

# ACB-232.LPCI™

User Manual | 5103



SEALEVEL®

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# Introduction

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.

# Before You Get Started

## 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**
- **Standard PCI Profile Bracket**

## Advisory Conventions



### **Warning**

The highest level of importance used to stress a condition where damage could result to the product, or the user could suffer serious injury.



### **Important**

The middle level of importance used to highlight information that might not seem obvious or a situation that could cause the product to fail.



### **Note**

The lowest level of importance used to provide background information, additional tips, or other non-critical facts that will not affect the use of the product.

# Software Installation

## Windows 98/ME/2000/XP/Vista™ Operating Systems



*Do not connect the device to a USB port until the software is installed.*

1. Begin by locating, selecting, and installing the correct SeaMAC software from the [Sealevel software driver database](#).
2. Select the Part Number (5103) for your device from the listing. Select **'Download Now'** for the version of [SeaMAC software](#) that is compatible with your system.
3. The setup file will automatically detect the operating environment and install the proper components. Follow the information presented on the installation screens that follow.
4. A screen may appear with the declaration: "The publisher cannot be determined due to the problems below: Authenticode signature not found." Please select the 'Yes' button and proceed with the installation. This declaration simply means that the Operating System is not aware of the driver being loaded. It will not cause any harm to your system.
5. During setup, you may specify installation directories and other preferred configurations. This program also adds entries to the system registry that are necessary for specifying the operating parameters for each driver. An uninstall option is included to remove the driver and all registry/INI file entries from your system.
6. Proceed with the physical installation of your SeaLINK USB serial adapter.



Windows NT is not USB aware and thus cannot support this device.

# Hardware 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 Enhanced Serial Communications Controller (ESCC). This chip features programmable baud rate, data format and interrupt control. Refer to the ESCC User's 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

## Technical Description, Continued

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



## Technical Description, Continued

### 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.



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° C (32° to 122° F)	-20° to 70° C (-4° to 158° F)
Humidity Range	10 to 90% R.H. Non-Condensing	10 to 90% R.H. Non-Condensing

## Mean Times Between Failures (MTBF)

Greater than 150,000 hours. (Calculated)

## Power Consumption

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

## 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

Following these simple steps can eliminate most common problems.

1. Read this manual thoroughly before attempting to install the adapter in your system.
2. **Install software first.** This places the required installation files in the correct locations. After installing the software, proceed to the physical installation section of this manual.
3. Identify all I/O adapters currently installed in your system. This includes your 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.
4. Configure your Sealevel Systems adapter so that there is no conflict with currently installed adapters. No two adapters can occupy the same I/O address.
5. Try the Sealevel Systems adapter with a unique IRQ. While the Sealevel Systems adapter does allow the sharing of IRQs, many other adapters (i.e., SCSI adapters and on-board serial ports) do not.
6. Make sure the Sealevel Systems adapter is securely installed.
7. For Windows 2000/XP, the diagnostic tool '[WinSSD](#)' is installed the SeaMAC folder on the Start Menu during the setup process. First find the ports using the Device Manager, then use 'WinSSD' to verify that the ports are functional.
8. Always use Sealevel Systems diagnostic software when troubleshooting a problem. This will eliminate any software issues from the equation.

If these steps do not solve your problem, please call Sealevel Systems' Technical Support, (864) 843-4343. Our technical support is free and available from 8:00AM-5PM Eastern Time, Monday through Friday. For email support contact [support@sealevel.com](mailto:support@sealevel.com).

# Appendix B – How To Get Assistance

Begin by reading through the Trouble Shooting Guide in Appendix A. If assistance is still needed please see below.

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.

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.asp>.

Sealevel Systems maintains a Home page on the Internet. Our home page address is <http://www.sealevel.com>. The latest software updates, and newest manuals are available via our FTP site that can be accessed from our home page.

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.

