SEALEVEL®
SYSTEMS INCORPORATED

ACB-232.LPCI™
USER MANUAL

Part # 5103

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Introduction

Overview

The ***ACB-232.LPCI*** adapter provides the PC with a single channel multi-protocol serial interface utilizing the Zilog Z85230 (ESCC™), which is suitable for the most popular communication protocols including HDLC/SDLC, X.25, Bi-Sync, Mono-Sync, and asynchronous.

The ***ACB-232.LPCI*** is compliant with EIA/TIA-232E.

What's Included

The ***ACB-232.LPCI*** is shipped with the following items. If any of these items are missing or damaged, contact the supplier.

- ***ACB-232.LPCI*** Adapter
- Sealevel Software
- Standard PCI Profile Bracket

Installation

Operation System Installation

Note: For the5103 to work properly in Windows 2000, Plug and Play OS must be turned off in the BIOS.

Choose **Install Software** at the beginning of the CD and select **Install SeaMAC**.

System Installation

The ***ACB-232.LPCI*** can be installed in any of the PCI expansion slots.

1. Turn off PC power. Disconnect the power cord.
2. Remove the PC case cover.
3. Locate an available PCI slot and remove the blank metal slot cover.
4. Gently insert the ***ACB-232.LPCI*** into the slot. Make sure the adapter is seated properly.
5. Replace the screw.
6. Replace the cover.
7. Connect the power cord.

Installation is complete.

Technical Description

The ***ACB-232.LPCI*** utilizes the Zilog 85230 **E**nhanced **S**erial **C**ommunications **C**ontroller (ESCC). This chip features programmable baud rate, data format and interrupt control. Refer to the ESCC Users Manual for details on programming the 85230 ESCC chip.

Features

- One channel of synchronous or asynchronous communications using the Zilog Z85230 chip
- EIA/TIA-232 Signals supported TD, RD, CTS, RTS, DCD, DSR, DTR, TXC, RXC, TSET, RI
- Programmable options for Transmit clock as input or output
- Software programmable baud rate

Internal Baud Rate Generator

The baud rate of the ESCC is programmed under software control. The standard oscillator supplied with the board is 7.3728 MHz. However, other oscillator values can be substituted to achieve different baud rates.

I/O Registers Definition - Control and Status

The control and status registers occupy 16 consecutive locations. The following tables provide a functional description of the bit positions.

X = do not care { }= always this value

Address	Mode	D7	D6	D5	D4	D3	D2	D1	D0
Base+4	RD	{0}	IRQST	{0}	{0}	{0}	{0}	{0}	{0}
Base+4	WR	X	X	X	X	X	X	X	X
Base+5	RD	{0}	{0}	SYNCA_RTS	SYNCA_CTS	{0}	{0}	{0}	{0}
Base+5	WR	X	X	SYNCA_RTS	SYNCA_CTS	X	X	X	X
Base+6	RD	{0}	{0}	{0}	TXOUT	RIOUT	DSROUT	TSETSLA	RXCOPTA
Base+6	WR	X	X	X	TXOUT	RIOUT	DSROUT	TSETSLA	RXCOPTA
Base+14	RD	SD7	SD6	SD5	SD4	SD3	SD2	SD1	SD0
Base+15	RD	SD15	SD14	SD13	SD12	SD11	SD10	SD9	SD8

Field	Description
	Base +4
IRQST	SCC interrupt status: 1 = No interrupt pending on IUSC; 0 = Interrupt pending on IUSC.
	Base +5
SYNCA_RTS	SYNCA _RTS – 0 = SYNCA is high, 1 = SYNCA connected to RTS (0 on power up)
SYNCA_CTS	SYNCA_CTS – 0 = SYNCA is high, 1 = SYNCA connected to CTS (0 on power up)
	Base +6
TSETSLA	CHAN A – TSET clock source 0 = TRXCA as source, 1= received TXC as source (0 on power up)
RXCOPTA	RXCOPTA – 0 = selects received RXC for RTXCA, 1 = selects SCC PCLK for RTXCA (0 on power up)
DSROUT	DSROUT – 0 = DSR not routed to SCC 1 = DSR routed to SCC DCDB (0 on power up)*
RIOUT	RIOUT – 0 = RI not routed to SCC 1 = RI routed to SCC CTSB (0 on power up)**
TXOUT	TXOUT – 0 = TXD routed from SCC to 1488 1 = Forces TXD always a high (for idle mark bug in ESCC)***
	Base +14 and 15
SD0-SD15	Optional security feature. Unique value per customer or application. (default value = FFFF)

* DSR- is connected to Port B DCD on the 85230 only when this bit is set to a 1. If 9015 compatibility is required, this bit must be set as part of the SCC initialization.

** RI- is connected to Port B CTS on the 85230 only when this bit is set to a 1. If 9015 compatibility is required, this bit must be set as part of the SCC initialization.

