: Card Services reports that the PC Card cannot be found.

Possible Cause: The PC Card internal Card Information Structure (CIS) is not being read correctly by Card Services.

Solution: Use the supplied Client enabler program SEAPC to install the PC Card.

Problem: Card services or SEAPC successfully allocates the I/O address or IRQ but the port fails to operate.

Possible Cause: When using the I/O Client enabler program SEAPC, there is the possibility that the selected I/O address or Interrupt is already in use by another adapter in the system. Card services usually checks for available I/O address during installation or during the boot process. If new hardware or software is installed in the system that may cause an I/O address or IRQ conflict, Card Services may not be able to arbitrate the specified resources.

Solution: Select a different I/O address and IRQ.

Problem: SEAPC will not enable the port at the specified I/O address and Interrupt.

Possible Cause: Card Services flags certain I/O addresses and Interrupts as used and will not allow other Client Enabler Driver, like SEAPC to use them.

Solution: Select a different I/O address and IRQ in the SEAPC setup file.

Problem: The host system will not configure the card or the system shuts down after the PC Card is inserted.

Possible Cause: Host hardware may not supply enough power to the PCMCIA slot.

Solution: Check to make sure the PCMCIA slot is rated to supply enough power to the card. On some palmtop and battery powered systems, there is a specified limit to the available power a PCMCIA slot can use. If this is the case, try installing the card with the system powered by the AC adapter.

Problem: Card Services will not respond to card insertion events.

Possible Cause: Memory conflict, External floppy or hard disks, VGA video cards, SCSI adapters, LAN Network adapters.

Solution: Consult the Card Services documentation for instruction on memory requirements. When using DOS, it may be necessary to exclude a specified memory range in the CONFIG.SYS file.

Problem: PC Cards that are inserted will not configure properly or Card Services reports that the card is not recognized.

Possible Cause: Memory shadowing conflicts.

Solution: Make sure that memory shadowing in the PC is disabled in regions that memory windows are being used by the host PCMCIA adapter.

This page intentionally left blank

Appendix B: PCMCIA System Software Examples

Phoenix Technologies PhoenixCARD Manager Plus™

The PhoenixCARD Manager is shipped with several PC card compatible Notebook and Laptop computers, as well as IBM PCDOS 6.1

CONFIG.SYS

DEVICE=C:\PCMPLUS\PCMSS.EXE
>   Socket Services Driver

DEVICE=C:\PCMPLUS\PCMCS.EXE /WAIT=20 /ADDR=C8 /IRQ=10 /FLASH
>   Card Services

DEVICE=C:\PCMPLUS\PCMMTD.EXE
>   Memory Technology Driver

DEVICE=C:\PCMPLUS\PCMSCD.EXE /BEEP /COM=4 /RS=4
>   *Phoenix Super Client Driver. Generic enabler to configure I/O Cards*

DEVICE=C:\PCMPLUS\PCMATA.SYS /O
>   ATA Fixed Disk and SRAM cards in a DOS FAT structured format

Phoenix Card Manager Utility Programs

PCMINFO.EXE	Provides information about each PCMCIA socket and any cards that are inserted
WPCMINFO.CPL	Windows version of PCMINFO
PCMVCD.386	Windows Device Driver. Provides support for FAX and Modem Cards

SystemSoft CardSoft™ PCMCIA

SystemSoft provides PCMCIA software solutions for a number of notebook and desktop PC Card adapters.

CONFIG.SYS

DEVICE=C:\CARDSOFT\SS365SL.EXE /SIRM=FFFF /SKT=3
        Socket Services Driver

DEVICE=C:\CARDSOFT\CS.EXE
        Card Services

DEVICE=C:\CARDSOFT\CSALLOC.EXE C:\CARDSOFT\CSALLOC.INI
        Card Services resource allocation

DEVICE=C:\CARDSOFT\CARDID.EXE C:\CARDSOFT\CARDID.INI
        Generic Card enabler

CARDINFO.EXE   Scan PC card slots and lists type and manufacture of PC CARD

Appendix C: SEAPC PC Card Client Enabler

SEAPC is a PCMCIA Version 2.0 compliant DOS client that will enable the selected PC Cards I/O address and IRQ when inserted. The *SEAPC* driver is located on the supplied diskette in the PCMCIA directory. Please refer to the README.DOC file for additional information.

Features

- Allows unique addressing and IRQ selection
- Provides the highest level of compatibility with installed systems compliant with PCMCIA standard 2.0 or higher

When should I use the driver?

This PC Card Client Enabler is not needed in all situations. *SEAPC* should be used if one or more of the following conditions occur:

- The PCMCIA system software (Card and Socket Services) on the host computer will not configure the cards automatically.
- The PCMCIA system software on the host computer does not supply a configuration utility to allow the PC Card to be configured automatically.
- The configuration utility with the PCMCIA system software does not function properly.