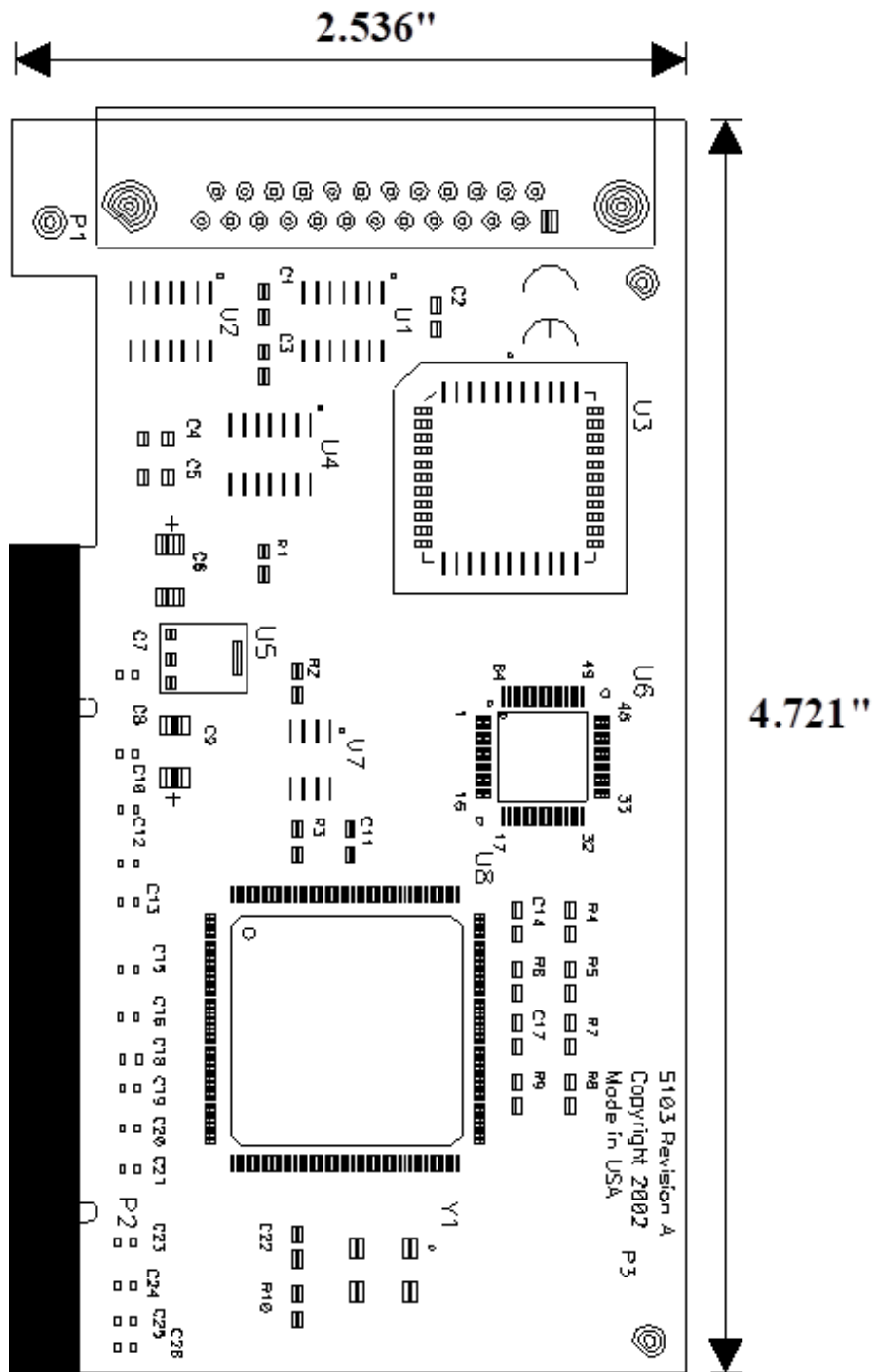
**RETURN AUTHORIZATION MUST BE OBTAINED FROM SEALEVEL SYSTEMS BEFORE RETURNED MERCHANDISE WILL BE ACCEPTED. AUTHORIZATION CAN BE OBTAINED BY CALLING SEALEVEL SYSTEMS AND REQUESTING A RETURN MERCHANDISE AUTHORIZATION (RMA) NUMBER.**

# 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 (FCC) Statement



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".



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's commitment to providing the best I/O solutions is reflected in the Lifetime Warranty that is standard on all Sealevel manufactured I/O products. We are able to offer this warranty due to our control of manufacturing quality and the historically high reliability of our products in the field. Sealevel products are designed and manufactured at its Liberty, South Carolina facility, allowing direct control over product development, production, burn-in and testing. Sealevel achieved ISO-9001:2015 certification in 2018.

## Warranty Policy

Sealevel Systems, Inc. (hereafter "Sealevel") warrants that the Product shall conform to and perform in accordance with published technical specifications and shall be free of defects in materials and workmanship for the warranty period. In the event of failure, Sealevel will repair or replace the product at Sealevel's sole discretion. Failures resulting from misapplication or misuse of the Product, failure to adhere to any specifications or instructions, or failure resulting from neglect, abuse, accidents, or acts of nature are not covered under this warranty.

Warranty service may be obtained by delivering the Product to Sealevel and providing proof of purchase. Customer agrees to ensure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to Sealevel, and to use the original shipping container or equivalent. Warranty is valid only for original purchaser and is not transferable.

This warranty applies to Sealevel manufactured Product. Product purchased through Sealevel but manufactured by a third party will retain the original manufacturer's warranty.

## Non-Warranty Repair/Retest

Products returned due to damage or misuse and Products retested with no problem found are subject to repair/retest charges. A purchase order or credit card number and authorization must be provided in order to obtain an RMA (Return Merchandise Authorization) number prior to returning Product.

## How to obtain an RMA (Return Merchandise Authorization)

If you need to return a product for warranty or non-warranty repair, you must first obtain an RMA number. Please contact Sealevel Systems, Inc. Technical Support for assistance:

Available	Monday – Friday, 8:00AM to 5:00PM EST
Phone	864-843-4343
Email	<a href="mailto:support@sealevel.com">support@sealevel.com</a>

## Trademarks

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