25 Pin Connector Signal Layouts (DB-25 Male)

RS-232 Signals

Signal	Name	Pin #	Mode
GND	Ground	7	
RD	Receive Data	3	Input
CTS	Clear To Send	5	Input
DSR	Data Set Ready	6	Input
DCD	Data Carrier Detect	8	Input
TXC	Transmit Clock	15	Input
RXC	Receive Clock	17	Input
RI	Ring Indicator	22	Input
TSET	Transmit Signal Element Timing	24	Output
DTR	Data Terminal Ready	20	Output
TD	Transmit Data	2	Output
RTS	Request To Send	4	Output

RI- is connected to Port B CTS on the 85230 and the enable bit is set in Base+6.
DSR- is connected to Port B DCD on the 85230 the enable bit is set in Base+6.

Technical Note: Please terminate any control signals that are not going to be used. The most common way to do this is connect RTS to CTS and RI. Also, connect DCD to DTR and DSR. Terminating these pins, if not used, will help insure you get the best performance from your adapter.

Specifications

Environmental Specifications

Specification	Operating	Storage
Temperature Range	0 to 50 º C (32 to 122 º F)	-20 to 70 º C (-4 to 158 ºF)
Humidity Range	10 - 90% R.H. Non Condensing	10 - 90% R.H. Non Condensing

Power Consumption

Supply line	+12VDC	-12VDC	+5 VDC
Rating	50mA	50mA	350 mA

Mean Time Between Failures (MTBF)

Greater than 150,000 hours. (Calculated)

Physical Dimensions

Board length	4.721 inches	(11.99 cm)
Board Height including Goldfingers	2.536 inches	(6.44 cm)
Board Height excluding Goldfingers	2.211 inches	(5.62 cm)

Appendix A - Troubleshooting

The Sealevel Software is supplied with the Sealevel Systems adapter and will be used in the troubleshooting procedures. Using this software and following these simple steps can eliminate most common problems without the need to call Technical Support.

1. Identify all I/O adapters currently installed in your system. This includes the on-board serial ports, controller cards, sound cards etc. The I/O addresses used by these adapters, as well as the IRQ (if any) should be identified.
2. Make sure the Sealevel Systems adapter is securely installed in a PCI slot.
3. Use the supplied software and User Manual to verify that the Sealevel Systems adapter is configured correctly.
4. Windows users can use the installed programs in the SeaMAC folder to verify operation.

Appendix B - How To Get Assistance

Please refer to Troubleshooting Guide prior to calling Technical Support.

1. Begin by reading through the Trouble Shooting Guide in Appendix A. If assistance is still needed please see below.
2. When calling for technical assistance, please have your user manual and current adapter settings. If possible, please have the adapter installed in a computer ready to run diagnostics.
3. Sealevel Systems provides an FAQ section on its web site. Please refer to this to answer many common questions. This section can be found at http://www.sealevel.com/faq.htm .
4. Sealevel Systems maintains a Home page on the Internet. Our home page address is www.sealevel.com. The latest software updates, and newest manuals are available via our FTP site that can be accessed from our home page.
5. Technical support is available Monday to Friday from 8:00 a.m. to 5:00 p.m. eastern time. Technical support can be reached at (864) 843-4343.