SEAPC System Requirements

SEAPC was designed to operate on an IBM PC/AT or compatible computer. *SEAPC* requires approximately 3 kilobytes of free conventional memory. If *SEAPC* is loaded more than once, an additional 3 kilobytes plus buffer space is required for each resident copy. *SEAPC* may be used with memory managers and loaded into expanded memory. *SEAPC* requires MS-DOS or PC-DOS version 3.00 or higher and Card and Socket Services compliant with PCMCIA version 2.00 or higher.

Installation

Executing the Driver

SEAPC is a DOS Terminate and Stay Resident (TSR) program that can be executed from the DOS command prompt or from the AUTOEXEC.BAT file. For additional information on the AUTOEXEC.BAT file, please refer to the DOS manual. When *SEAPC* is executed, a setup file must be specified on the command line.

Command Line Options

To display the available command line options, Type "*SEAPC* /?" at the DOS command prompt. The following should be displayed.

    C:>SEAPC /?

Syntax:	SEAPC [/F:file] [/U] [/I] [/V] [/?]
/F:[file]	Where file is the configuration file
/U	Unconditional installation
/I	Display info on resident copies of SEAPC without installing the enabler
/V	Show verbose installation information
/?	Display command line options, inhibit driver from loading

* Please note that the /F: option is the only required command line parameter. If the setup file is not located in the default directory, the drive and path must be specified. The following section details the syntax of the setup file.

Setup File

An example setup file named SEAPC.INI is provided on the diskette. This file may be edited with the DOS EDIT utility. The following is the syntax for a PC Card configuration:

    [card]
    BaseIO=*Base I/O address*
    IRQ=*Interrupt Request Signal*
    Type=*Device Type*
    Interface=*Electrical Interface Utilized*

* Please note that all items in *italics* need to be provided by the user. The following is a description of each entry in the setup file:

BaseIO   Base I/O address in Hexadecimal. Valid ranges are from 0 - 3FFh. Please note that some ranges may be reserved by the PCMCIA system software or occupied by other peripherals in the host computer system.

IRQ   Interrupt Request Signal in Decimal. Valid ranges are from 2-15. Please note that some IRQs be reserved by the PCMCIA system software or occupied by other peripherals in the host computer system.

Type   Device Type. Valid options are UART or SCC

Interface   Electrical Interface Utilized. Valid options are RS-232, RS-422, RS-485. Please note that in the scope of the driver, RS-422 and RS-485 are viewed as the same value.

A semicolon (;) at the beginning of a line denotes a comment and the remainder of that line is ignored. Note the above syntax is an example for one card. Multiple cards (up to eight) may be configured using the following syntax:

    ;First Card
    [card]
    BaseIO=238
    IRQ=10
    Type=SCC
    Interface=RS-232

    ; Second Card
    [card]
    BaseIO=280
    IRQ=11
    Type=UART
    Interface=RS-422

Using the PC Card on platforms other than ISA

Most PCMCIA systems are based on the standard PC (ISA) architecture, however in some situations it may be necessary to install the PC Card in a non ISA system (for example Micro-channel or PCI. For this reason, the setup file has an additional parameter that allows pulse mode interrupts. An ISA system uses level mode interrupts which is the default setting for ***SEAPC***. To enable pulse mode interrupts, add the following line to the setup file:

    IRQMode=Pulse

Remember this feature will only work on a platform that supports pulse mode interrupts and with the Card and Socket services that support pulse mode interrupts.

This page intentionally left blank

Appendix D: Communication Standards Technical Reference

Serial communications, synchronous or asynchronous are typically implemented with a Recommended Standard (RS). In most cases, the standard is set by the Electronic Industries Association (EIA). The standard usually defines signal levels, maximum bandwidth, connector pin-out, supported handshaking signals, drive capabilities, and electrical characteristics of the serial lines.

The DB-25P connectors meet the EIA-530 and the RS-232 specification for DTE devices. The following sections contain a brief summary of RS-422, EIA-530, RS-485 and RS-232.

RS-485

RS-485 is backwardly compatible with RS-422; however, it is optimized for partyline or multi-drop applications. The output of the RS-485 driver is capable of being **Active** (enabled) or **Tri-State** (disabled). This capability allows multiple ports to be connected in a multi-drop bus and selectively polled. Half-duplex two-wire operation is possible by connecting TX+ to RX+ and TX- to RX- in the cable hood. The enable to the driver is connected to the SCC Request To Send (RTS) line for RS-485 communications. This connection allows the RS-485 driver to be Tri-Stated when inactive on a multi-drop polled network. The software must "know how" to enable the driver (assert RTS) when answering a poll.
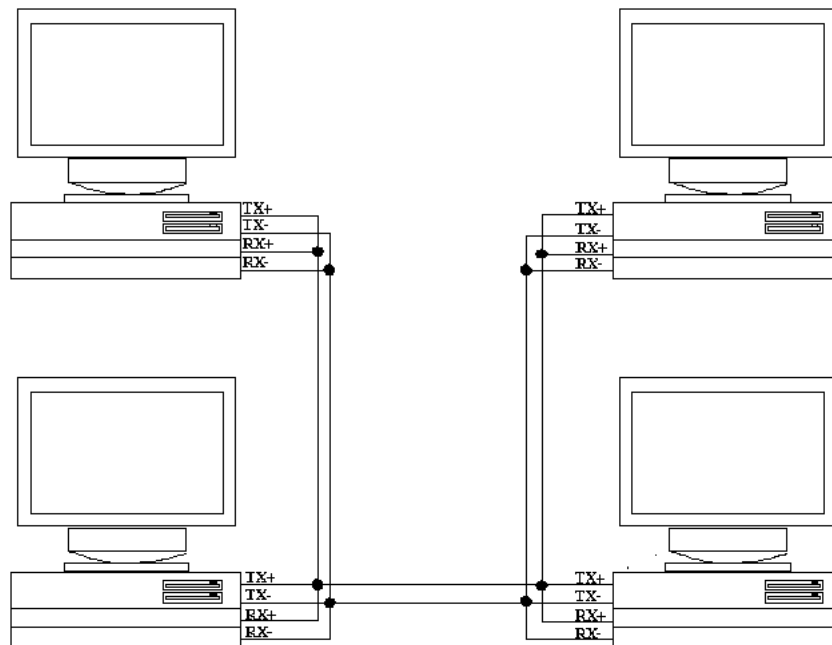

Figure 1: RS-485 Mode Example

RS-422

RS-422 allows very long distance (5000 feet at 9600 baud) communications with virtually error free differential drive characteristics. RS-422 has the same electrical standard used with RS-449. Unfortunately, this standard does not have a mechanical standard. This oversight means that no standard pin-out exists, therefore each user must customize the interface cable to provide compatibility between RS-422 peripherals.

EIA-530

EIA-530 compatibility means that RS-422 signal levels are met, and that the pin-out of the DB-25 connector is specified. The EIA-530 specification was created to detail the pin-out. EIA-530 is similar to RS-449, which calls for RS-422 signals on a DB-37 connector. The EIA-530 is broken into two interfaces: DTE and DCE, much like RS-232. In addition to the asynchronous modem control signals on a standard PC serial port, EIA-530 specifies *Synchronous Clock Signals, Modem Test, and Loop-Back* signals. The **PC-ACB**-422 (Part # 3610) has an EIA-530 DTE interface minus the *Modem Test* and *Loopback signals.*

Figure 2: RS-422 Mode Example

RS-232

RS-232 has been the de facto standard for PC communications since the introduction of the IBMâ PC. This electrical/mechanical standard is met by the **PC-ACB** (Part # 3611) for interfacing standard RS-232 modems, gateways, channel banks, CSUs, DSUs and a variety of other common communication equipment. The **PC-ACB**-232 (Part # 3611) has an EIA-232 DTE interface.

Cabling and Flow Control

The cabling configuration used with **PC-ACB** will depend on two factors: the handshaking options required by software, the clocking requirements and the recommended communication standard that is being implemented (i.e. RS-232, RS-422, etc.). If modem control signals are not used, the signals should be tied to a fixed logic level. When using a differential interface, like RS-422 or RS-485, each signal requires two connections. For example, when cabling DTE to DTE, TD+ is connected to RD+ and TD- is connected to RD-.

Declaration of Conformity

INDUSTRIAL COMPUTER SOURCE®

6260 Sequence Drive
San Diego, CA 92121-4371
(800) 523-2320

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.

PC-ACB/232   PC-ACB/485

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:

INDUSTRIAL COMPUTER SOURCE EUROPE°

Z.A. de Courtaboeuf
16, Avenue du Québec
B.P. 712
91961 LES ULIS Cedex

September 10, 1997
San Diego, CA

Mr. Steven R. Peltier
President & Chief Executive Officer

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:

INDUSTRIAL COMPUTER SOURCE ®

Attn: Documentation Department
P. O. Box 910557
San Diego, CA 92121-0557

Your Name: _____

Company Name: _____

Address 1: _____

Address 2: _____

Mail Stop: _____

City: _____ State: _____ Zip: _____

Phone: (_____) _____

Product: **PC-ACB Family**

Manual Revision: **00750-011-2B**

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