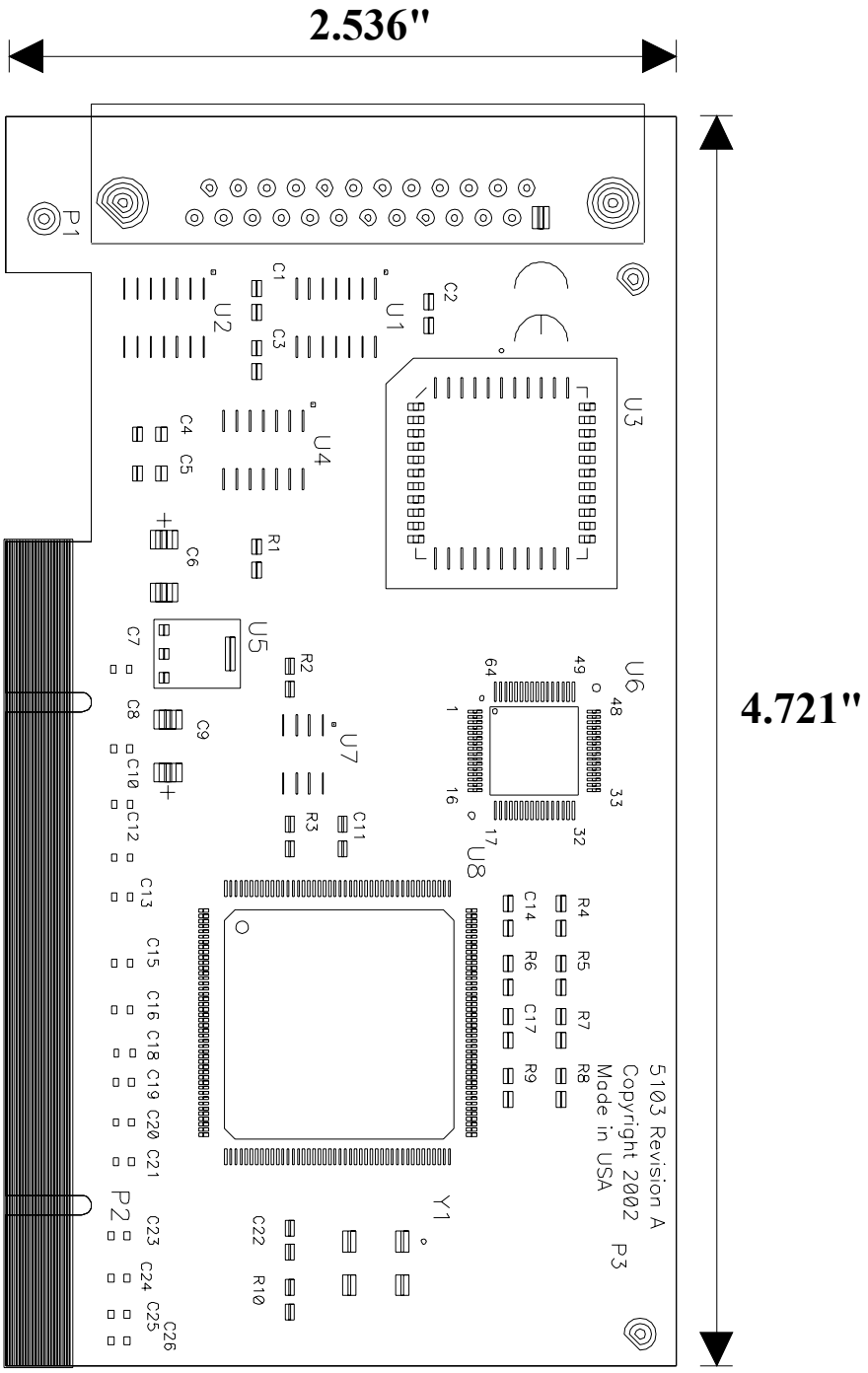
RETURN AUTHORIZATION MUST BE OBTAINED FROM SEALEVEL SYSTEMS BEFORE RETURNED MERCHANDISE WILL BE ACCEPTED. AUTHORIZATION CAN BE OBTAINED BY CALLING SEALEVEL SYSTEMS AND REQUESTING A RETURN MERCHANDISE AUTHORIZATION (RMA) NUMBER.

Appendix C - Electrical Interface

RS-232 Or EIA/TIA-232

Quite possibly the most widely used communication standard is RS-232. This implementation has been defined and revised several times and is often referred to as RS-232 or EIA/TIA-232. It is defined by the EIA as the *Interface between Data Terminal Equipment and Data Circuit- Terminating Equipment Employing Serial Binary Data Interchange*. The mechanical implementation of RS-232 is on a 25-pin D sub connector. RS-232 is capable of operating at data rates up to 20 Kbps at distances less than 50 ft. The absolute maximum data rate may vary due to line conditions and cable lengths. RS-232 often operates at 38.4 Kbps over very short distances. The voltage levels defined by RS-232 range from -12 to +12 volts. RS-232 is a single ended or unbalanced interface, meaning that a single electrical signal is compared to a common signal (ground) to determine binary logic states. A voltage of +12 volts (usually +3 to +10 volts) represents a binary 0 (space) and -12 volts (-3 to -10 volts) denotes a binary 1 (mark). The RS-232 and the EIA/TIA-574 specification defines two type of interface circuits, Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE). The Sealevel Systems adapter is a DTE interface.

Appendix D - Silk-Screen



Appendix E - Compliance Notices

Federal Communications Commission Statement

FCC - This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in such case the user will be required to correct the interference at his own expense.

EMC Directive Statement

Products bearing the CE Label fulfill the requirements of the EMC directive (89/336/EEC) and of the low-voltage directive (73/23/EEC) issued by the European Commission.

To obey these directives, the following European standards must be met:

- **EN55022 Class A** - "Limits and methods of measurement of radio interference characteristics of information technology equipment"
- **EN55024** -'Information technology equipment Immunity characteristics Limits and methods of measurement'
- **EN60950 (IEC950)** - "Safety of information technology equipment, including electrical business equipment"

Warning

This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Always use cabling provided with this product if possible. If no cable is provided or if an alternate cable is required, use high quality shielded cabling to maintain compliance with FCC/EMC directives.

Warranty

Sealevel Systems, Inc. provides a limited lifetime warranty. Should this product fail to be in good working order at any time during this period, Sealevel Systems will, at it's option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Sealevel Systems assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Sealevel Systems will not be liable for any claim made by any other related party.

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Technical Support is available from 8 a.m. to 5 p.m. Eastern time.
Monday - Friday

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